San Joaquin Valley
Unified Air Pollution Control District
Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-2

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For NO_x Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1425 lbs.	1689 lbs.	1612 lbs.	1776 lbs.

Transferred Ownership to
S-1650-2
Project 1010860

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

LABEL OR

92
VEL
S-0002-2
920716

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

S-0033

Printed on Recycled Paper.

San Joaquin Valley
Unified Air Pollution Control District
Southern Regional Office * 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-3

P920024

Consumed by ERCs S-1292-3 and S-1293-3 2/8/00.

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

LMS

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
4570 lbs.	5416 lbs.	5166 lbs.	5695 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Printed on Recycled Paper.

33 - 920024

San Joaquin Valley
Unified Air Pollution Control District
Southern Regional Office * 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-4

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For PM_{10} Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1584 lbs.	1877 lbs.	1791 lbs.	1974 lbs.

Transferred Ownership to
S-1650-4
Project 1010860

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

Printed on Recycled Paper.

San Joaquin Valley
Unified Air Pollution Control District
Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-5

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For SO_X Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
55479 lbs.	65755 lbs.	62724 lbs.	69141 lbs.

Transferred Ownership to
S-1650-5
Project 1010860

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

Printed on Recycled Paper.

San Joaquin Valley
Unified Air Pollution Control District
Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-5

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For SO_X Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
55479 lbs.	65755 lbs.	62724 lbs.	69141 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

GES EMISSION REDUCTION CREDIT CERTIFICATE FINAL BILLING 12/17/92

TEXACO REFINING AND MARKETING INC.
MR. DONALD SLACK
P.O. BOX 1476
BAKERSFIELD, CA 93302

DECEMBER 17, 1992

APPLICATION NUMBER	HOURS BILLED	RATE ($/HR)	TOTAL FEE	FEE PAID	FEE DUE
2007027/101/201/304/401/601	15.5	33.40	517.77	650.00	0.00

TOTAL FEES DUE	0.00
CREDIT	0.00
TOTAL AMOUNT DUE	0.00

APPLICATION	METHOD OF GENERATING REDUCTION	QTR/SEC/TWN/RGE
2007027/101 /201/304/401/601	REMOVAL OF INCINERATOR ID#16M101	NE/27/29S/27E

APPROVED PROJECT EMISSIONS CHANGE AND NEW SOURCE REVIEW BALANCE

PROJECT ENGINEER: Glen Stephens

PROJECT #: 920716

NSPS PROJECT: ___ YES ✓ NO

DATE: 12/17/92

COMPANY NAME: Texaco Refining and Marketing, Inc.

ERC
~~ATC~~ NUMBERS: 2007-07/101/201/301/401/601

PROJECT DESCRIPTION: ERC for the Shutdown of SRU#1 Incinerator

LOCATION: Sec. NE¼ 27 T 29S R 27E APPROVAL DATE: ___/___/___

PROJECT'S EMISSIONS CHANGE (See analysis for details.):

Pollutant:	PM	SO_4	SO_2	NO_2	VOC	CO	___
Change (+/-)*: lbm/day	NA	NA	NA	NA (OFFSET)	NA (OFFSET)	NA	___

NEW SOURCE REVIEW BALANCE: (Whole stationary source since 9/29/79.):

Pollutant:	PM	SO_4	SO_2	NO_2	VOC	CO	___
Change (+/-)*: lbm/day	NO Change to NSR BALANCE			NA	NA	___	___

RECORD OF EMISSIONS REDUCTION BANKING:

Banking certificate issued for reduction resulting from this project: __ Yes __ No

Certificate(s) issuance date: 12/17/92 Certificate(s) number(s): S-0002-2

S-0002-3 S-0002-4 S-0002-5 _____ _____ _____

RECORD OF USE OF BANKED EMISSIONS REDUCTION FOR THIS PROJECT:

Certificate(s) used as tradeoff(s): _____ _____ _____

_____ _____ _____

* If analysis includes emission profiles, indicate maximum increase (or minimum reduction) and attach copy of profiles.

PROOF OF PUBLICATION

State of California ~ss
County of Kern ~

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of 18 years, and not a party to or interested in the above entitled matter. I am the assistant principal clerk of the printer of The Bakersfield Californian, a newspaper of general circulation, printed and published daily in the City of Bakersfield, county of Kern, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Kern, State of California, under date of February 5, 1952, Case Number 57610; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

12/27

all in the year 1992

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Roslyn T. Williams
Signature

Dated at Bakersfield, Ca
DEC. 28, 1992

ROSLYN T WILLIAMS

Proof of Publication of:

83

NOTICE OF FINAL ACTION

NOTICE OF FINAL ACTION ON PROPOSED STATIONARY SOURCE EMISSION REDUCTION CREDIT (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, the Air Pollution Control Officer has made a final decision to issue Emission Reduction Credit Certificates #S-0092-2, '-3, '-4, and '-5 to Texaco Refining and Marketing, Inc for NOx, CO, PM10, and SOx emission reductions resulting fromt he removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

The District's finalized analysis, public comments and certificate are available for inspection at the District's Southern Region Office contact Glen Stephens of the Permit Services Division located at 2700 "M" Street, Suite 275, Bakersfield, California 93301, (805) 861-3682.
December 27, 1992 (83)

RECEIVED
DEC 30 1992
SAN JOAQUIN VALLEY UNIFIED
APCD—SOUTHERN REGION

PROOF OF PUBLICATION

(A1)PROOF of Story '#83' Requested by 10JANELL ($F603) on 12/23/92 9:10:33

Ad # #83 Ad type C Basket BAD CREDIT Desk CREDIT
Entered By 10JANELL On 12/23/92 at 9:10 For 10JANELL
Account 1KCA1S Class 520 Dis Sales 10 Ins Sales 10
Name EY A.P.C.D. SAN JOAQUIN VALL Phone (805) 8613682
Addr 2700 M ST STE 275 GB/PO FINAL ACTION
City BAKERSFIELD State CA Zip 933012370
Ad Start 12/27/92 Times 1 Stop 12/27/92 Rate L1
38 Billing lines 2.66 Inches
Total $34.20 Adcost 34.20

Remarks:

LN# OUTPUT TEXT

NOTICE OF FINAL ACTION
ON PROPOSED STATIONARY
SOURCE EMISSION
REDUCTION CREDIT (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, the Air Pollution Control Officer has made a final decision to issue Emission Reduction Credit Certificates #S-0002-2, '-3, '-4, and '-5 to Texaco Refining and Marketing, Inc for NOx, CO, PM10, and SOx emission reductions resulting from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

The District's finalized analysis, public comments and certificate are available for inspection at the District's Southern Region Office contact Glen Stephens of the Permit Services Division located at 2700 "M" Street, Suite 275, Bakersfield, California 93301, (805) 861-3682.
December 27, 1992 (83)

RECEIVED
DEC 28 1992
SAN JOAQUIN VALLEY UNIFIED
APCD—SOUTHERN REGION

PROOF OF PUBLICATION

State of California ~ss
County of Kern ~

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of 18 years, and not a party to or interested in the above entitled matter. I am the assistant principal clerk of the printer of The Bakersfield Californian, a newspaper of general circulation, printed and published daily in the City of Bakersfield, county of Kern, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Kern, State of California, under date of February 5, 1952, Case Number 57610; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

10/26

all in the year 1992

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

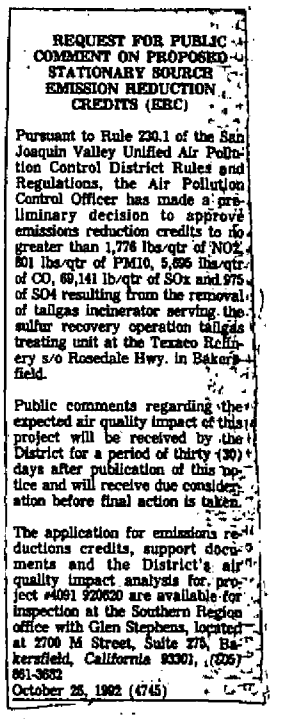
Dated at Bakersfield, Ca
OCT. 26, 1992

ROSLYN WILLIAMS

Proof of Publication of:

4745

REQUEST FOR PUBLIC COMMENT



REQUEST FOR PUBLIC COMMENT ON PROPOSED STATIONARY SOURCE EMISSION REDUCTION CREDITS (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, the Air Pollution Control Officer has made a preliminary decision to approve emissions reduction credits to no greater than 1,776 lbs/qtr of NO2, 801 lbs/qtr of PM10, 5,895 lbs/qtr of CO, 69,141 lb/qtr of SOx and 975 of SO4 resulting from the removal of tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

Public comments regarding the expected air quality impact of this project will be received by the District for a period of thirty (30) days after publication of this notice and will receive due consideration before final action is taken.

The application for emissions reductions credits, support documents and the District's air quality impact analysis for project #4091 920620 are available for inspection at the Southern Region office with Glen Stephens, located at 2700 M Street, Suite 275, Bakersfield, California 93301, (805) 861-3682

October 26, 1992 (4745)

PROOF OF PUBLICATION

Copy of Story '#4745' Requested by 10JANELL ($F603) on 10/23/92 8:36:16

Ad # #4745 Ad type C Basket BAD CREDIT Desk CREDIT
Entered By 10JANELL On 10/23/92 at 8:36 For 10JANELL
Account 1KCA15 Class 397 Dis Sales 10 Ins Sales 10
Name EY A.P.C.D. SAN JOAQUIN VALL Phone (805) 8613682
Addr 2700 M ST STE 275 GB/PO PUB COMMENT
City BAKERSFIELD State CA Zip 933012370
Ad Start 10/26/92 Times 1 Stop 10/26/92 Rate L1
49 Billing lines 3.49 Inches
Total $44.10 Adcost 44.10

Remarks: Atten Tom Goff

LN# OUTPUT TEXT

1
2 REQUEST FOR PUBLIC
3 COMMENT ON PROPOSED
4 STATIONARY SOURCE
5 EMISSION REDUCTION
6 CREDITS (ERC)
7
8 Pursuant to Rule 230.1 of the San
9 Joaquin Valley Unified Air Pollu-
10 tion Control District Rules and
11 Regulations, the Air Pollution
12 Control Officer has made a pre-
13 liminary decision to approve
14 emissions reduction credits to no
15 greater than 1,776 lbs/qtr of NO2,
16 801 lbs/qtr of PM10, 5,695 lbs/qtr
17 of CO, 69,141 lb/qtr of SOx and 975
18 of SO4 resulting from the removal
19 of tailgas incinerator serving the
20 sulfur recovery operation tailgas
21 treating unit at the Texaco Refin-
22 ery s/o Rosedale Hwy. in Bakers-
23 field.
24
25 Public comments regarding the
26 expected air quality impact of this
27 project will be received by the
28 District for a period of thirty (30)
29 days after publication of this no-
30 tice and will receive due consider-
31 ation before final action is taken.
32
33 The application for emissions re-
34 ductions credits, support docu-
35 ments and the District's air
36 quality impact analysis for pro-
37 ject #4091 920620 are available for
38 inspection at the Southern Region
39 office with Glen Stephens, located
40 at 2700 M Street, Suite 275, Ba-
41 kersfield, California 93301, (805)
42 861-3682
43 October 26, 1992 (4745)

RECEIVED
OCT 23 1992
SAN JOAQUIN VALLEY UNIFIED
APCD—SOUTHERN REGION

San Joaquin Valley
Unified Air Pollution Control District

December 22, 1992

Donald J. Slack
Supervisor Environmental, Safety & Health
Texaco Refining and Marketing, Inc.
P.O. Box 1476
Bakersfield, California 93302

Dear Mr. Bergstrom:

SUBJECT: Emission Reduction Credit Certificates and Final Public Notice - Project 2007 920716

Please find enclosed Emissions Reduction Credit certificates Nos. S-0002-2, S-0002-3, S-0002-4 and S-0002-5, and a copy of the final public notice for the above project for emission reductions of NO2, CO, PM_{10} and SO2 from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mr. Glen Stephens of the Permit Services Division at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:gs
Enclosures
c: Tom Goff - Permit Services Manager/Southern Region

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region
4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-6652

Central Region
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region
2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

Printed on Recycled Paper

San Joaquin Valley
Unified Air Pollution Control District

December 22, 1992

Mr. Raymond Menebroker, Chief
California Air Resource Board
Project Review Branch
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

Dear Mr. Menebroker:

SUBJECT: **Final Public Notice - Emission Reduction Credits**
Project 2007 920716

The District has issued an Emission Reduction Credit (ERC) certificates for project #2007 920716 to Texaco Refining and Marketing, Inc. for reduction of PM10, SO2, NO2 and CO from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield. The District has received no public comment on this project. Enclosed is a copy of the banking certificate documents and the final public notice.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mr. Glen Stephens of the Permit Services Division at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:gs
Enclosures
c: Thomas Goff - Permit Services Manager/Southern Region

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region
4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

Central Region
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region
2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2040

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San Joaquin Valley
Unified Air Pollution Control District

December 22, 1992

Mr. Matt Haber, Chief
U.S. E.P.A. - Region IX
New Source Section
75 Hawthorne St.
San Francisco, CA 94105

Dear Mr. Haber:

SUBJECT: **Final Public Notice - Emission Reduction Credits Project 2007 920716**

The District has issued an Emission Reduction Credit (ERC) certificates for project #2007 920716 to Texaco Refining and Marketing, Inc. for reduction of PM10, SO2, NO2 and CO from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield. The District has received no public comment on this project. Enclosed is a copy of the banking certificate documents and the final public notice.

Thank you for your cooperation in this matter. Should you have any questions please telephone Mr. Glen Stephens of the Permit Services Division at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:gs
Enclosures
c: Tom Goff - Permit Services Manager/ Southern Region

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

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4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-6112

Central Region
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region
2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

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NOTICE OF FINAL ACTION ON PROPOSED STATIONARY SOURCE EMISSION REDUCTION CREDIT (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District's Rules and Regulations, the Air Pollution Control Officer has made a final decision to issue Emission Reduction Credit Certificates #S-0002-2, '-3, '-4, and '-5 to **Texaco Refining and Marketing, Inc** for NO_x, CO, PM_{10}, and SO_x emission reductions resulting from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

The District's finalized analysis, public comments and certificate are available for inspection at the District's Southern Region office contact Glen Stephens of the Permit Services Division located at 2700 "M" Street, Suite 275, Bakersfield, California 93301, (805) 861-3682.

San Joaquin Valley Unified APCD
Permit Services Division

TO: Seyed Sadredin
District Manager of Permit Services

FROM: [redacted] GLEN STEPHENS
Southern Region

DATE: 10/20/92

RE:
[ ] Intent to Deny ATC/PTO
[ ] Deny ATC/PTO
[✓] Preliminary Public Notice (NSR)
[ ] Final Public Notice (NSR)
[ ] Other _____

The following supporting documents are attached:
All Public Notice documents. For EXACO 'BANKING' APPLICATION

Remarks/Recommendations: Review & Distribute

RESPONSE

TO: _____

FROM: Seyed Sadredin
District Manager of Permit Services

DATE: _____

VALLEY AIR DISTRICT

FAX Transmittal Sheet

San Joaquin Valley
Unified Air Pollution Control District
Southern Region

2700 "M" Street, Suite 275
Bakersfield, CA 93301
Voice: (805) 861-3682
FAX: (805) 861-2060

From: Glen E. Stephens Date: 10/ /92

To: Janell Molina, Legal Notices
Name Company

Total Pages (including cover page): 2 FAX No.: 395-7540

Comments: Date of publication: (2-3 days) Run one time only.

Please send proof and published notice to: Glen Stephens

Permit Services

REQUEST FOR PUBLIC COMMENT ON PROPOSED
STATIONARY SOURCE EMISSIONS REDUCTION CREDITS (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, the Air Pollution Control Officer has made a preliminary decision to approve emission reduction credits no greater than 1,776 lbs/qtr of NO_2, 801 lbs/qtr of PM_{10}, 5,695 lbs/qtr of CO, 69,141 lb/qtr of SO_x and 975 of SO_4 resulting from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

Public comments regarding this preliminary decision will be received by the District for a period of thirty (30) days after publication of this notice and will receive due consideration before final action is taken.

The application for emission reduction credits, support documents and the District's air quality impact analysis for project 4091 920620 are available for inspection at the Southern Region office with Glen Stephens located at 2700 "M" Street, Suite 275, Bakersfield, California 93301, (805) 861-3682.

GES

San Joaquin Valley
Unified Air Pollution Control District

DISTRICT
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Chair
Supervisor
Madera County
Pauline Larwood
Vice Chair
Supervisor
Kern County
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City of Ceres
Doug Vagim
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Fresno County
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Bill Sousa
Supervisor
San Joaquin County
Nick Blom
Supervisor
Stanislaus County
Clyde Gould
Supervisor
Tulare County
Mel McLaughlin
Councilmember
City of Wasco

Mr. Mat Haber, Chief
U.S. EPA - Region IX
New Source Section
A-5-1
75 Hawthorne Street
San Francisco, CA 94105

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Haber:

Enclosed for your review and comment is the analysis of Texaco Refining and Marketing Inc. request for emission reduction credits.

This project will be released to public notice approximately three days from the date of this letter. This will start the 30-day public period comment period.

Please submit your written comments on our analysis and draft documents as soon as possible to provide ample time for our review and consideration.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

GES

San Joaquin Valley
Unified Air Pollution Control District

DISTRICT
BOARD
MEMBERS

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Kern County
Blair Bradley
Councilmember
City of Ceres
Doug Vagim
Supervisor
Fresno County
Tom Bohigian
Councilmember
City of Fresno
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Supervisor
San Joaquin County
Nick Blom
Supervisor
Stanislaus County
Clyde Gould
Supervisor
Tulare County
Mel McLaughlin
Councilmember
City of Wasco

Mr. Donald J. Slack
Supervisor - Environment Health and Safety
Texaco Refining and Marketing, Inc.
P.O. Box 1476
Bakersfield, California 93302

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Slack:

Enclosed for your review and comment is the draft notice and engineering analysis of preliminary decision to approve Emission Reduction Credits for the shutdown of incinerator ID# 16M101 located in Area 1 of the Texaco Refinery.

This preliminary decision will be noticed in the newspaper approximately three days from the date of this letter. Publication will start a 30-day public comment period,

Please submit any written comments you may have concerning this preliminary decision before the close of the public comment period.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

GES

San Joaquin Valley
Unified Air Pollution Control District

DISTRICT
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MEMBERS

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City of Ceres
Doug Vagim
Supervisor
Fresno County
Tom Bohigian
Councilmember
City of Fresno
Joe Hammond
Supervisor
Kings County
Mike Bogna
Supervisor
Merced County
Bill Sousa
Supervisor
San Joaquin County
Nick Blom
Supervisor
Stanislaus County
Clyde Gould
Supervisor
Tulare County
Mel McLaughlin
Councilmember
City of Wasco

Mr. Raymond Menenbroker, Chief
California Air Resources Board
Project Review Branch
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Menenbroker:

Enclosed for your review and comment is the analysis of Texaco Refining and Marketing Inc. request for emission reduction credits.

This project will be released to public notice approximately three days from the date of this letter. This will start the 30-day public period comment period.

Please submit your written comments on our analysis and draft documents as soon as possible to provide ample time for our review and consideration.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

GES

MESSAGE CONFIRMATION

DATE:10/20/92 TIME:17:13

ID:S. JOAQUIN U.U.

DATE	TIME	TX-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
10/20	17:10	03'12"	2092332057	G3-S	006	OK

San Joaquin Valley Unified APCD
Permit Services Division

TO: Seyed Sadredin
District Manager of Permit Services

FROM: [redacted] GLEN STEPHENS
Southern Region

DATE: 10/20/92

RE:
- [ ] Intent to Deny ATC/PTO
- [ ] Deny ATC/PTO
- [x] Preliminary Public Notice (NSR)
- [ ] Final Public Notice (NSR)
- [ ] Other _____

The following supporting documents are attached: Engineering Analysis
[redacted] & Public Notice documents, For TEXACO BANKING APPLICATION

Remarks/Recommendations: Review & Distribute

RESPONSE

TO: _____

FROM: Seyed Sadredin
District Manager of Permit Services

DATE: _____

MESSAGE CONFIRMATION

DATE:10/20/92 TIME:16:11

ID:S. JOAQUIN V.U.

DATE	TIME	TX-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
10/20	15:50	20'49"	2093332057	G3-S	035	OK

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_4	SO_2	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:

Mscf/hr · 24 hr/day · 30 days/month[1] = Mscf/month
Mscf/month · 90 days/quarter[2] = 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 Factors:

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 PM_{10} factor includes SO_4 emissions as the total PM_{10}. Therefore, the PM_{10} factor must be reduced by the SO_4 factor to represent PM_{10} and SO_4 emissions separately. The adjusted factors are listed below the source test factors.

Emission Factors From Source Tests (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	VOC	CO
0.0302	0.0166	1.1753	0.0302	NA	0.0968

Adjusted Emission Factors Used (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	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:

Historical Actual Emissions (in Lbs/Quarter)

Quarter	PM_{10}	SO_4	SO_2	NO_2	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:

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

Quarter	PM_{10}	SO_4	SO_2	NO_2	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 SO_4 included in the PM_{10} 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-M101has 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 with in 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 completetion 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

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

Number: 2007027(A)

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

By: _____

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.

For Period: 08-31-90 TO 08-31-91

COPY

CONDITIONAL 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 oulet 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:

for Manager of Engineering

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 ot exceed 2000 ppm by volumne 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 SO_2) (Rule 210.1)

2007027B
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)

2007027B
Continued

OPERATIONAL CONDITIONS:

a. Area 1 fuel gas system sulfur content shall not exceed 0.10 gr/dscf as H_2S. (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.

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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)

2007027B
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)

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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.

2007027B
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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)	
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)
	20.64 lbm/day	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)	stack
	51.24 lbm/day	(Rule 210.1)	fugitive
Carbon Monoxide:	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.

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED FOR:

Claus Sulfur Recovery Unit, Tail Gas Treating Unit and Waste Gas Incinerator.

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 2101) 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:

Manager of Engineering

2007245
Continued

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,

2007245
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)

2007245
Continued

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 H_2S. (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:

Particulates (PM-10):	0.99	lbm/hr	(Rule 210.1)	
Sulfur Compounds:	5.74	lbm/hr	(of SO_2)	(Rule 210.1)
	0.86	lbm/hr	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	3.50	lbm/hr	(as NO_2)	(Rule 210.1)
Hydrocarbons:	0.07	lbm/hr	(Rule 210.1)	stack
	2.14	lbm/hr	(Rule 210.1)	fugitive
Carbon Monoxide:	0.88	lbm/hr	(Rule 210.1)	

2007245
Continued

COMPLIANCE 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.

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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)		
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)	
	20.64 lbm/day	(of SO_4)	(Rule 210.1)	
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)	
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)		stack
	51.24 lbm/day	(Rule 210.1)		fugitive
Carbon Monoxide:	21.00 lbm/day	(Rule 210.1)		

COPY

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 Test Condition		1 Offset	2 Offset	3 Offset	Average
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

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

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.

Fuel Type	ppm NOx @3% O_2	lb NO_2/MMBtu
Gaseous Fuel	30	0.036
Liquid Fuel	40	0.048

EMISSIONS ESTIMATES:

	NOx - Tons/Day			
	1987	1994	1997	2000
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

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.

Control Technique	Unit Size Range (MMBtu/hr)	Cost Effectiveness ($/ton NOx reduced)
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:

Boiler Size (MMBtu/hr)	Total Equipment Cost	Cost Effectiveness $/ton NOx reduced
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

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.

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.

Bakersfield Californian. April 14, 1991. "New pipelines to avert natural gas shortages in Kern".

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.

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			

San Joaquin Valley
Unified Air Pollution Control District

December 2, 1992

Mr. Donald J. Slack
Supervisor - Environment Health and Safety
Texaco Refining and Marketing, Inc.
P.O. Box 1476
Bakersfield, California 93302

Dear Mr. Slack:

Subject: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID#16M101

Thank you for your letter dated November 12, 1992. Texaco has expressed concerns about the baseline period used, and the separation of SO_4 from PM_{10} emissions. In response to your concerns the District responds in the following manner:

1. Rule 220.1.II.F defines a baseline period as "2 consecutive years of operation." Rule 220.1.II.BB defines quarter for a non seasonal source as "a calendar quarter." Rule 220.1.V. states: "All calculations shall be performed on a quarterly basis, unless specified otherwise." The above definitions explain how emissions must be quantified in 8 consecutive calendar quarters.

2. Because SO_4 is particulate matter pursuant to the definition in Rule 1020 2.26 it must be included in the total PM_{10} catch in determining compliance with PM_{10} limits. SO4 is chemically a sulfur oxide, and, therefore, must be included in determining compliance with Sox limits. Banked SO_4 emissions can be used as offsets for PM_{10} or SOx emission increases, but not both. As requested by Mr. Steve Powell of your staff on November 24, 1992, the PM10 ERC will be revised to include the SO4 reductions. This will preclude these sulfate reductions from being considered as sulfur oxides in all future actions (to prevent double counting).

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721 • (209) 497-1000 • FAX (209) 233-2057

Northern Region
4230 Kiernan Avenue, Suite 130 • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

Central Region
1999 Tuolumne Street, Suite 200 • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

Southern Region
2700 M Street, Suite 275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

Printed on Recycled Paper.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of Permit Services at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

Donald R Hall
Plant Manager
Bakersfield Plant

Texaco Refining & Marketing Inc

Post Office Box 1476
Bakersfield CA 93302
805 326 4232

November 12, 1992

Mr. Sayed Sadredin
Director of Permit Services
San Joaquin Valley Unified
Air Pollution Control District
P.O. Box 1312
Fresno, California 93715

Glen Stephens

RECEIVED
NOV 16 1992
SAN JOAQUIN VALLEY UNIFIED
APCD—SOUTHERN REGION

Re: Application 2007027/101/201/304/401/601
Emission Reduction Credit for Shutdown of Incinerator ID# 16M101

Dear Mr. Sadredin:

In response to your letter of October 22, 1992, TRMI has the following comments:

Page 3 of the analysis states that the March '90 data supplied by TRMI was not used because this month did not coincide with 8 consecutive calendar quarters preceding the application. In Rules 220.1 and 230.1, the baseline period definition does not refer to 8 consecutive calendar quarters. The baseline period is defined as a time period of at least 2 consecutive years within five years immediately prior to submission of a complete application, provided it is representative of normal operation. TRMI supplied 2 consecutive years of source data immediately preceding the shutdown of the incinerator. No adjustment to this data is necessary.

Page 3 of the analysis states that the PM10 factor included SO4 emissions as the total PM10 emissions. The PM10 factor was reduced by the SO4 factor to represent PM10 and SO4 emissions separately. This approach is not consistent with District policy concerning compliance with PM10 limits. Source operators are not allowed to subtract the SO4 fraction from the PM10 catch in determining compliance with PM10 limits. The ERC and compliance policies regarding the SO4 contribution to PM10 must be consistent.

If you have any questions, please contact Steve Powell at (805) 326-4426.

Sincerely

D. R. Hall

D. R. Hall

SGP/lam
36/92

File: 34040-206

cc: Glen Stephens
SJVUAPCD Southern Region

92 NOV 16 PM 12:51

Donald R Hall
Plant Manager
Bakersfield Plant

Texaco Refining & Marketing Inc

Post Office Box 1476
Bakersfield CA 93302
805 326 4232

November 12, 1992

Mr. Sayed Sadredin
Director of Permit Services
San Joaquin Valley Unified
Air Pollution Control District
P.O. Box 1312
Fresno, California 93715

Re: Application 2007027/101/201/304/401/601
Emission Reduction Credit for Shutdown of Incinerator ID# 16M101

Dear Mr. Sadredin:

In response to your letter of October 22, 1992, TRMI has the following comments:

Page 3 of the analysis states that the March '90 data supplied by TRMI was not used because this month did not coincide with 8 consecutive calendar quarters preceding the application. In Rules 220.1 and 230.1, the baseline period definition does not refer to 8 consecutive calendar quarters. The baseline period is defined as a time period of at least 2 consecutive years within five years immediately prior to submission of a complete application, provided it is representative of normal operation. TRMI supplied 2 consecutive years of source data immediately preceding the shutdown of the incinerator. No adjustment to this data is necessary.

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If you have any questions, please contact Steve Powell at (805) 326-4426.

Sincerely

D. R. Hall

D. R. Hall

SGP/lam
36/92

File: 34040-206

cc: Glen Stephens
SJVUAPCD Southern Region

San Joaquin Valley
Unified Air Pollution Control District

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Madera County
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Tulare County
Mel McLaughlin
Councilmember
City of Wasco

11/04/92

Glenn Simjian
California Air Resources Board
Project Review Branch
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

Re: Application #2007027/101/201/301/401/601 Missing Attachment Pages

Dear Mr. Simjian:

Per your phone call to Glen Stephens on November 4, 1992, we are enclosing the requested attachment pages.

Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

Thomas E. Goff, P.E.
Permit Services Manager

GES
Enclosures

ATTACHMENT A

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

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

Number: 2007027(A)

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

By: _____

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.

For Period: 08-31-90 TO 08-31-91

COPY

CONDITIONAL 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 oulet 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:

for Manager of Engineering

TEXACO REFINING & MARKETING INC.
Permit #2007027(A)
Page 2

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 ot exceed 2000 ppm by volumne 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)

COPY

EMISSION SAMPLING LIMITS:

Sulfur Compounds:	40.00	lbm/hr	(as SO_2)	(Rule 210.1)

2007027B
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)

2007027B
Continued

OPERATIONAL CONDITIONS:

a. Area 1 fuel gas system sulfur content shall not exceed 0.10 gr/dscf as H_2S. (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.

COPY

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)

2007027B
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)

COPY

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.

2007027B
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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)	
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)
	20.64 lbm/day	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)	stack
	51.24 lbm/day	(Rule 210.1)	fugitive
Carbon Monoxide:	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.

COPY

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.

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED FOR:

Claus Sulfur Recovery Unit, Tail Gas Treating Unit and Waste Gas Incinerator.

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 Ennis
Manager of Engineering

2007245
Continued

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,

2007245
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)

2007245
Continued

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 H_2S. (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:

Particulates (PM-10):	0.99	lbm/hr	(Rule 210.1)	
Sulfur Compounds:	5.74	lbm/hr	(of SO_2)	(Rule 210.1)
	0.86	lbm/hr	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	3.50	lbm/hr	(as NO_2)	(Rule 210.1)
Hydrocarbons:	0.07	lbm/hr	(Rule 210.1)	stack
	2.14	lbm/hr	(Rule 210.1)	fugitive
Carbon Monoxide:	0.88	lbm/hr	(Rule 210.1)	

COPY
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2007245
Continued

COMPLIANCE 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.

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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)		
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)	
	20.64 lbm/day	(of SO_4)	(Rule 210.1)	
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)	
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)		stack
	51.24 lbm/day	(Rule 210.1)		fugitive
Carbon Monoxide:	21.00 lbm/day	(Rule 210.1)		

COPY

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	
TIME	MSCFHR
1200	34.16
1300	32.46
1400	33.12
1500	33.84
1600	34.20
1700	34.39
1800	34.03
1900	34.03
AVG	33.78

TEST RESULTS AND EMISSION FACTORS		
	LB/HR	LB/MSCFHR
PARTICULATE	1.02	0.030
SULFATE	0.56	0.017
SO2	39.70	1.175
NOX	1.02	0.030
CO	3.27	0.097

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 Test Condition	1 Offset	2 Offset	3 Offset	Average
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

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

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.

Fuel Type	ppm NOx @3% O_2	lb NO_2/MMBtu
Gaseous Fuel	30	0.036
Liquid Fuel	40	0.048

EMISSIONS ESTIMATES:	NOx - Tons/Day			
	1987	1994	1997	2000
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

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.

Control Technique	Unit Size Range (MMBtu/hr)	Cost Effectiveness ($/ton NOx reduced)
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:

Boiler Size (MMBtu/hr)	Total Equipment Cost	Cost Effectiveness $/ton NOx reduced
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

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.

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.

Bakersfield Californian. April 14, 1991. "New pipelines to avert natural gas shortages in Kern".

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.

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			

San Joaquin Valley
Unified Air Pollution Control District

October 22, 1992

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SAN JOAQUIN VALLEY UNIFIED
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Mel McLaughlin
Councilmember
City of Wasco

Mr. Raymond Menebroker, Chief
California Air Resources Board
Project Review Branch
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Menebroker:

Enclosed for your review and comment is the analysis of Texaco Refining and Marketing Inc. request for emission reduction credits.

This project will be released to public notice approximately three days from the date of this letter. This will start the 30-day public period comment period.

Please submit your written comments on our analysis and draft documents as soon as possible to provide ample time for our review and consideration.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

c: Tom Goff - Permit Services Manager/Southern Region

David L. Crow - Executive Director/APCO
PO Box 1312 - Fresno, CA 93715 - 1999 Tuolumne Street, Suite 200 - (209) 497-1000 - FAX (209) 233-2057

San Joaquin Valley
Unified Air Pollution Control District

October 22, 1992

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Mel McLaughlin
Councilmember
City of Wasco

Mr. Mat Haber, Chief
U.S. EPA - Region IX
New Source Section/A-5-1
75 Hawthorne Street
San Francisco, CA 94105

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Haber:

Enclosed for your review and comment is the analysis of Texaco Refining and Marketing Inc. request for emission reduction credits.

This project will be released to public notice approximately three days from the date of this letter. This will start the 30-day public period comment period.

Please submit your written comments on our analysis and draft documents as soon as possible to provide ample time for our review and consideration.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

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Director of Permit Services

c: Tom Goff - Permit Services Manager/Southern Region

David L. Crow - Executive Director/APCO
PO Box 1312 - Fresno, CA 93715 - 1999 Tuolumne Street, Suite 200 - (209) 497-1000 - FAX (209) 233-2057

San Joaquin Valley
Unified Air Pollution Control District

October 22, 1992

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Stanislaus County
Clyde Gould
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Tulare County
Mel McLaughlin
Councilmember
City of Wasco

Mr. Donald J. Slack
Supervisor - Environment Health and Safety
Texaco Refining and Marketing, Inc.
P.O. Box 1476
Bakersfield, California 93302

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Removal of Incinerator ID# 16M101

Dear Mr. Slack:

Enclosed for your review and comment is the draft notice and engineering analysis of preliminary decision to approve Emission Reduction Credits for the shutdown of incinerator ID# 16M101 located in Area 1 of the Texaco Refinery.

This preliminary decision will be noticed in the newspaper approximately three days from the date of this letter. Publication will start a 30-day public comment period,

Please submit any written comments you may have concerning this preliminary decision before the close of the public comment period.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. Glen E. Stephens of the Engineering Evaluation Section at (805) 861-3682.

Sincerely,

Seyed Sadredin
Director of Permit Services

c: Tom Goff - Permit Services Manager/Southern Region

David L. Crow - Executive Director/APCO
PO Box 1312 - Fresno, CA 93715 - 1999 Tuolumne Street, Suite 200 - (209) 497-1000 - FAX (209) 233-2057

REQUEST FOR PUBLIC COMMENT ON PROPOSED
STATIONARY SOURCE EMISSIONS REDUCTION CREDITS (ERC)

Pursuant to Rule 230.1 of the San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, the Air Pollution Control Officer has made a preliminary decision to approve emission reduction credits no greater than 1,776 lbs/qtr of NO_2, 801 lbs/qtr of PM_{10}, 5,695 lbs/qtr of CO, 69,141 lb/qtr of SO_x and 975 of SO_4 resulting from the removal of a tailgas incinerator serving the sulfur recovery operation tailgas treating unit at the Texaco Refinery s/o Rosedale Hwy. in Bakersfield.

Public comments regarding this preliminary decision will be received by the District for a period of thirty (30) days after publication of this notice and will receive due consideration before final action is taken.

The application for emission reduction credits, support documents and the District's air quality impact analysis for project 4091 920620 are available for inspection at the Southern Region office with Glen Stephens located at 2700 "M" Street, Suite 275, Bakersfield, California 93301, (805) 861-3682.

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: Submittal Date:
Review Date:

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 Attachment 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 Attachment A) as "Tail Gas Treating Unit". The removal of the old tailgas incinerator was authorized by ATC 2007027B (see Attachment 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_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

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:

Mscf/hr · 24 hr/day · 30 days/month[1] = Mscf/month
Mscf/month · 90 days/quarter[2] = 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 Factors:

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 PM_{10} factor includes SO_4 emissions as the total PM_{10}. Therefore, the PM_{10} factor must be reduced by the SO_4 factor to represent PM_{10} and SO_4 emissions separately. The adjusted factors are listed below the source test factors.

Emission Factors From Source Tests (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	VOC	CO
0.0302	0.0166	1.1753	0.0302	NA	0.0968

Adjusted Emission Factors Used (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	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:

Historical Actual Emissions (in Lbs/Quarter)

Quarter	PM_{10}	SO_4	SO_2	NO_2	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:

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

Quarter	PM_{10}	SO_4	SO_2	NO_2	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 SO_4 included in the PM_{10} 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-M101has 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 with in 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 completetion of 30 day public notice period issue Emission Reduction Credit Certificates S-0002-2, '-3, '-4, '-5 and '-6.

Fresno
Kern
Kings
Madera

San Joaquin Valley
Unified Air Pollution Control District
Southern Region
2700 "M" Street, Suite 275
Bakersfield, California 93301
(805) 861-3682

Merced
San Joaquin
Stanislaus
Tulare

District Board Members
RICK JENSEN, *Chair*
Supervisor, Madera County
PAULINE LARWOOD, *Vice Chair*
Supervisor, Kern County
BILL SOUSA
Supervisor, San Joaquin County
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BLAIR BRADLEY
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Supervisor, Merced County
DOUG VAGIM
Supervisor, Fresno County
TOM STEARNS
Councilmember, City of Clovis
JOE HAMMOND
Supervisor, Kings County
CLYDE GOULD
Supervisor, Tulare County
MEL McLAUGHLIN
Councilmember, City of Wasco

August 17, 1992

Mr. Donald J. Slack
Supervisor - Environment Health and Safety
Texaco Refining and Marketing, Inc.
P.O. Box 1476
Bakersfield, California 93302

Re: Application #2007027/101/201/304/401/601
Project Description: Emission Reduction Credit (ERC) Certificate for Emission Reduction from the Shut Down of Incinerator ID# 16M101

Dear Mr. Slack:

Your application for ERC Certificate for the above-referenced project has been received by the Air Pollution Control District, and has been reviewed for completeness.

Based on this preliminary review, the application appears to be complete. However, because emission reductions are quantified on a calendar quarter basis, to obtain full emission reduction credit from the shut down, you must provide operational data for March 1992, because January - March is one calendar quarter. Please be aware that during the processing of this application, the District may request additional information to clarify, correct or otherwise supplement the information on file.

Thank you for your cooperation. Should you have any questions, please telephone Mr. Thomas Goff of Permit Services at (805) 861-3682.

Sincerely,

Seyed Sadredin
District Manager of Permit Services

Allan Phillips for

Thomas E. Goff, P.E.
Permit Services Manager

GES

Donald R Hall
Plant Manager
Bakersfield Plant

Texaco Refining & Marketing Inc

Post Office Box 1476
Bakersfield CA 93302
805 326 4232

July 9, 1992

Mr. Tom Goff
Permit Services Manager
San Joaquin Valley Unified APCD
2700 "M" Street, Suite 275
Bakersfield, CA 93301

Dear Mr. Goff:

Attached is a banking certificate application form and a check for $650 to cover filing fee costs. A banking certificate is requested for emission reductions resulting from the shutdown of the SRU #1 incinerator (2007027). The incinerator was shutdown in March, 1992. Emission reductions are based on the previous two years operating data and a source test performed on December 20, 1992.

If you have any questions concerning this application, please contact Steve Powell at 326-4426.

Sincerely,

D. R. Hall

D. R. Hall

SGP/lam
15/92
Enclosures

File: 34040-206

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

1601 "H" Street, Suite 150 Bakersfield, California 93301 Telephone: (805) 861-3682

2007027/101/201/304/401/601

APPLICATION FOR:

- ☐ Authority to Construct (ATC)
- ☐ ATC – Modification
- ☐ ATC – Renewal
- ☐ Permit to Operate (PTO)
- ☐ PTO – Modification
- ☐ PTO – Transfer of Ownership
- ☒ Banking Certificate
- ☐ Transfer of Location

1920716

AN APPLICATION IS REQUIRED FOR EACH SOURCE OPERATION AS DEFINED IN RULE 102, SECTION cc.

1. PERMIT TO BE ISSUED TO: Name of organization to operate the following equipment:

   Texaco Refining and Marketing, Inc.

2. MAILING ADDRESS:

   P. O. Box 1476, Bakersfield, California Zip Code: 93302

3. LOCATION AT WHICH THE EQUIPMENT IS TO BE OPERATED:

   6451 Rosedale Highway, Bakersfield, California 93308

4. GENERAL NATURE OF BUSINESS:

   Petroleum Refining

5. EQUIPMENT FOR WHICH APPLICATION IS MADE:

   Banking certificate application shutdown of SRU #1 Incinerator 16M101

   Provide additional information as required by District "Instructions".

6. TYPE AND ESTIMATED COST OF AIR POLLUTION CONTROL EQUIPMENT:

7. TYPE AND ESTIMATED COST OF BASIC PROCESS EQUIPMENT:

8. SIGNATURE OF APPLICANT: [signature] TITLE OF SIGNER: Supervisor - EH&S

9. TYPE OR PRINT NAME OF SIGNER: Donald J. Slade DATE: 7/10/92 PHONE NO.: (805) 326-4265

DATE RECEIVED
RECEIVED
JUL 15 1992
SAN JOAQUIN VALLEY UNIFIED APCD—SOUTHERN REGION

Validation (For APCD Use Only)

FILING FEE: $ 1650.00 RECEIPT NO.: 0015799

DATE: 7/15/92 920024

INTRODUCTION:

The tailgas incinerator 16-M101, was used to incinerate tailgas from Sulfur Recovery Unit #1 (ATC #2007027), located at the Area 1 facility. In March, 1992, tailgas from SRU #1 was permanently diverted to a new tailgas treating unit (ATC #2007245), and 16-M101 was shutdown. Texaco Refining and Marketing Inc., is requesting that a banking certificate be issued for the PM10, SO4, SO2, NOX, and CO emission reductions resulting from the shutdown of 16-M101.

CALCULATION PROCEDURE:

Emissions are based on the previous two year operating history and a source test performed on December 20, 1991. See the attached spreadsheet and test report for details.

REQUIRED FINDINGS:

1. Application must be submitted within 180 days of reduction:

   The tailgas incinerator was shutdown in March, 1992. This application will be submitted in July, 1992. The application meets the 180 day deadline.

2. Emissions must be real, surplus, permanent, quantifiable, and enforceable:

   The emissions are real and quantifiable based on the emissions test and operational data supplied.

   The emissions are surplus as the reductions were not required by any rule or regulation, or by any permitting action.

   The emission reductions are permanent and enforceable as incinerator 16M101 is inoperable and both SRU #1 and the new tailgas treating unit are under District permit.

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

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

Number: 2007027(A)

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.

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.

WILLIAM J. RODDY
AIR POLLUTION CONTROL OFFICER

By: _____

For Period: 08-31-90 TO 08-31-91

CONDITIONAL 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,
k. ATS storage tank, 16-T3,
l. Miscellaneous vessels, heat exchangers and pumps,
m. Ammonia storage tank.
n. Piping from sour gas oulet 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

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 ot exceed 2000 ppm by volumne 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 SO_2) (Rule 210.1)

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

EMISSION OFFSET STUDY
SULFUR PLANT INCINERATOR

December 20, 1991

Prepared for

Texaco Refining & Marketing, Inc.
6451 Rosedale Highway
Bakersfield, California 93308

January 1992

Prepared by

Steiner Environmental, Inc.
4930 Boylan Street
Bakersfield, California 93308

Report PS-92-2677/Project 7123-92

TABLE OF CONTENTS

SECTION 1

INTRODUCTION

At the request of Texaco Refining & Marketing, Inc., Steiner Environmental, Inc. conducted an emission offset study on the existing sulfur plant incinerator on December 20, 1991. The purpose of these tests was to determine particulate and gaseous emission rates before this incinerator is shut down and the new incinerator is started up.

Triplicate EPA Method 5/8 tests were conducted to measure particulates, sulfates and SO_2. Triplicate CARB Method 1-100 tests were conducted to monitor NO_x, CO, CO_2 and O_2.

Section 2 of this report presents the test matrix for this program.

SECTION 2

TEST MATRIX

Table 2-1 presents the test matrix for this program. Particulate Test #1 was not included in this study because the quartz sampling nozzle was broken during the test.

Section 3 of this report presents the test results.

TABLE 2-1. TEXACO INCINERATOR TEST MATRIX

Date	Test No.	Test Parameter	Test Time
12/20/91	1	$NO_x/CO/CO_2/O_2$	12:50 pm - 1:50 pm
	2	$NO_x/CO/CO_2/O_2$	2:30 pm - 3:30 pm
		Particulates/Sulfates/SO_2	2:30 pm - 4:40 pm
	3	$NO_x/CO/CO_2/O_2$	5:30 pm - 6:30 pm
		Particulates/Sulfates/SO_2	5:35 pm - 7:45 pm

SECTION 3

TEST RESULTS

Table 3-1 summarizes the results of the emission offset tests performed on the existing sulfur plant incinerator. All data are reported at 60°F and 29.92 inches Hg.

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

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

Test Number Test Condition	1 Offset	2 Offset	3 Offset	Average
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

SECTION 4

SAMPLING EQUIPMENT AND PROCEDURES

This section of the report describes the equipment and procedures used to conduct the particulate tests on this program.

4.1 PRELIMINARY MEASUREMENTS

Before conducting the stack tests a series of preliminary measurements were made to determine:

- The location of the sampling site and the number and location of the sampling points to be used (EPA Method 1)
- The velocity, temperature, and pressure of the gases in the stack (EPA Method 2)
- The composition of the stack gases (EPA Method 3)
- The moisture content of the stack gases (EPA Method 4)

Using the results of these preliminary measurements and the calibration constants for the sampling train, a series of calculations were made to determine the value of K, a constant, and N_d, ideal nozzle diameter, required to run an isokinetic test according to the equation:

$$\Delta H = \left[\frac{60^2\ \pi^2\ (K_p)^2\ (C_p)^2\ (1-B_{wo})^2\ P_s\ MW_d}{576^2\ (K_o)^2\ MW_s\ P_m}\right] (N_d)^4 \left(\frac{T_m}{T_s}\right) (\Delta P)$$

where

$$K = \left[\frac{60^2 \, \pi^2 \, (K_p)^2 \, (C_p)^2 \, (1 - B_{wo})^2 \, P_s \, MW_d}{576^2 \, (K_o)^2 \, MW_s \, P_m} \right]$$

An actual nozzle, whose diameter was as close as possible to the ideal nozzle diameter, was selected for the test. Isokinetic sampling rates for each sampling point in the stack were computed using the equation:

$$\Delta H = (K) \, (N_d)^4 \left(\frac{T_m}{T_s} \right) (\Delta P)$$

Since K and N_d are known, and remain constant during a test, the only variables are the meter temperatures, the stack gas temperature and the velocity pressure for each sampling point.

4.2 PREPARATION OF THE PARTICULATE-SO_x SAMPLING TRAIN

All sampling train components were cleaned in the laboratory (soap and water, tap water rinse, distilled water rinse, and IPA rinse) to eliminate previous contamination. The sampling train components were sealed and transported to the sampling site in a mobile lab. The EPA Method 5/8 equipment used to measure particulates (filterable and total) and SO_x consisted of:

- A calibrated 316 stainless steel nozzle for isokinetic sampling
- A heated Quartz sampling probe (6 feet long) equipped with an S-type pitot tube and a thermocouple to measure stack velocity, pressure and temperature

- A heated Pyrex glass filter holder containing a weighed 100-mm Whatman 934 AH glass fiber filter
- A Pyrex glass impinger train in an icebath (impinger 1 contained 100-ml 80% IPA; a Pyrex glass filter holder containing a 47-mm Whatman 934 AH filter; bubbler 2 and impinger 3 each contained 100-ml of 3% H_2O_2; bubbler 4 contained a weighed amount of silica gel)
- An umbilical to connect the probe and sample box to the control module
- A control module containing a vacuum pump, a calibrated dry gas meter and a calibrated orifice meter to measure the pressure, temperature and flowrate throughout the train.

The sampling train was charged in the mobile lab using freshly prepared reagents. Each impinger and its contents was weighed to the nearest 0.1 gm on a calibrated electronic balance. Blanks of all filters and reagents were retained for subsequent analysis. The sampling point locations were marked on the probe using a high-temperature marker. The sampling train was completely assembled and lifted to the sampling site.

4.3 SAMPLING PROCEDURES FOR PARTICULATE-SO_x SAMPLING TRAIN

Prior to a test, the sampling train was heated and leak-checked at 15-inches Mercury to insure leakage was less than 0.02 or 4% of the average sampling rate. The S-type pitot tube was also leak-checked. The sampling train was installed on the unirail and the probe was inserted into the stack at the farthest point. An isokinetic sampling rate was calculated using an HP-41CV calculator for each sampling point on the traverse (6 points per traverse; 2 traverses at 90°). Each point was sampled for an equal period of time (10 minutes) and all pertinent data

were recorded on the data sheet for each point. The probe and sample box were maintained at 250°F throughout the traverse. The gases leaving the impinger train were maintained at <68°F. At the end of a traverse, the probe was withdrawn from the stack and the entire sampling train was transferred intact to the next sampling port. Another traverse of the stack was completed and the sampling train was withdrawn for the final leak-check. This leak-check was performed at 15-inches Mercury or at the highest vacuum achieved during the test. The S-type pitot tube was also checked at this time. The sampling train was then purged with ambient air for 15-minutes using the highest ΔH measured during the test. After the train was purged, the filter holder and impinger train were sealed with aluminum foil and lowered to the mobile lab for sample recovery.

4.4 SAMPLE RECOVERY PROCEDURES FOR PARTICULATE-SO_x SAMPLING TRAIN

Sample recovery for the nozzle and probe occurred on the stack. The nozzle and probe were brushed and rinsed three times using ACS reagent grade acetone into a polyethylene sample bottle. Sample recovery for the filter holder and impinger train occurred in the mobile lab. The 100-mm filter was removed from the 4-inch filter holder and sealed in its petri dish. The glass fibers stuck to the gasket were scraped off and put into the petri dish. The front half of the 4-inch glass filter holder was brushed and rinsed with acetone. Each impinger was removed from the icebath, wiped dry and weighed to the nearest 0.1 gm. The contents of impinger 1 were transferred to a polyethylene sample bottle. The back half of the 4-inch glass filter holder, the glass connectors, impinger 1, and the front half of the 2-inch filter holder were rinsed with 80% IPA and the rinsings were transferred to this same bottle. The 47-mm filter from the 2-inch filter holder was sealed in its petri dish.

The contents of bubbler 2 and impinger 3 were transferred to a polyethylene sample bottle. Distilled water rinsings of the back half of the 2-inch filter holder, bubbler 2, the connector, and impinger 3 were transferred to this same bottle. All sample bottles and petri dishes were marked and labeled. A chain-of-custody log was completed and the field data sheet was also labeled with the sample ID numbers. The sampling train was then recharged in preparation for the next test.

4.5 SAMPLING PROCEDURES FOR CONTINUOUS MONITORING

The continuous monitors used in the Steiner Environmental Mobile Monitoring Lab are shown in Table 4-1. Figure 4-1 is a schematic of the continuous monitoring system. The procedures used to continuously monitor stack gases for NO_x, O_2, CO and CO_2 strictly follow CARB Method 1-100.

Sample was taken from the stack (at a single point) using a 316 stainless steel probe. A heated Balston filter holder and fiberglass filter (99.9999 percent efficiency retention of 0.6 micron particles) was connected to the outlet of the probe. Sample gas was transported through heated Teflon sample line (maintained at >250°F) by a Teflon-lined diaphragm pump to a 316 stainless steel refrigeration type conditioner (Hankison Model E-4G-SS). The sample gas was passed through the conditioner two separate times under vacuum before entering the pump, then two additional times under pressure. The clean, dry sample gas (~35°F) was then transported to the continuous analyzer system through an unheated Teflon line. A series of flowmeters, valves, and regulators maintain constant flow through the system at a constant pressure.

Calibrations of the continuous analyzers were performed using EPA Protocol 1 calibration gases (±1%) for NO_x and NBS certified calibration

TABLE 4-1. CONTINUOUS MONITORING LAB - TRAILERS 1, 2 AND 4

NO_x CHEMILUMINESCENT ANALYZER – THERMO ELECTRON MODEL 10

Response Time (0-90%)	1.5 sec – NO mode; 1.7 sec – NO_x mode
Zero Drift	Negligible after 1/2 hour warmup
Linearity	±1% of full scale
Accuracy	Derived from the NO or NO_2 calibration gas, ±1% of full scale
Output	0-10 V
Operating Ranges	0-2, 10, 25, 100, 250, 1000; 2500 and 10,000 ppm
Flowrate = 2 scfh	0-2.5

O_2 ANALYZER, FUEL TYPE – TELEDYNE MODEL 326

Response Time (0-90%)	60 seconds
Accuracy	±1% of scale at constant temperatures; ±1% of scale of ±5% of reading, whichever is greater, over the operating temperature range
Output	0-1 V
Operating Ranges	0-5%, 10%, 25% O_2
Flowrate	2 scfh

CO_2/CO INFRARED ANALYZER – ANARAD MODEL AR-600

Response Time (0-90%)	5 seconds
Zero Drift	±1%
Span Drift	±1%
Linearity	1%
Resolution	Less than 1% of full scale
Output	0-1 V
Operating Ranges	0-20% CO_2/0-10,000 ppm CO
Flowrate	1000 cc/min

CO GAS FILTER CORRELATION – THERMO ELECTRON MODEL 48

Response Time (0-95%)	1 minute
Zero Drift	±0.2 ppm CO
Span Drift	Less than 1% full scale in 24 hours
Linearity	±1% full scale, all ranges
Accuracy	±0.1 ppm CO
Output	0-10 V
Operating Ranges	1, 2, 5, 10, 20, 50, 100, 200, 500, 1000 ppm
Flowrate	.5 - 2 lpm

SO_2 UV ANALYZER – DUPONT MODEL 400

Response Time (0-90%)	Less than 60 seconds
Zero Drift	Less than 2% full scale in 24 hours
Linearity	±1% full scale
Accuracy	±2% full scale
Output	0-5 V
Operating Ranges	0-100 ppm, 1-1000 ppm
Flowrate	500 - 1500 cc/min

STRIP CHART RECORDERS (3) – LINSEIS 7025

Pen Response	0.35 seconds Full Scale
Input Spans	1, 2, 5, 10, 20, 50, 100 MV
Zero Set	Stable access entire chart-width ±100%
Accuracy	.35% of Span
Dead Band	.15% of Span
Linearity	.25% of Span
Chart Speed	1, 2, 5, 10, 20, 50, 100 cm/min; 1, 2, 5, 10, 20, 50 cm/hr; fast advance 100 cm/min; LED indicator; forward and reverse selector
Recording Pen	Fiber tip pen
Chart Width	250 mm

SCOTSMAN TRAILER

Fully Insulated	Air Conditioned – 8 feet x 14 feet x 11 feet

1. Filter 0.6 μ, 99.9999 percent efficient
2. Duct
3. 316 stainless steel probe
4. 3/8-inch, heated (250°F) Teflon
5. Four-pass conditioner-dryer, 316 stainless steel internals
6. 3/8-inch, unheated Teflon
7. Teflon-lined sample pump
8. 3/8-inch unheated Teflon
9. Rotameter
10. 1/4-inch Teflon tubing
11. Calibration gas manifold
12. Calibration gas selector valve
13. Calibration gas cylinders
14. Backpressure regulator
15. Auxiliary analysis port

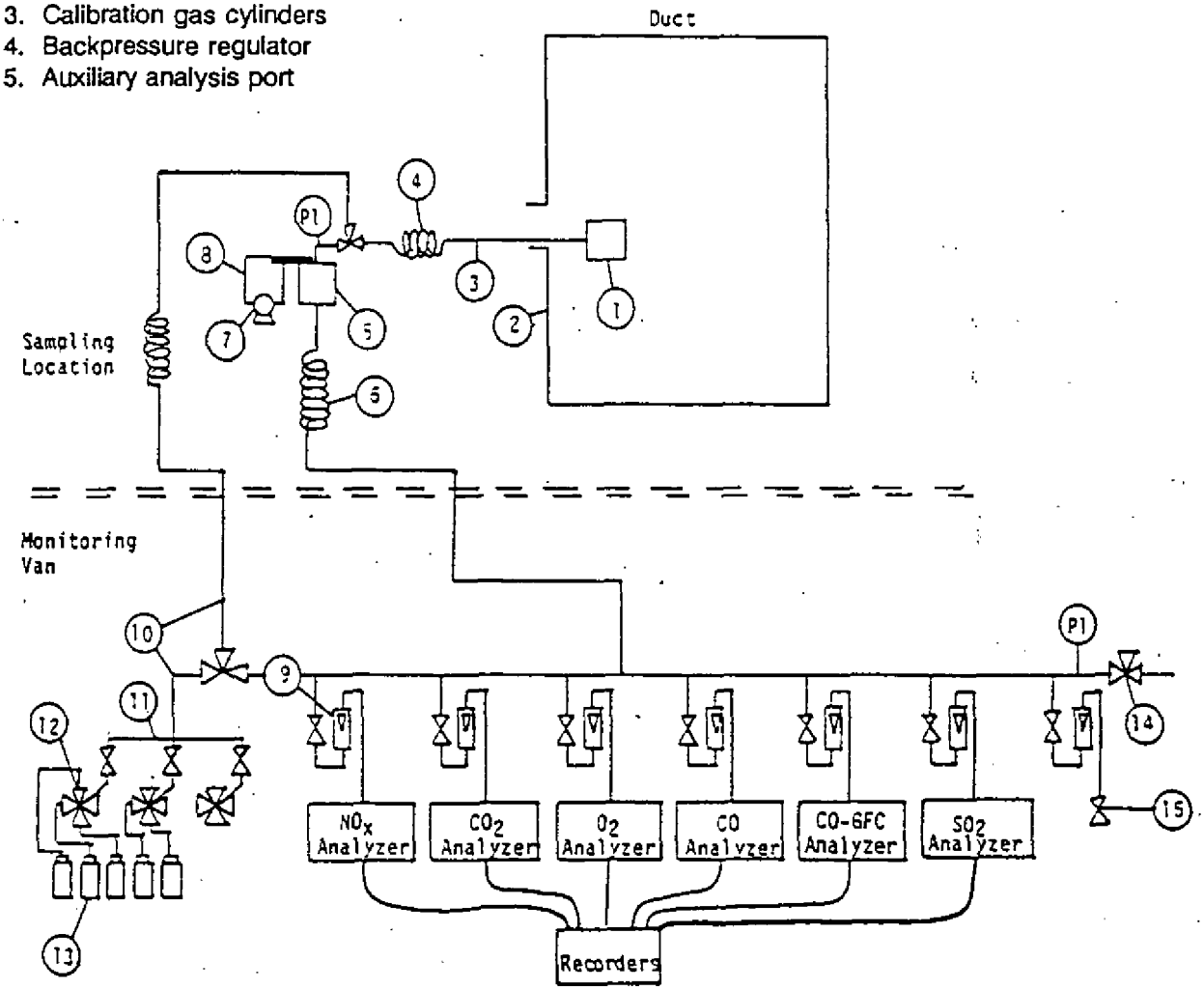


FIGURE 4-1. SCHEMATIC OF CONTINUOUS MONITORING SYSTEM

gases (±1%) for CO, CO_2 and O_2. Copies of the gas certifications are included in the Appendix of this report. All pertinent data (date, time, test locations, analyzer range, cal gas value) were recorded on both the field data sheets and continuous analyzer strip charts in the field.

At the start of a test day, a leak-check was performed. The sample probe was removed from the stack and the end was sealed. A leak-check was successful only if pressure at the analyzer system and flow through the rotameters to the individual analyzers all dropped to zero. A mandatory leak-check was performed at the completion of each test day.

An initial calibration was performed at the start of a test period by introducing zero and span gases for each analyzer and making the necessary adjustments. Calibration gas values were recorded on the continuous monitor strip charts and field data sheets. A calibration check was completed at the end of a test and adjustments (if necessary) to the analyzers were made in preparation for another test.

An external calibration of the sampling system was performed at the start of a test day. EPA Protocol 1 gas was flowed through the entire sampling system from the probe tip. The response of the analyzers had to be within ±5% of the certified tank value before testing could proceed. An external calibration was also performed at the end of each test day.

Test data were collected by recording 10-minute averages from the strip chart recordings onto the field data sheets. Data collected over the test period were averaged and reported.

SECTION 5

ANALYSIS PROCEDURES

This section of the report describes the procedures used to analyze the samples collected during the test program. All analysis were performed in the Steiner Environmental climate-controlled laboratory.

5.1 ANALYSIS OF PARTICULATE-SO_x SAMPLES

5.1.1 Nozzle, Probe, Filter Holder Wash

The volume of the acetone washings was measured and the washings were transferred to clean, tared, aluminum weighing dishes. The dishes were placed on temperature-controlled water bath under a fume hood and gently heated to dryness (100°F). The dishes with the dry residue were desiccated and weighed repeatedly at 6-hour intervals until a constant weight was achieved (to the nearest 0.01 mg with a tolerance of <0.1 mg between weighings). The ACS reagent grade acetone blank was treated in the same manner.

5.1.2 Filter

The 100-mm filter was removed from its petri dish and transferred to an oven where it was heated for 2 hours at 105°C. The filter was then desiccated and weighed repeatedly at 6-hour intervals until a constant weight was achieved (to nearest 0.01 mg with a tolerance of <0.1 mg between weighings). An unused, tared blank filter was treated in the same manner.

5.1.3 Filterable Particulate Sulfate

The acetone washings residue and the 100-mm filter were combined and then leached with distilled water to remove sulfate and the leachate was diluted to 100-ml. An aliquot was passed through ion exchange resin and titrated against 0.01N $BaCl_2$ (which was previously standardized against 0.0100N H_2SO_4) using the barium-thorin titration procedure specified in EPA Method 8. The acetone blank and 100-mm filter blank were treated in an identical manner.

5.1.4 Condensible Particulate, Sulfate, and SO_3

The 47-mm glass fiber filter was leached with distilled water and the leachate was added to the contents and washings from impinger 1. The volume was measured and the entire volume was transferred to a clean, tared glass evaporating dish. The dish was placed on a temperature-controlled hot plate under a fume hood and gently heated to dryness (150°F). The dish with the dry residue was desiccated and weighed repeatedly at 6-hour intervals until a constant weight was achieved (to nearest 0.01 mg with a tolerance of <0.1 mg between weighings). The dry residue was dissolved in distilled water and diluted to 100-ml using distilled water and analyzed for sulfate using the barium-thorin titration procedure. Approximately 5.0-ml of 0.1N HCl was added to the aliquot prior to titration with the $BaCl_2$ to prevent NH_3 interference. Three percent H_2O_2 was then added to the aliquot and the sample was titrated again to determine how much SO_2 had been removed due to reaction with NH_3 in the IPA. A blank 47-mm filter and 80% IPA solution were treated in the same manner.

5.1.5 SO_2

The volume of contents and washings from bubbler 2 and impinger 3 was measured and an aliquot was analyzed for sulfate using the barium-thorin procedure. A 3% H_2O_2 blank was treated in the same manner.

SECTION 6

QUALITY ASSURANCE

6.1 PARTICULATE/SO_x SAMPLING EQUIPMENT

A detailed record of repair and maintenance to each sampling train is kept. Preventative maintenance to each system is performed periodically to avoid complete component breakdown during a field test.

A detailed record of sampling system calibrations is also kept. Calibration data for the sampling nozzles, pitot tubes, dry gas meters and orifice meters are available for review. Results of the EPA Quality Assurance Branch biannual audits of the dry gas meter and orifice meter combinations are also logged and verify our in-house calibration data. The calibration data for the equipment used on this program can be found in the Appendix of this report.

6.2 LAB ANALYSIS

All field samples are assigned a label and an ID number. This ID is also affixed to a chain-of-custody log and to the field data sheet to eliminate any chance of sample mixup.

Prior to analysis, all glassware is thoroughly cleaned (soap and water, tap water rinse, distilled water rinse, IPA rinse) to eliminate any contamination. The evaporating dishes used to evaporate the washings are treated the same as a sample (dried in an oven, desiccated and weighed repeatedly at 6-hour intervals until a constant weight is

achieved). The glassware used to measure volumes and make transfers and dilutions are all NBS Class A to insure accurate measurements. All weighings are carried out on a Sartorius Research Model R160P electronic semi-micro balance supported by a marble table in a separate room from the main analytical laboratory. The balance is calibrated regularly against an NBS Class S-1 weight.

All reagents used in the field and in the laboratory are ACS reagent grade and blanks of these reagents are evaluated for every set of tests. Blanks are taken in the field from the squeeze bottles and not the original container. Records are kept on these blanks to insure consistent quality of the reagents. Prior to use, the IPA is also analyzed to insure no peroxides are present which could lead to high SO_3 and low SO_2 values.

A quality control program consisting of duplicate analyses (to measure precision), spikes (to measure recovery efficiency) or analysis of blind standards supplied by EPA's Quality Assurance Branch (to measure accuracy) is implemented for each test program. Table 6-1 summarizes the results of the QC checks on this program. Records of our lab's participation in the EPA biannual audits for SO_2 are kept on file and verify our in-house QA/QC effort.

6.3 CONTINUOUS MONITORS QUALITY ASSURANCE

The NO_x analyzer are calibrated before and after each test using an EPA Protocol 1 gas (±1%) traceable to NBS. The CO, CO_2 and O_2 analyzers are calibrated before and after each test using a NBS certified gas mixture (±1%). Copies of the calibration gas certificates appear in the Appendix of this report

A sampling system check was performed at the beginning and end of each test day. This was done by introducing an EPA Protocol 1 gas at the sampling probe and measuring the system response. The purpose of this was to check the system for leaks and sample loss.

Multi-point calibration linearity checks of the continuous analyzers were performed on July 19, 1990 through July 24, 1990. These results were well within CARB limitations of ±2% of full scale. Tables 6-2 through 6-6 list the results of these checks.

TABLE 6-1. QA/QC RESULTS

Test No.	Test Parameter	Dup (%)	Rec (%)
2	Filterable Sulfate	99.6	
3	Filterable Sulfate	99.2	
	EPA SO_2 Lot 0584 9XXX		99.7
2	Condensible Sulfate	99.7	
3	Condensible Sulfate		99.1
	EPA SO_2 Lot 0584 9XXX		101.9
2	SO_2	100.0	
3	SO_2	99.4	
	EPA SO_2 Lot 0584 9XXX		99.7

TABLE 6-2. NO_x CALIBRATION SUMMARY

Monitoring Trailer: 2		Calibrated by: JP 7/20/90	
Analyzer:	TECO	Calibrator Manufacturer:	Environics
Model:	10 AR	Model:	201-1520
Serial Number:	8816-103-5	Serial Number:	1122
NO_x Standard:	ALM21987, ALM2355		
Concentration:	1171.4 ppm, 8805 ppm		
Cylinder Pressure:	2000 psi, 1800 psi		

NO_x CALIBRATION AND LINEARITY CHECKS

Range 0-25 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	NO_x out ppm	Chart ppm	% Difference +2% Full Scale
Zero	5000	---	0	0	0
80% URL	4826.8	84.3	20.1	20.1	0
1	4846.3	62.3	14.9	15.05	+ 0.6
2	4865.9	41.8	9.96	10.2	+ 0.96
3	4885.5	21.2	5.05	5.2	+ 0.6

Range 0-100 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	NO_x out ppm	Chart ppm	% Difference +2% Full Scale
Zero	9000	---	0	0	0
80% URL	8233.4	597.6	79.3	79.3	0
1	8387.6	499.3	59.6	60	+ 0.4
2	8536.9	300.5	39.8	40.1	+ 0.3
3	8688.6	152.3	20.2	20	- 0.2

Form MULTI-2(8/91)

TABLE 6-2. NO_x CALIBRATION AND LINEARITY CHECKS (Concluded)

TECO Model 10-AR/Trailer #2/July 20, 1990

Range 0-1000 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	NO_x out ppm	Chart ppm	% Difference +2% Full Scale
Zero	8837.9	---	0	0	0
80% URL	8035.2	805.6	802	802	0
1	8235.9	595.6	593.7	600	+ 0.63
2	8436.6	398.4	397.4	402	+ 0.46
3	8634.8	201	200.3	202	+ 0.17

Range 0-2500 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	NO_x out ppm	Chart ppm	% Difference +2% Full Scale
Zero	3926.1	---	0	0	0
80% URL	3035.3	895.3	2005	2005	0
1	3255.7	661.4	1486.3	1505	+ 0.748
2	3480.7	442.1	992.3	1002.5	+ 0.408
3	3703.4	222.8	499.7	500	+ 0.012

TABLE 6-3. CO CALIBRATION SUMMARY

Monitoring Trailer: 2		Calibrated by: JP 7/19/90	
Analyzer:	ANARAD	Calibrator Manufacturer:	Environics
Model:	AR 602	Model:	201-1520
Serial Number:	1793	Serial Number:	1122
CO Standard:	AAL5660		
Concentration:	9942 ppm		
Cylinder Pressure:	1700 psi		

CO CALIBRATION AND LINEARITY CHECKS

Range 0-10,000 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO out ppm	Chart ppm	% Difference +2% Full Scale
Zero	984.5	---	0	0	0
80% URL	201.3	794.1	7931	7931	0
1	394.6	587.2	5945	5920	- 0.25
2	590.4	392.7	3971	4100	+ 1.29
3	786.2	198.3	2002	2120	+ 1.18

Form MULTI-4 (8/91)

TABLE 6-4. CO CALIBRATION SUMMARY

Monitoring Trailer: 2		Calibrated by: JP 7/24/90	
Analyzer:	TECO	Calibrator Manufacturer:	Environics
Model:	48	Model:	201-1520
Serial Number:	25149-219	Serial Number:	1122
CO Standard:	AAL114, AAL5660		
Concentration:	1003 ppm, 9942 ppm		
Cylinder Pressure:	1300 psi		

CO CALIBRATION AND LINEARITY CHECKS

Range 0-20 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO out ppm	Chart ppm	% Difference +2% Full Scale
Zero	5893.8	---	0	0	0
80% URL	5800.8	94.3	16.04	16.04	0
1	5827.7	69.8	11.88	12.00	+ 0.6
2	5849.7	46.8	7.96	8.02	+ 0.3
3	5874.2	23.7	4.03	4.08	+ 0.25

Range 0-100 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO out ppm	Chart ppm	% Difference +2% Full Scale
Zero	9329.8	---	0	0	0
80% URL	8585.9	747.8	80.3	80.3	0
1	8771.8	552.7	59.4	60	+ 0.6
2	8957.8	369.6	39.7	39.9	+ 0.2
3	9146.3	186.8	20	20	0

Form MULTI-1(8/91)

TABLE 6-4. CO CALIBRATION AND LINEARITY CHECKS (Concluded)

TECO Model 48/Trailer #2/July 24, 1990

Range 0-500 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO out ppm	Chart ppm	% Difference +2% Full Scale
Zero	9800	---	0	0	0
80% URL	9236.8	384.8	397.6	397.6	0
1	9332.3	289.3	299.1	305	+ 1.18
2	9430.2	194.3	200.9	202.5	+ 0.32
3	4374	44.2	99.5	102	+ 0.50

Range 0-1000 ppm

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO out ppm	Chart ppm	% Difference +2% Full Scale
Zero	9800	---	0	0	0
80% URL	8850.2	778.5	803.6	803.6	0
1	9045.9	575.3	594.3	600	+ 0.57
2	9239.3	384.5	397.3	402	+ 0.47
3	9435.1	194.3	200.6	205	+ 0.44

TABLE 6-5. CO_2 CALIBRATION SUMMARY

Monitoring Trailer: 2		Calibrated by: JP 7/19/90	
Analyzer:	ANARAD	Calibrator Manufacturer:	Environics
Model:	AR 602	Model:	201-1520
Serial Number:	1793	Serial Number:	1122
CO_2 Standard:	AAL799		
Concentration:	20%		
Cylinder Pressure:	1000 psi		

CO_2 CALIBRATION AND LINEARITY CHECKS

Range 0-20 %

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	CO_2 out %	Chart %	% Difference +2% Full Scale
Zero	1000	---	0.0	0	0
80% URL	206.2	851.6	16.1	16.1	0
1	397.1	629.2	12.3	12.3	0
2	592.9	420.5	8.3	8.5	+ 1.0
3	786.2	211.8	4.25	4.6	+ 1.75

Form MULTI-6(8/91)

TABLE 6-6. O_2 CALIBRATION SUMMARY

Monitoring Trailer: 2		Calibrated by: JP 7/19/90	
Analyzer:	Teledyne	Calibrator Manufacturer:	Environics
Model:	326A	Model:	201-1520
Serial Number:	43292	Serial Number:	1122
O_2 Standard:	A14722		
Concentration:	45%		
Cylinder Pressure:	1800 psi		

O_2 CALIBRATION AND LINEARITY CHECKS

Range 0-25 %

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	O_2 out %	Chart %	% Difference +2% Full Scale
Zero	1500	---	0	0	0
80% URL	822.9	622.8	20.07	20.07	0
1	984.5	498.2	15.12	15.2	+ 0.32
2	1145.9	332.9	10.13	10.05	- 0.32
3	1309.9	168.1	5.12	5.0	- 0.48

Range 0-10 %

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	O_2 out %	Chart %	% Difference +2% Full Scale
Zero	5000	---	0	0	0
80% URL	4041.2	897.7	8.18	8.18	0
1	4258.9	662.3	6.05	6.15	+ 1.0
2	4476.8	442.3	4.05	4.12	+ 0.7
3	4694.6	222.8	2.04	2.08	+ 0.4

Form MULTI-5(8/91)

TABLE 6-6. O_2 CALIBRATION AND LINEARITY CHECKS (Concluded)

Teledyne Model 326A/Trailer #2/July 19, 1990

Range 0-5 %

Calibration Points	Flow, Dil. cc/min	Flow, Std. cc/min	O_2 out %	Chart %	% Difference +2% Full Scale
Zero	8837.9	---	0	0	0
80% URL	8054.8	806.8	4.10	4.10	0
1	8250.6	596.4	3.03	3.10	+ 1.4
2	8446.4	398.7	2.03	2.10	+ 1.4
3	8642.1	201	1.02	1.05	+ 0.6

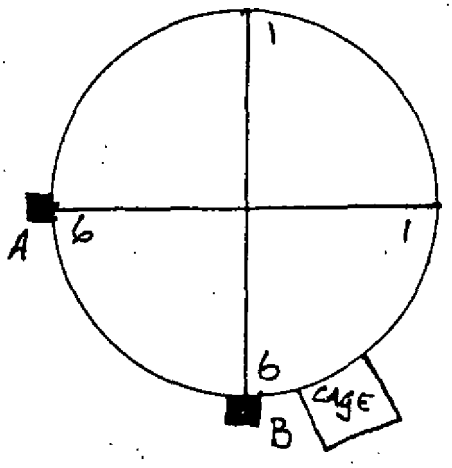
APPENDIX A

STEINER ENVIRONMENTAL RAW DATA

Steiner Environmental, Inc.

SAMPLING POINT LOCATION DATA SHEET

Plant Texaco - Rosedale
Date 12-20-91
Test Location SRU INCINERATOR
Upstream Dist./Dia. 36' / 14.4 Ø
Downstream Dist./Dia. 24' / 9.6 Ø
No. of Sampling Points 12
Stack Dimension 30"
Coupling Length A - 12.75" B - 11.5"
2-3'-inch MPT/FPT/Flange
75' Rope 100' cord power on ground
TEMPORARY HOOKS
XEQ PNT



Sample Point	Dist	Sample Point	Dist	Sample Point	Dist	Sample Point	Dist
1	14.1						
2	17.1						
3	21.6						
4	33.9						
5	38.4						
6	41.4						

SAMPLING POINT RELOCATION: NONE

Steiner Environmental, Inc.

VELOCITY TRAVERSE DATA SHEET

Plant Texaco - Rosedale

Date 12-20-91

Test Location SRU INCINERATOR

Static Pressure (in. wg) -0.33

Barometric Pressure 29.95

Probe Type/Length Q / 6'

Pitot Coefficient 0.84

Stack Dimension 30"

Time: 11:05 Time: 11:15 Time: _____ Time: _____

Smpl Pt.	ΔP	T_s	Smpl Pt.	ΔP	T_s	Smpl Pt.	ΔP	T_s	Smpl Pt.	ΔP	T_s
A-1	0.24	936	B-1	0.27	935						
2	0.24	935	2	0.24	934						
3	0.23	935	3	0.24	935						
4	0.225	934	4	0.24	936						
5	0.225	934	5	0.23	934						
6	0.24	934	6	0.235	934						

SAMPLING POINT RELOCATION NONE

Pitot ✓ O.K.

Avg. $\sqrt{\Delta P}$ = 0.4876

Avg. ΔP = 0.238

Avg. T_s = 934.75

VelTrav.Frm (1/91)

Steiner Environmental, Inc.

PLANT Texaco - Rosedale TEST TYPE M-5/8 FIELD TEST DATA SHEET (Page 1 of 2)

Date 12-20-91 Barometric Pressure 29.90
Test Location SRU INCINERATOR Static in.wg. -0.26
Run Number #2 Probe Type/Length Q/6'
Stack Diameter 30" Pitot Coefficient 0.84
Operator SW Meter Box No./Y 635/1.0048
Filter No. 669 Nozzle No./Size Q/0.391

IMPINGER VOLUMES/WEIGHTS				GAS COMPOSITION			
Contents	Final	Initial	Net	Time	CO_2	O_2	CO
80% IPA	559.7	548.0	11.7				
6% H_2O_2	648.0	589.2	58.8				
6% H_2O_2	603.0	558.8	44.2				
				Leakrate	cfm		"Hg
S.G.	758.0	710.6	47.4	Initial	0.014		15'
		TOTAL	162.1	Final	0.006		6'

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	TEMPERATURE °F						Pump Vacuum in.Hg	$\sqrt{\Delta P}$	Comments
					Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out			
A-1	14:30	0.23	1.82	083.010	961	290	250	60	70	70	3.0	0.480	Pitot O.K.
				086.807	973				83	70			FHW BLK 31586
2	10	0.22	1.74	090.602	974	313	259	50	84	70	3.0	0.469	
				094.361	976				87	70			MF BLK 31587
3	20	0.22	1.75	098.122	973	327	258	55	88	71	3.0	0.469	
				101.885	968				88	71			MF 35mm BLK 31588
4	30	0.215	1.72	105.663	968	330	248	57	88	72	3.0	0.464	
				109.408	890				88	73			operator AT BURNER 15:00
5	40	0.22	1.86	113.145	891	291	260	60	88	72	4.0	0.469	
				117.003	915				87	72			80% IPA BLK 31589
6	50	0.215	1.78	120.848	919	295	260	60	89	72	5.0	0.464	
				124.632	920				88	73			47mm BLK 31590
	60			128.450					47mm BLK 31595		MF BLK 31593		6% H_2O_2 BLK 31591
									BHW H_2O_2 BLK 31596		BHW IPA BLK 31594		FHW BLK 31592

A-4

Forms: Fieldday Form

Steiner Environmental, Inc.

PLANT Texaco - Rosedale TEST TYPE M-5/8 FIELD TEST DATA SHEET (Page 2 of 2)
DATE 12-20-91 RUN NO. #1
TEST LOCATION SRU INCINERATOR OPERATOR SW

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft³	TEMPERATURE °F						Pump Vacuum in.Hg	√ΔP	Comments
					Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out			
B-1	15:40	0.27	2.18	128.450	931	307	253	61	73	70	6.0	0.520	
.				132.644	967				89	73			
2	10	0.24	1.93	136.913	968	314	252	51	89	73	5.0	0.490	
				140.902	979				88	73			
3	20	0.235	1.87	144.833	979	322	257	48	88	73	5.0	0.485	
				148.672	976				87	72			
4	30	0.23	1.83	152.517	973	325	251	46	86	71	4.5	0.480	
				156.371	974				86	71			
5	40	0.24	1.91	160.198	975	318	261	46	88	71	5.0	0.490	
				164.159	977				86	71			
6	50	0.235	1.87	168.043	974	304	259	47	86	70	5.0	0.485	Pitot √ O.K.
				171.951	976				84	70			
EDD RUN 16:40	60			175.875									
T/A	120 min		1.86	92.865	957.17				78.0			0.4802	

A-5

Forms 1B: Fielddat.frm 1/91

Steiner Environmental, Inc.

PLANT Texaco - Rosedale TEST TYPE M-5/8 FIELD TEST DATA SHEET (Page 1 of 2)

IMPINGER VOLUMES/WEIGHTS				GAS COMPOSITION			
Contents	Final	Initial	Net	Time	CO_2	O_2	CO
80% IPA	590.2	576.2	14.0				
6% H_2O_2	618.5	585.0	33.5				
6% H_2O_2	610.8	578.6	32.2				
				Leakrate	cfm		"Hg
S.G.	754.0	707.6	46.4	Initial	0.010		15"
		TOTAL	126.1	Final	0.003		8"

Date 12-20-91 Barometric Pressure 29.88
Test Location 3RD INCINERATOR Static in.wg. -0.31
Run Number # 3 Probe Type/Length Q/6'
Stack Diameter 30" Pitot Coefficient 0.84
Operator SCO Meter Box No./Y 635/1.0048
Filter No. 673 Nozzle No./Size Q/0.391

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	TEMPERATURE °F						Pump Vacuum in.Hg	$\sqrt{\Delta P}$	Comments
					Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out			
A-1	17:35	0.23	1.82	176.414	926	261	264	61	57	57	4.0	0.480	Pitot O.K.
				180.077	965				78	60			FHW B 31597
2	10	0.24	1.89	183.796	970	303	268	37	79	62	5.0	0.490	
				187.646	965				80	63			MP 2 31598
3	20	0.225	1.77	191.410	969	318	271	41	79	64	4.0	0.474	
				195.125	970				80	64			80% IPA 2 31599
4	30	0.22	1.74	198.819	966	293	269	43	82	65	4.5	0.469	
				202.534	968				82	66			6% H_2O_2 2 31600
5	40	0.22	1.74	206.115	968	298	249	44	81	66	4.5	0.469	
				209.783	969				80	67			6% H_2O_2 31601
6	50	0.235	1.86	213.461	967	304	252	51	78	68	5.0	0.485	
				217.267	970				77	68			
	60			221.064									

A-6

Forms: Field Data Tem

Steiner Environmental, Inc.

PLANT Texaco - Rosedale TEST TYPE M-5/8 FIELD TEST DATA SHEET (Page 2 of 2)
DATE 12-20-91 RUN NO. #2
TEST LOCATION SRU INCINERATOR OPERATOR SLW

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft³	TEMPERATURE °F						Pump Vacuum in.Hg	√ΔP	Comments
					Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out			
B-1	18:45	0.265	2.10	221.064	941	252	259	60	63	63	8.0	0.515	unable to Pull ΔH @ 1853
				225.099	969				71	67			stopped to change DME filter Meter Reading @ 227.142
2	10	0.24	1.87	229.512	965	271	263	45	69	60	5.0	0.490	Leak ✓ @ 15" 0.013
				233.288	958				75	61			Restart @ 1925
3	20	0.235	1.85	237.020	959	293	262	46	76	61	5.0	0.485	
				240.873	956				78	62			Meter Reading @ 227.515
4	30	0.235	1.86	244.531	957	296	258	48	78	62	5.0	0.485	-0.373 OFF
				248.264	957				77	63			FINAL Volume
5	40	0.23	1.82	251.678	959	291	261	53	77	63	6.0	0.480	
				255.410	963				73	63			
6	50	0.22	1.73	259.118	962	275	260	54	72	63	6.5	0.469	Pitot ✓ O.K.
				262.774	959				71	63			
	60			266.832									
				90.418									
				-0.373									
T/A	120 min		1.84	90.045	959.08				68.54			0.4825	

A-7

Steiner Environmental, Inc.

CONTINUOUS MONITOR DATA SHEET

Plant Texaco Bosedale PLANT
Date 12-20-91 Run No. 1
Test Location incinerator SRU
Operator DM
Fuel Type refinery Gas Trailer No. 2

APCD Witness/Number
Client Rep Steve Powell Grace LAF-28
Generator Type
Burner Type
O_2 Controller Type

[Dry Uncorrected]

Time	Sample Point	O_2 %	CO_2 %	CO ppm	SO_2 ppm	NO ppm	NO_x ppm	Comments
		7.58	15.93	8.37			205.1	SPAN Gas Value*
		0.0	0.0	0.0			0.0	Zero
		7.58	15.93	8.37			205.1	SPAN
		7.50	15.82	8.33			204.25	Bias SPAN
		0.02						QA ✓ Leak ✓
				399			82.7	recal to New scales
				393			82.0	Bias SPAN
1250	1	5.57	5.04	1350			35.9	Run #1
1300		5.40	4.98	135.0			36.4	Nozzle broke on
1310		5.21	4.98	137.0			36.8	stack test
1320		5.13	4.94	125.0			37.0	
1330		5.10	4.98	125.0			37.4	
1340		5.08	4.98	132.5			37.0	
		0.0	0.0	0.0			0.0	Zero
		7.62	15.82	399			82.7	SPAN
		7.58	15.93	399			82.7	SPAN
		0.0	0.0	0.0			0.0	Zero

Miscellaneous Information

CALIBRATION GASES
NO_x CC98703 CC7380
SO_2
CO CC60408
$CO/CO_2/O_2$ CC60269 CC265

Wet Bulb: _____ Dry Bulb: _____
Barometric Press: _____

RESPONSE TIME
Upscale: _____ Downscale: _____
Upscale: _____ Downscale: _____
Upscale: _____ Downscale: _____

PROCESS DATA
Fuel Flow: _____
Steam Flow: _____
Rating: _____

CONVERTER GAS

	Cal Gas Values	Actual Values
NO		
NO_2		

Conv. Efficiency: _____

Steiner Environmental, Inc.

CONTINUOUS MONITOR DATA SHEET

Plant Texaco Rosedale
Date 12-20-91 Run No. 2
Test Location SRU Incinerator
Operator DM
Fuel Type Gas Trailer No. 2

APCD Witness/Number Greg LaFore
Client Rep Steve Powell
Generator Type
Burner Type
O_2 Controller Type

[Dry Uncorrected]

Time	Sample Point	O_2 %	CO_2 %	CO ppm	SO_2 ppm	NO ppm	NO_x ppm	Comments
		7.58	15.93	399			82.7	SPAN Gas Values
1430		5.06	4.98	141.0			35.2	Run # 2
1440		5.09	4.98	145.0			34.4	
1450		5.09	4.98	153.0			33.0	
1500		5.09	4.98	170.0			32.0	
1510		5.07	4.96	166.0			31.2	
1520		5.04	4.96	169.0			30.9	
		0.0	0.0	0.0			0.0	Zero
		7.57	15.86	396.0			83.0	SPAN
		7.58	15.93	399.			82.7	SPAN
		0.0	0.0	0.0			0.0	Zero
1730		5.40	4.98	206.0			25.4	Run # 3
1740		5.43	5.00	206.0			25.0	
1750		5.42	5.00	188.5			25.1	
1800		5.47	5.00	200.0			24.9	
1810		5.39	5.00	207.0			24.2	
1820		5.38	5.00	218.0			23.5	
		0.0	0.0	0.0			-1.7	SPAN
		7.74	16.12	397			81.0	Zero
		7.65	15.80	398			81.6	Bias SPAN
		0.02						DAV Leak ✓

Miscellaneous Information

CALIBRATION GASES
NO_x
SO_2
CO
$CO/CO_2/O_2$

Wet Bulb: Dry Bulb:
Barometric Press:

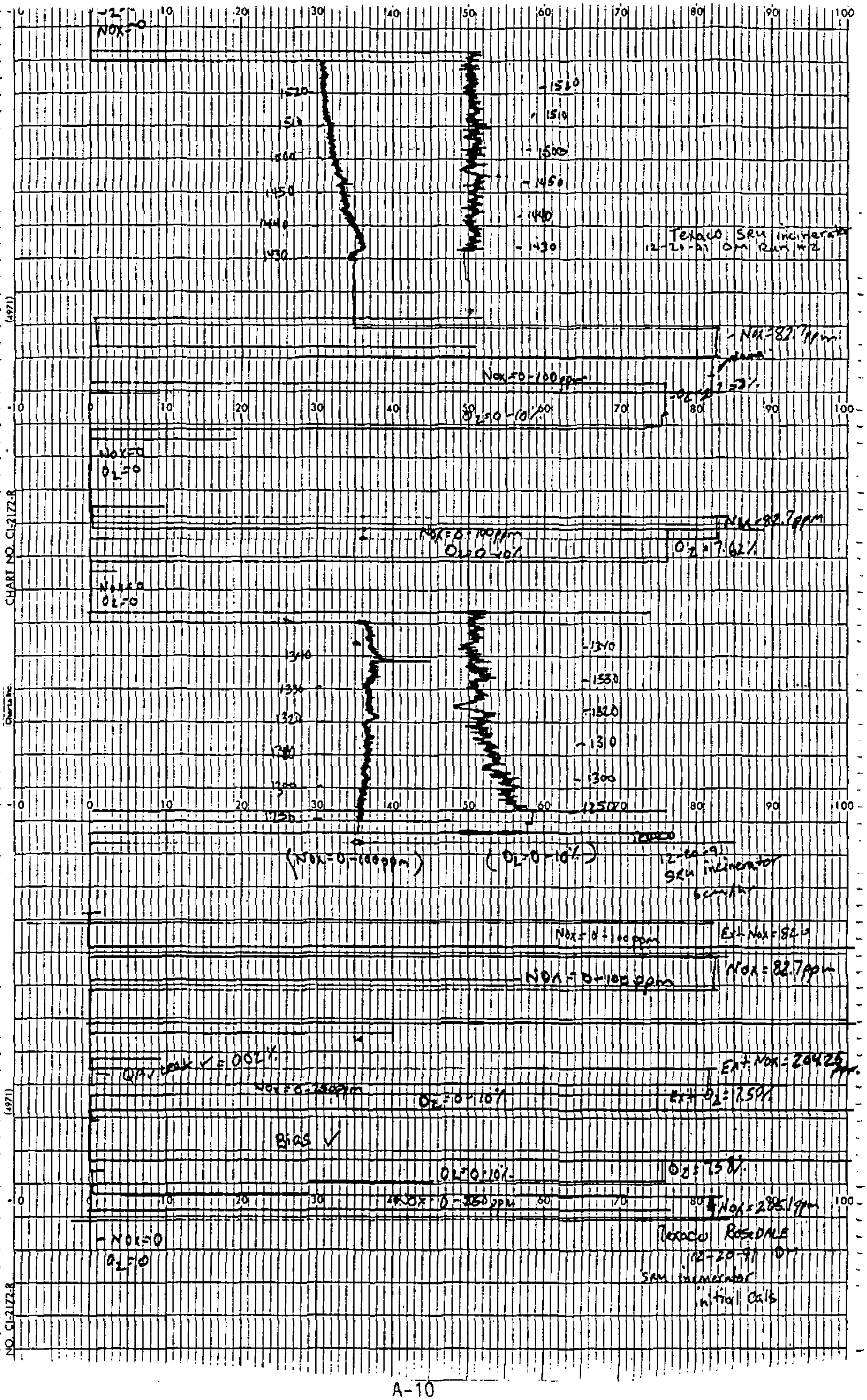
RESPONSE TIME
Upscale: Downscale:
Upscale: Downscale:
Upscale: Downscale:

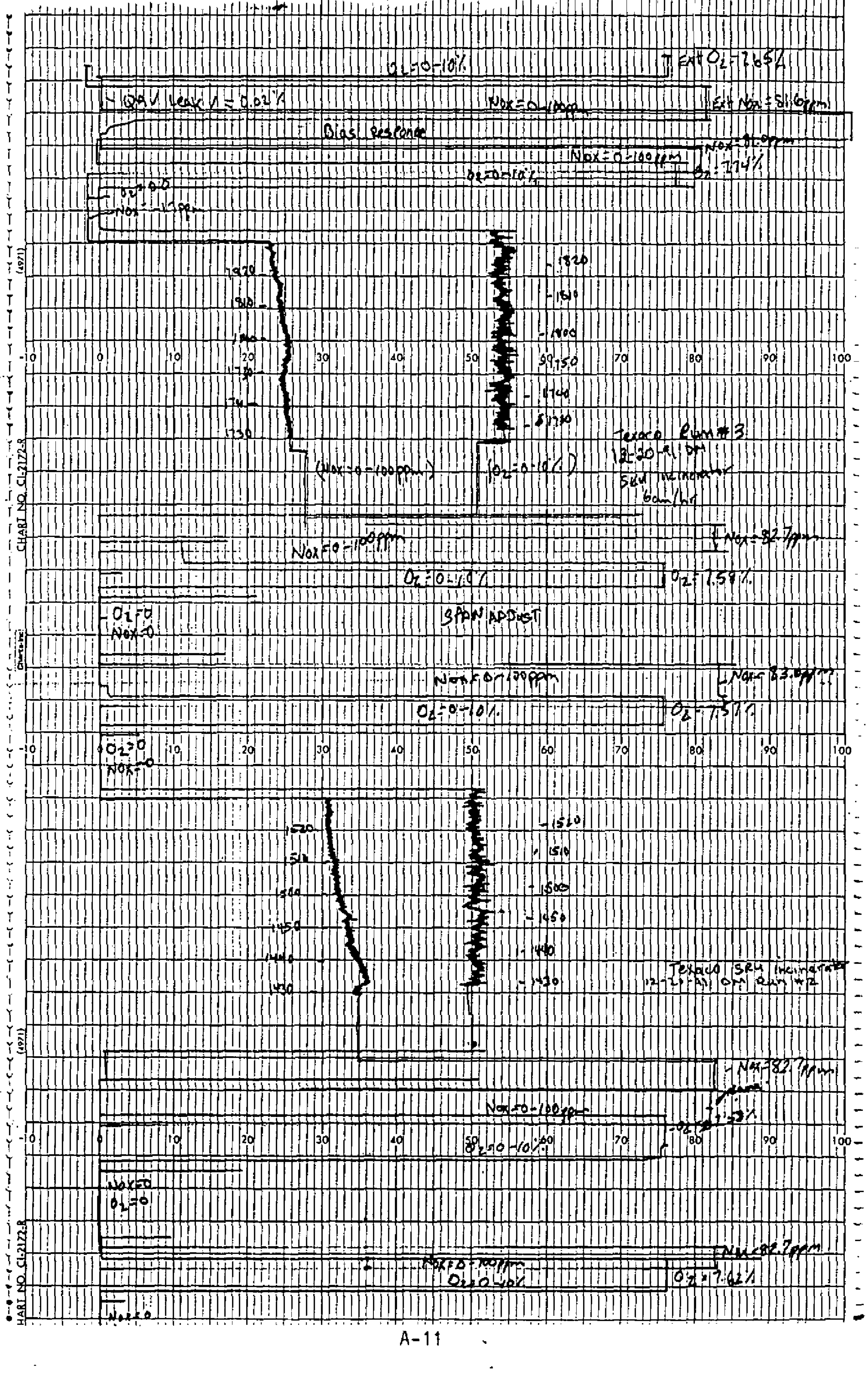
PROCESS DATA
Fuel Flow:
Steam Flow:
Rating:

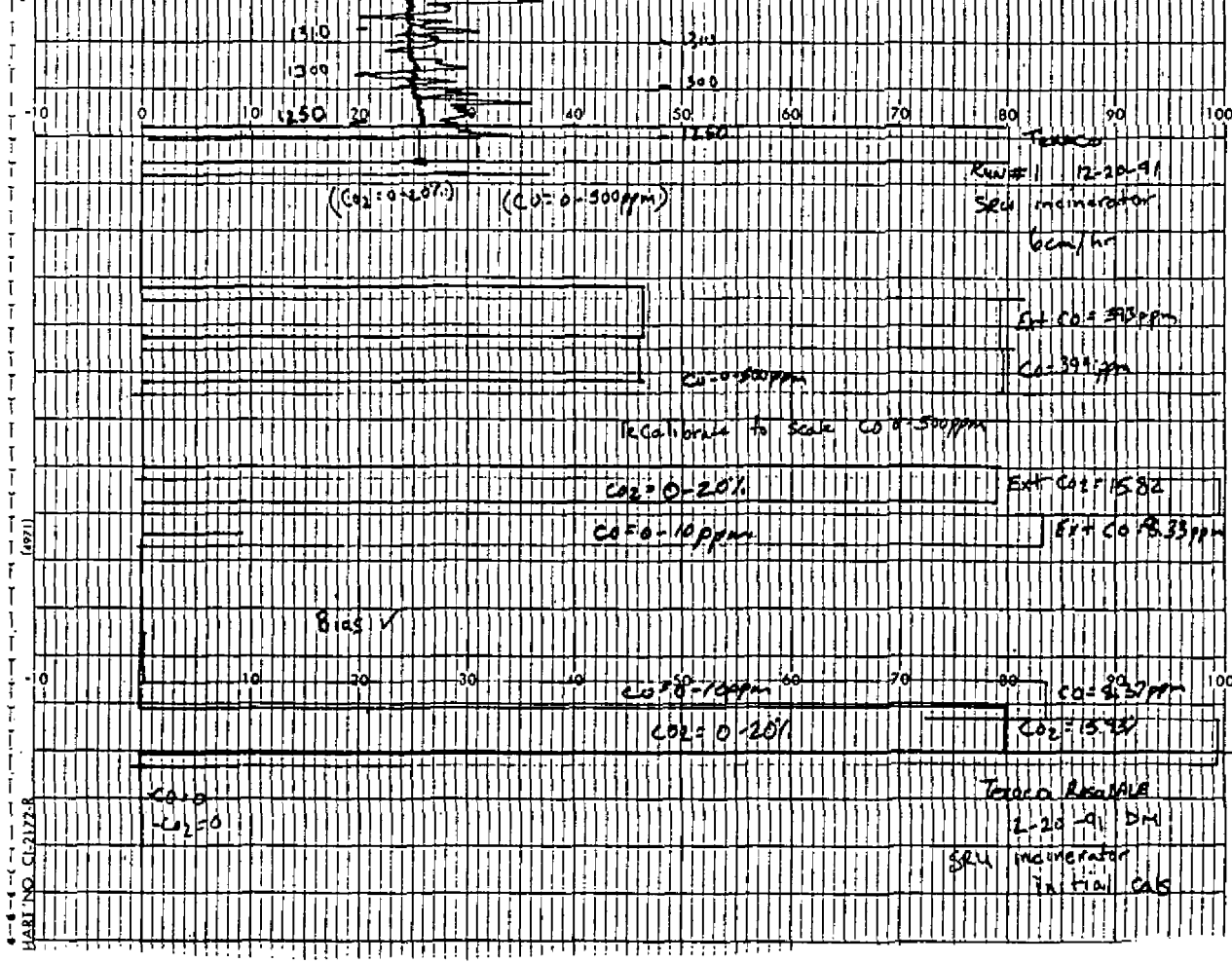
CONVERTER GAS

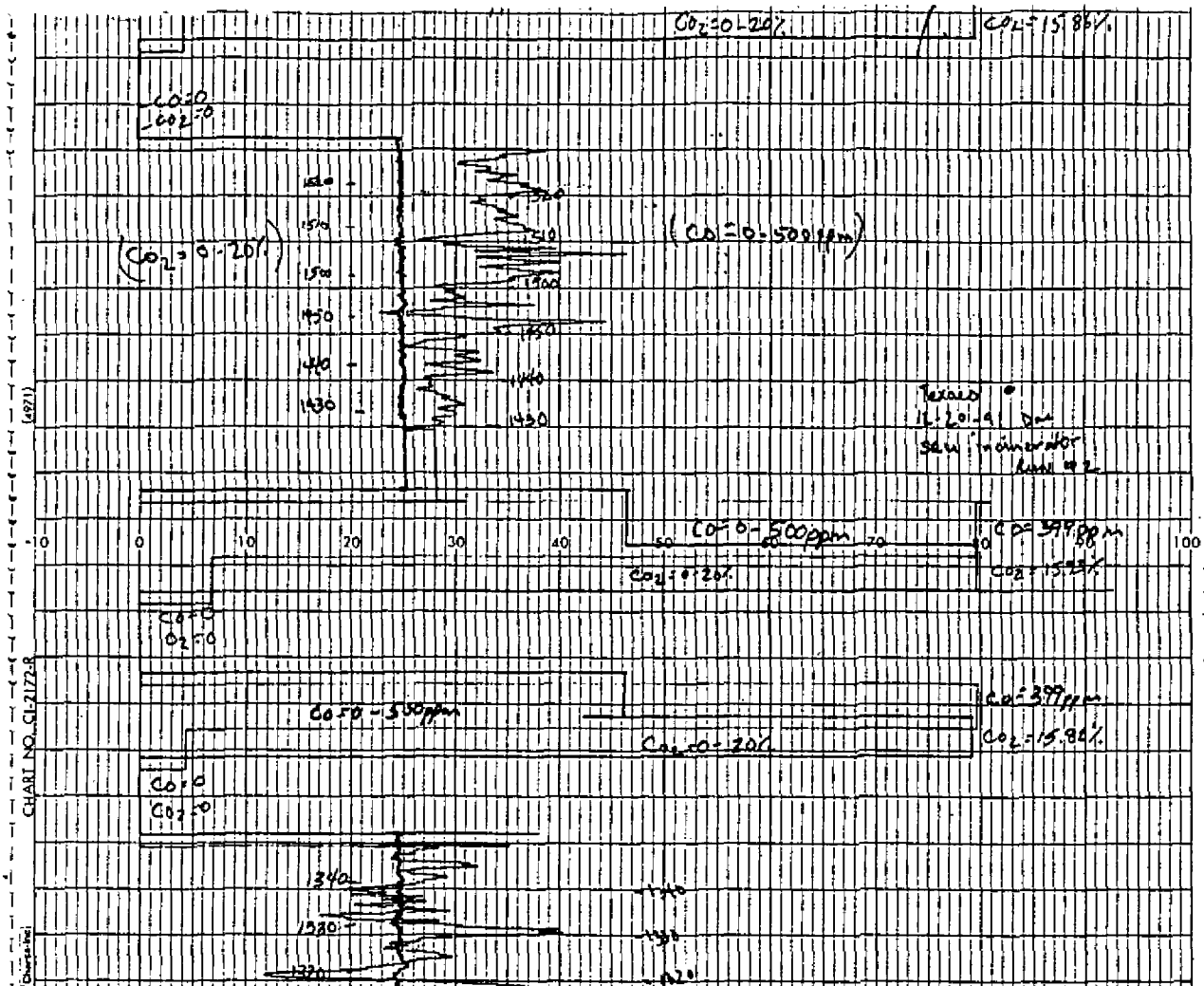
	Cal Gas Values	Actual Values
NO		
NO_2		

Conv. Efficiency:


Texaco SRU incinerator
12-20-91 OM Run #2
NOx = 82.7 ppm
NOx 0-100 ppm
O2 0-10%
O2 = 7.62%
(NOx = 0-100 ppm)
(O2 0-10%)
SRU incinerator
6 cm/hr
Ext NOx = 82.4
NOx = 82.7 ppm
NOx 0-100 ppm
Bias ✓
O2 0-10%
NOx 0-250 ppm
Texaco Rosedale
12-20-91
SRU incinerator
initial cals


O2=0-10%
QAV leak = 0.02%
NOx=0-100ppm
Bias Response
NOx=0-100ppm
O2=0-10%
Texaco Run #3
SRU incinerator
(NOx=0-100ppm)
(O2=0-10%)
NOx=0-100ppm
O2=0-10%
O2=7.59%
SPAN ADJUST
O2=0
NOx=0
NOx=0-100ppm
O2=0-10%
O2=0
NOx=0
Texaco SRU incinerator
NOx=0-100ppm
O2=0-10%
NOx=0
O2=0
NOx=0-100ppm
O2=0-10%
O2=7.62%
NOx=0


Texaco
Run #1 12-20-91
SRU incinerator
6cm/hr
Ext CO = 393 ppm
CO = 394 ppm
CO = 0-500 ppm
Recalibrate to scale CO 0-500ppm
CO2 = 0-20%
Ext CO2 = 15.82
CO = 0-10 ppm
Ext CO = 8.33 ppm
Bias ✓
CO = 8-1000 ppm
CO2 = 0-20%
CO = 8.37 ppm
CO2 = 15.82
Texaco Results
12-20-91 DM
SRU incinerator
Initial CAS
CO = 0
CO2 = 0
(CO2 = 0-20%)
(CO = 0-500 ppm)
HART NO. CL-21728


CO=0
O2=0
(O2=0-20%)
(CO=0-500ppm)
CO=0-500ppm
O2=0-20%
CO=0
O2=0
CO=0-550ppm
O2=0-20%
CO=0
O2=0
CHART NO. SL-2172-R

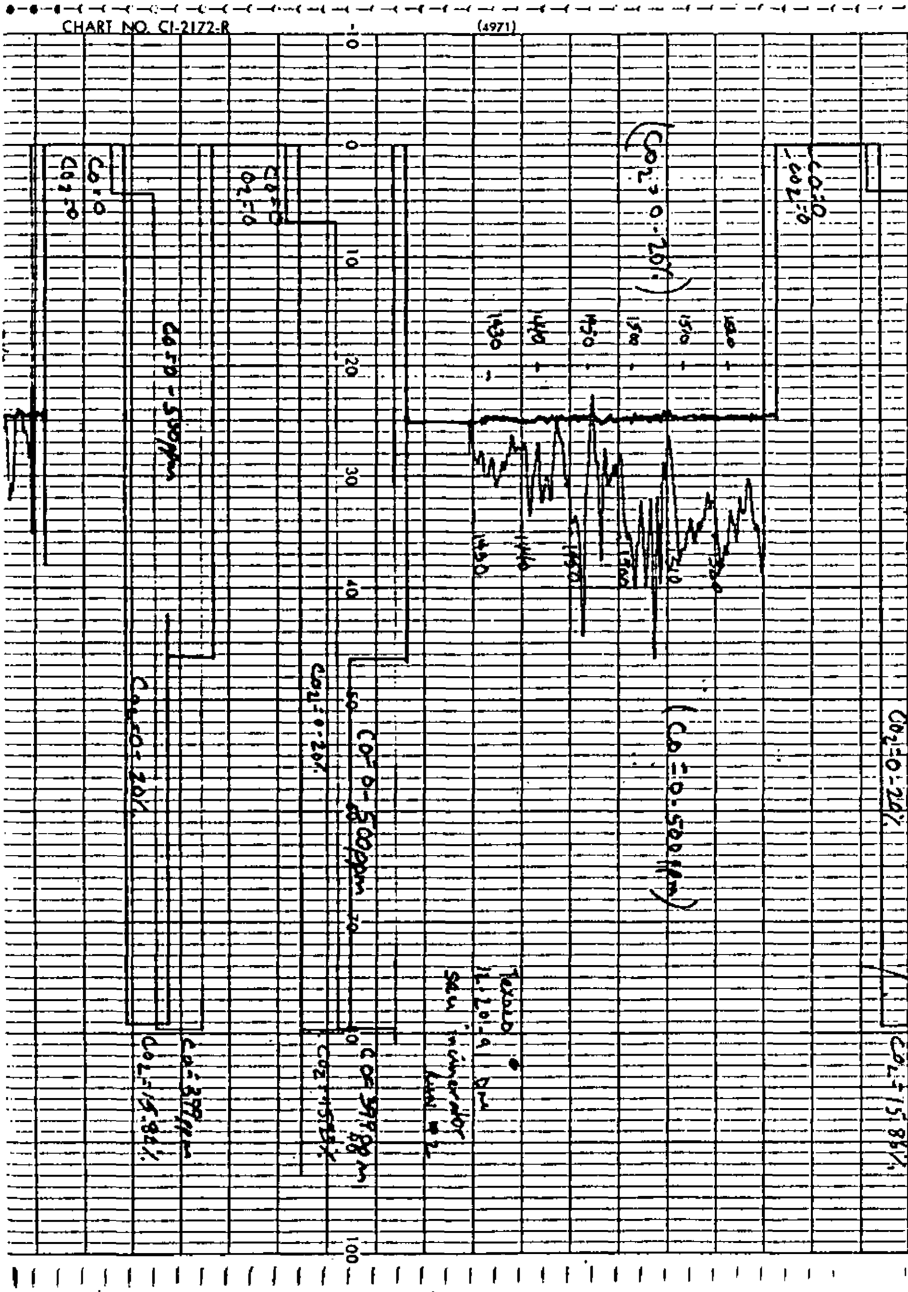
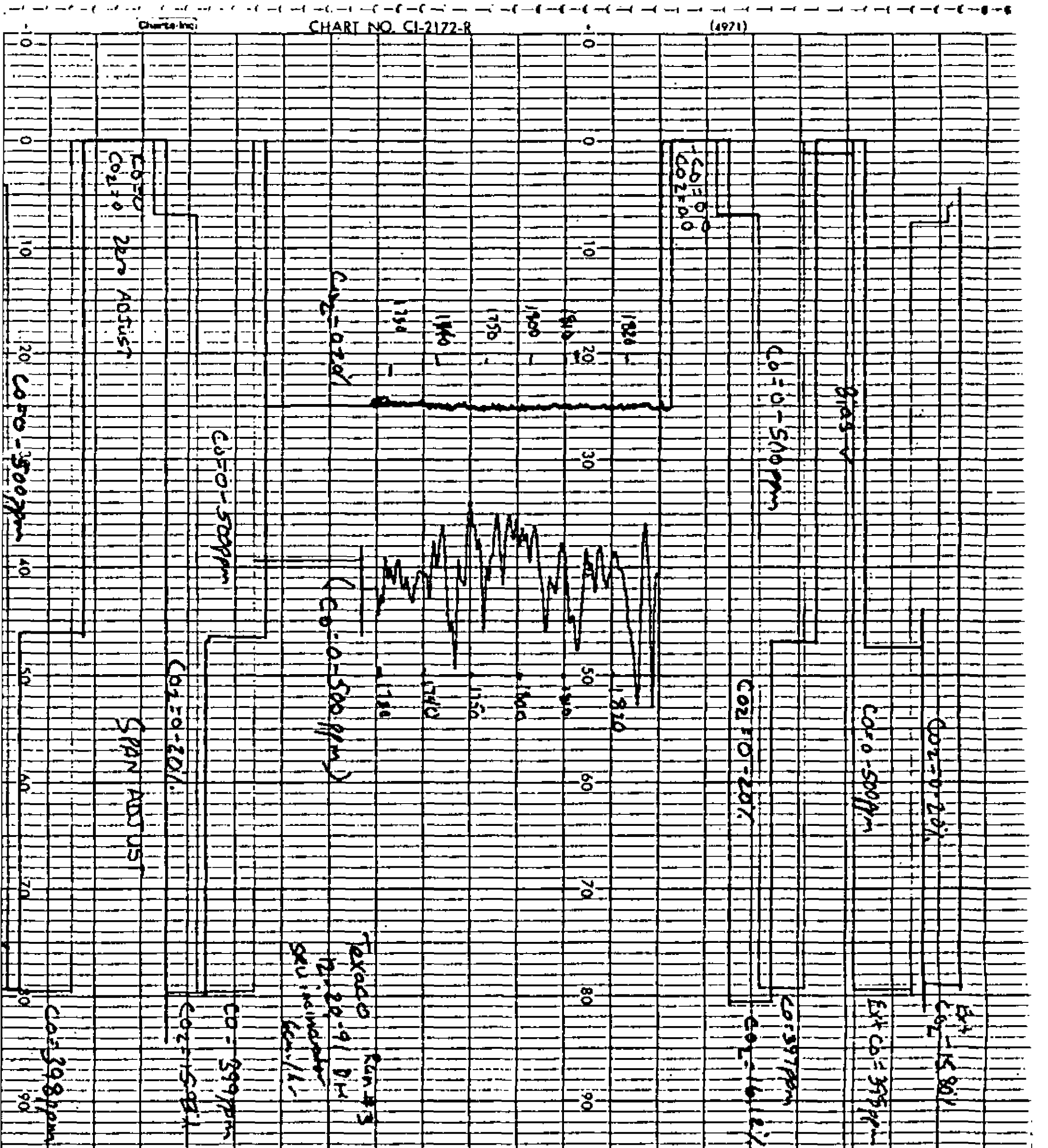


CHART NO. CI-2172-R
(4971)
0
10
20
30
40
50
60
70
80
90
100


Charts Inc.
CHART NO. CI-2172-R
(4971)
SPAN ADJUST
Texaco Run #3

A. CALIBRATION AND CORRECTION DATA

Company : TEXACO R&M
Date : 12/20/91
Test Run : 1
Station : SRU INCINERATOR
Test Condition:

	Concentration : Drift Uncorrected (A) / Corrected (B)									
	%O2		%CO2		ppm CO		ppm SO2		ppm NOx	
	A	B	A	B	A	B	A	B	A	B
Point #										
1	5.57	5.57	5.04	5.04	135.00				35.90	
2	5.40	5.39	4.98	4.99	135.00				36.40	
3	5.21	5.20	4.98	4.99	137.00				36.80	
4	5.13	5.11	4.94	4.96	125.00				37.00	
5	5.10	5.08	4.98	5.01	125.00				37.40	
6	5.08	5.06	4.98	5.01	132.00				37.00	
MEAN		5.23		5.00	131.50				36.75	

	%O2	%CO2	ppm CO	ppm SO2	ppm NOx
Zero Check	0.00	0.00	0.00		0.00
Span Check	7.62	15.82	399.00		82.70
Cal. Gas	7.58	15.93	399.00		82.70
Scf	0.00088	-0.00115			
Zcf	0.00000	0.00000			

Scf, Span Drift Correction Factor = (% Drift / 100) / # of Readings
Zcf, Zero Drift Correction Factor = Zero Drift / # of Readings
Cz, Zero Corr. Concentration = measured value - [Zcf x (Point # - 0.5)]
B, Corrected Concentration = Cz / [1 + (Scf x (Point # - 0.5))]

A. CALIBRATION AND CORRECTION DATA

Company : TEXACO R&M
Date : 12/20/91
Test Run : 2
Station : SRU INCINERATOR
Test Condition:

	Concentration : Drift Uncorrected (A) / Corrected (B)									
	%O2		%CO2		ppm CO		ppm SO2		ppm NOx	
	A	B	A	B	A	B	A	B	A	B
Point #										
1	5.06	5.06	4.98	4.98	141.00	141.03			35.20	35.19
2	5.09	5.09	4.98	4.99	145.00	145.09			34.40	34.37
3	5.09	5.09	4.98	4.99	153.00	153.16			33.00	32.95
4	5.09	5.09	4.98	4.99	170.00	170.25			32.00	31.93
5	5.07	5.08	4.96	4.98	166.00	166.31			31.20	31.12
6	5.04	5.05	4.96	4.98	169.00	169.39			30.90	30.80
MEAN		5.08		4.98		157.54				32.73

	%O2	%CO2	ppm CO	ppm SO2	ppm NOx
Zero Check	0.00	0.00	0.00		0.00
Span Check	7.57	15.86	398.00		83.00
Cal. Gas	7.58	15.93	399.00		82.70
Scf	-0.00022	-0.00073	-0.00042		0.00060
Zcf	0.00000	0.00000	0.00000		0.00000

Scf, Span Drift Correction Factor = (% Drift / 100) / # of Readings
Zcf, Zero Drift Correction Factor = Zero Drift / # of Readings
Cz, Zero Corr. Concentration = measured value - [Zcf x (Point # - 0.5)]
B, Corrected Concentration = Cz / [1 + (Scf x (Point # - 0.5))]

A. CALIBRATION AND CORRECTION DATA

Company : TEXACO R&M
Station : SRU INCINERATOR
Date : 12/20/91
Test Run : 3
Test Condition:

	Concentration : Drift Uncorrected (A) / Corrected (B)									
	%O2		%CO2		ppm CO		ppm SO2		ppm NOx	
	A	B	A	B	A	B	A	B	A	B
Point #										
1	5.40	5.39	4.98	4.98	206.00	206.09			25.40	
2	5.43	5.40	5.00	4.99	206.00	206.26			25.00	
3	5.42	5.37	5.00	4.98	188.50	188.89			25.10	
4	5.47	5.40	5.00	4.97	200.00	200.59			24.90	
5	5.39	5.31	5.00	4.96	207.00	207.78			24.20	
6	5.38	5.28	5.00	4.95	218.00	219.01			23.50	
MEAN		5.36		4.97		204.77			24.68	

	%O2	%CO2	ppm CO	ppm SO2	ppm NOx
Zero Check	0.00	0.00	0.00		-1.70
Span Check	7.74	16.12	397.00		81.00
Cal. Gas	7.58	15.93	399.00		82.70
Scf	0.00352	0.00199	-0.00084		
Zcf	0.00000	0.00000	0.00000		

Scf, Span Drift Correction Factor = (% Drift / 100) / # of Readings
Zcf, Zero Drift Correction Factor = Zero Drift / # of Readings
Cz, Zero Corr. Concentration = measured value - [Zcf x (Point # - 0.5)]
B, Corrected Concentration = Cz / [1 + (Scf x (Point # - 0.5))]

WW

B. ZERO AND SPAN DRIFT PERCENT CALCULATIONS

Company : TEXACO R&M Date : 12/20/91

Station : SRU INCINERATOR

Run 1	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
Initial Span	7.58	15.93	399.00		82.70
Measured Span	7.62	15.82	399.00		82.70
Zero Drift	0.00	0.00	0.00		0.00
Final, Actual Span	7.62	15.82	399.00		82.70
Percent Drift	0.5	-0.7	0.0		0.0

Run 2	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
Initial Span	7.58	15.93	399.00		82.70
Measured Span	7.57	15.86	398.00		83.00
Zero Drift	0.00	0.00	0.00		0.00
Final, Actual Span	7.57	15.86	398.00		83.00
Percent Drift	-0.1	-0.4	-0.3		0.4

Run 3	O2 (%)	CO2 (%)	CO (ppm)	SO2 (ppm)	NOx (ppm)
Initial Span	7.58	15.93	399.00		82.70
Measured Span	7.74	16.12	397.00		81.00
Zero Drift	0.00	0.00	0.00		-1.70
Final, Actual Span	7.74	16.12	397.00		82.70
Percent Drift	2.1	1.2	-0.5		0.0

Final, Actual Span = Measured Span - Zero Drift

Percent Drift = (Final, Actual Span - Initial Span) / Initial Span x 100

Steiner Environmental, Inc.

Date: 12-20-91

Test Location: Texaco SRU incinerator

SAMPLE HANDLING/LOG-IN

NO	SAMPLE TYPE	VOLUME	COMMENTS
1	31586 5/8 Meth FHW Sample BLK Test		
2	31587 5/8 Meth MF Sample BLK Test		
3	31588 5/8 Meth MF 75 Sample BLK Test		
4	31589 5/8 Meth 80% IPA Sample BLK Test		
5	31590 5/8 Meth 47mm Sample BLK Test		
6	31591 5/8 Meth 6% H_2O_2 Sample BLK Test		
7	31592 5/8 Meth FHW Sample 1 Test		
8	31593 5/8 Meth MF Sample 1 Test		
9	31594 5/8 Meth BHW IPA Sample 1 Test		
10	31595 5/8 Meth 47mm Sample 1 Test		
11	31596 5/8 Meth BHW H_2O_2 Sample 1 Test		
12	31597 5/8 Meth FHW Sample 2 Test		

CHAIN-OF-CUSTODY

Signature	Date/Time	Signature	Date/Time
Mary Meloche	12-20-91 / 2200		
M. Carnaroli	12-23-91		

Steiner Environmental, Inc.

Date: 12-20-91

Test Location: Texaco SRU incinerator

SAMPLE HANDLING/LOG-IN

NO	SAMPLE TYPE	VOLUME	COMMENTS
1	31598 S/S Meth MF Sample 2 Test		
2	31599 S/S Meth 50% IPA Sample 2 Test		
3	31600 S/S Meth 47mm F Sample 2 Test		
4	31601 S/S Meth 50% H_2O_2 Sample 2 Test		
5			
6			
7			
8			
9			
10			
11			
12			

CHAIN-OF-CUSTODY

Signature	Date/Time	Signature	Date/Time
Cheryl Melcher	12-20-91/2200		
M. Carrasco	12-23-91		

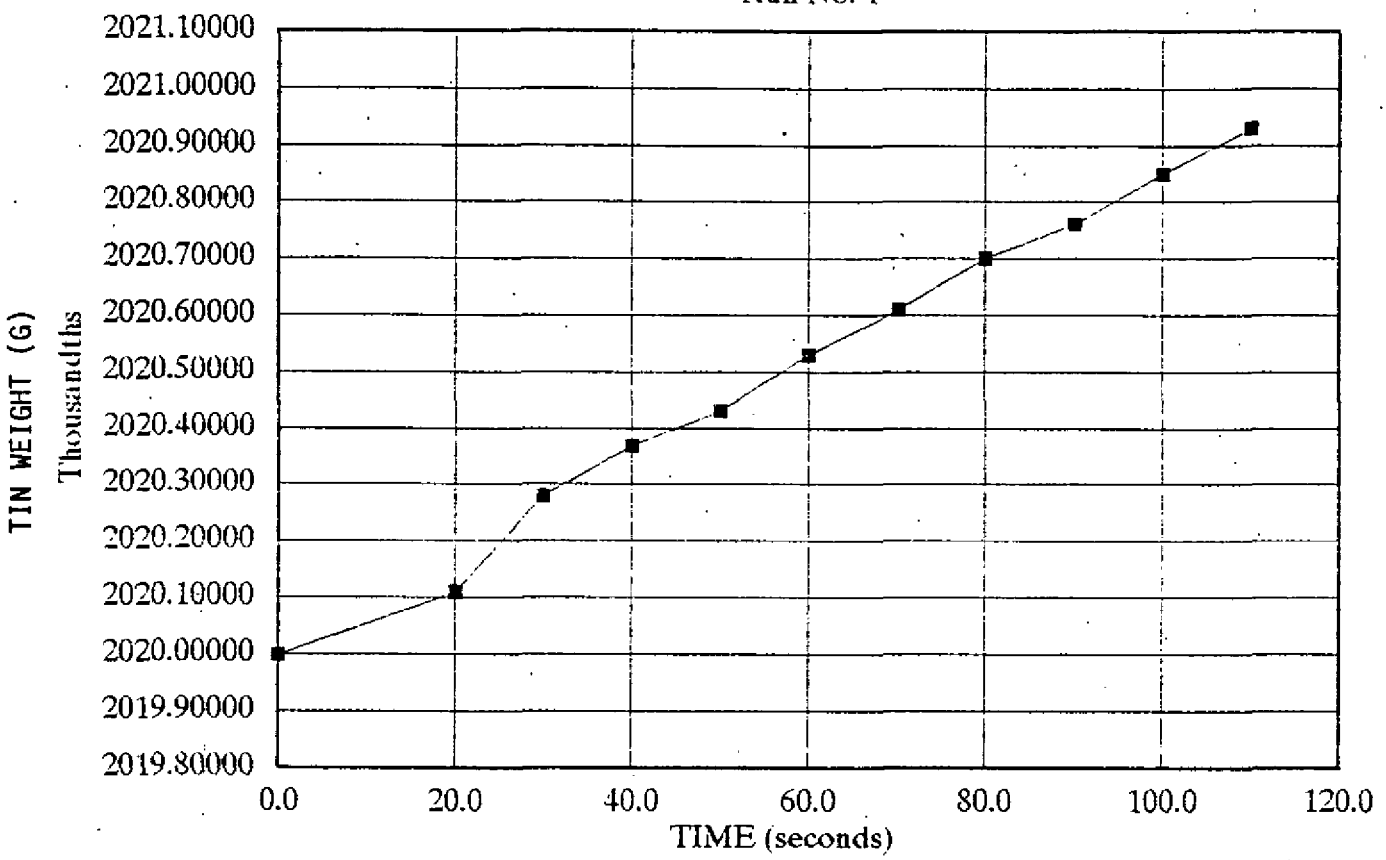
A N A L Y T I C A L R E P O R T

SAMPLE TYPE :FHW ANALYSIS (g) DATE : 01-07-92
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :Acetone ANALYST : MC
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :GRAVIMETRIC

Test No.	Sample Volume (ml)	Analytical Result (total sample) Uncorrected	Blank Corr. (g)
1	178	0.12356	0.12338
2	179	0.04293	0.04275
Blank	100	0.00010	

SRU Incinerator, 12-20-91

Run No. 1

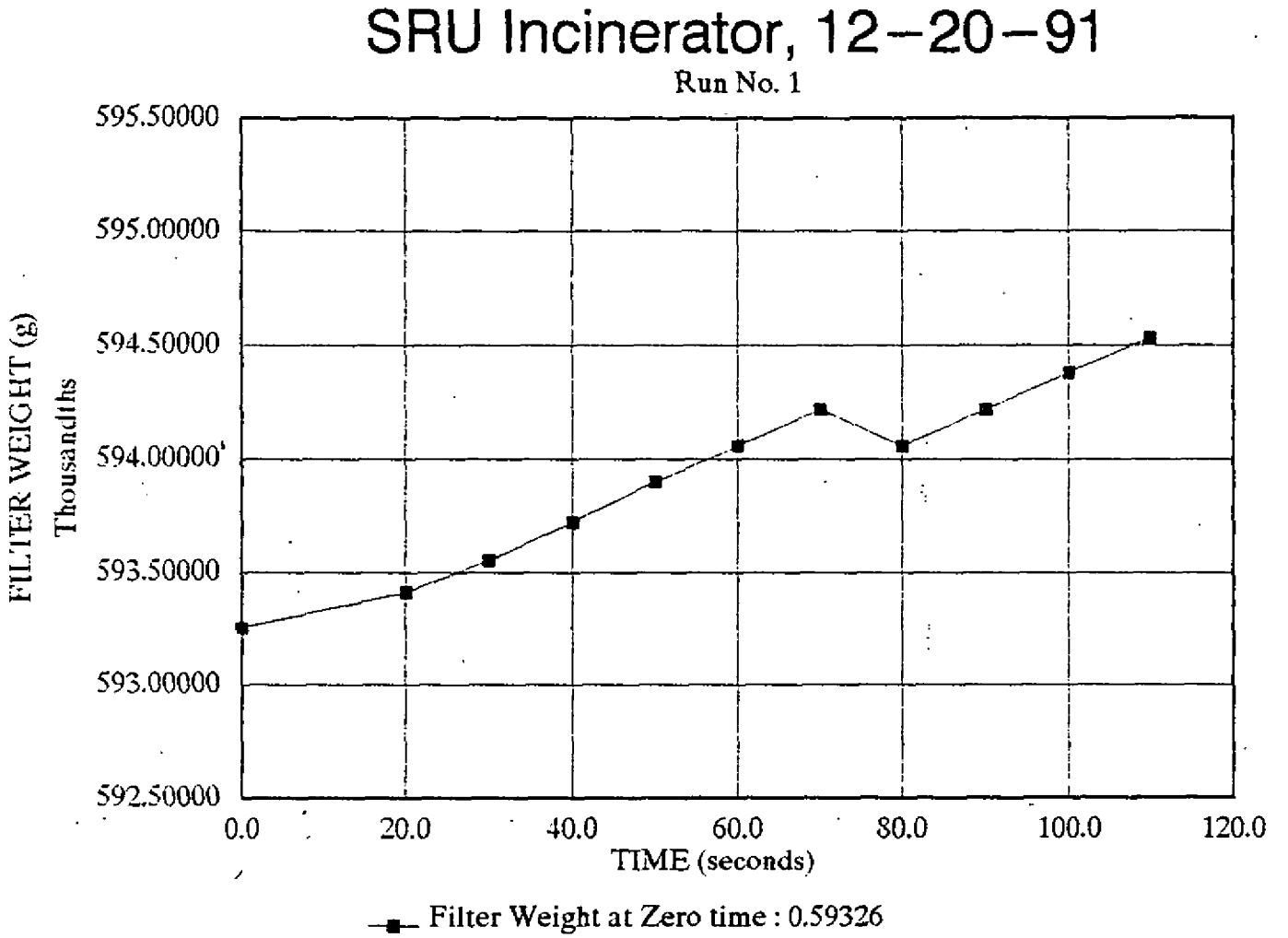


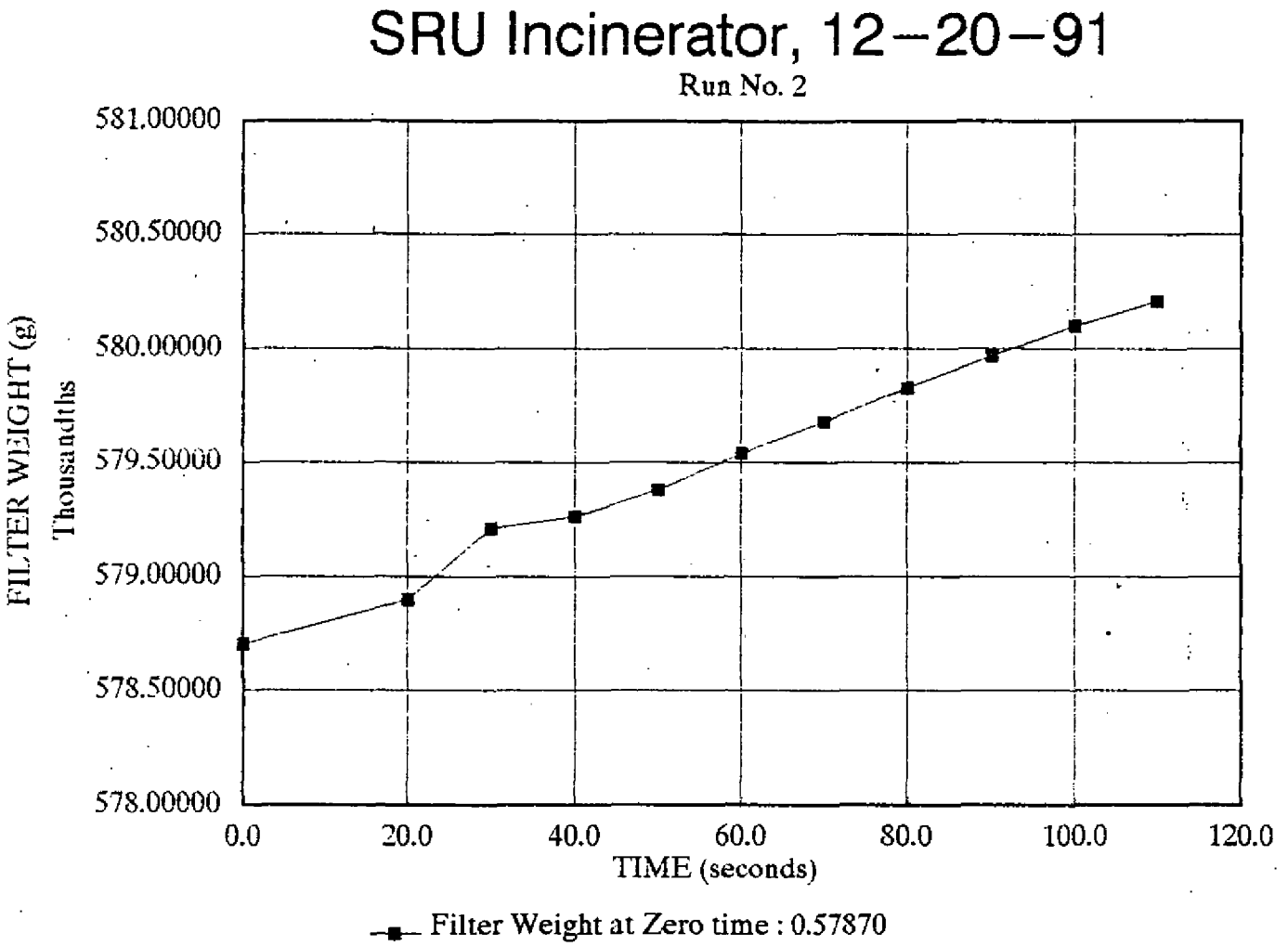
Tin Weight at Zero Time = 2.02000 g

A N A L Y T I C A L R E P O R T

SAMPLE TYPE :FILTERABLE PARTICULATE DATE : 01-06-92
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :100 mm FILTER ANALYST : MC & KG
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :GRAVIMETRIC

Test No.	Filter No.	Analytical Result (total sample) Uncorrected	Blank Corr. (g)
1	669	0.08386	0.08386
2	673	0.06128	0.06128
Blank		0.00000	


SRU Incinerator, 12-20-91
Run No. 1
595.50000
595.00000
594.50000
594.00000
593.50000
593.00000
592.50000
FILTER WEIGHT (g)
Thousandths
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (seconds)
Filter Weight at Zero time : 0.59326


SRU Incinerator, 12-20-91
Run No. 2
581.00000
580.50000
580.00000
579.50000
579.00000
578.50000
578.00000
FILTER WEIGHT (g)
Thousandths
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (seconds)
Filter Weight at Zero time : 0.57870

A N A L Y T I C A L R E P O R T

SAMPLE TYPE :CONDENSIBLE PARTICULATE DATE : 01-10-92
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :80% IPA + Amf ANALYST :
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :GRAVIMETRIC

	Test No.	Sample Volume		Analytical Result (total sample) Uncorrected	Blank Corr. (g)
	1	360		0.07791	0.07706
	2	285		0.07050	0.06976
IPA	Blank	100		0.00015	
AMF	Blank	100		0.00094	
DI	Blank	100		0.00063	

A N A L Y T I C A L R E P O R T

SAMPLE TYPE :FILTERABLE SO4 DATE : 01-07-91
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :FHW + MF ANALYST : MC
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :BaCl2 Titration

	Test No.	Sample Volume	Sample Aliquot	TITER mls or (Absorbance)	Analyt. Result (total sample) mg H2SO4
	1	100	10	11.58	59.10
	2	100	10	5.14	26.09
	Blank	100	10	0.05	0.26

% Duplicate = 99.6 RUN NO. 1
99.2 RUN NO. 2

% CONFIDENCE = 99.7 EPA SO2 LOT 0584 9XXX
NORMALITY = 0.010460251

A N A L Y T I C A L R E P O R T

SAMPLE TYPE :CONDENSIBLE SULFATE DATE : 01-10-92
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :BHW + AMF ANALYST : WB
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :BaCL2 Titration

	Test No.	Sample Volume	Sample Aliquot	TITER mls or (Absorbance)	Analyt. Result (total sample) mg' H2SO4
	1	100	10	8.57	44.41
	2	100	10	7.84	40.61
IPA	Blank	100	10	0.05	0.26
AMF	Blank	100	10	0.06	0.31
DI	Blank	100	10	0.06	0.31

% Duplicate = 99.7 RUN NO. 1

% Recovery = 99.1 RUN NO. 2
% CONFIDENCE = 101.9 EPA SO2 LOT 0584 9XXX
NORMALITY = 0.010638298

A N A L Y T I C A L R E P O R T

SAMPLE TYPE :SO2 DATE : 01-06-92
SAMPLING METHOD :M5/8
SAMPLE COMPONENT :3% H2O2 ANALYST : MC
REQUESTED BY :Texaco/Rosedale, SRU Incinerator, 12-20-91
ANALYTICAL METHOD :BaCL2 Titration

	Test No.	Sample Volume	Sample Aliquot	TITER mls or (Absorbance)	Analyt. Result (total sample) mg H2SO4
	1	440	10	396.10	8913.19
	2	400	10	461.80	9447.08
Blank				0.05	0.26

% Duplicate = 100.0 RUN NO. 1
99.4 RUN NO. 2

% CONFIDENCE = 99.7 EPA SO2 LOT 0584 9XXX
NORMALITY = 0.010438413

WWW

SOURCE TEST CALCULATIONS

PLANT : TEXACO R&M
SRU INCINERATOR

RUN NO.: 2
DATE : DECEMBER 20, 1991

STANDARD TEMP.: 60 DEG. F

METER TEMP.	=	78 DEG. F	STATIC PRESS.	=	-0.26 in. H2O
STACK TEMP.	=	957.17 DEG. F	Cp	=	0.840
SQ.RT. dP	=	0.4802 in. H2O	STACK I.D.	=	30.00 inch
METER ORIFICE	=	1.86 in. H2O	DUCT LENGTH	=	inch
METER VOLUME	=	92.865 Cu.Ft.	DUCT WIDTH	□	inch
METER Y	=	1.0048	STACK AREA	=	4.909 Sq.Ft.
BAR. PRESSURE	=	29.90 in.Hg	TEST TIME	=	120.00 min.
COND.(Vlc)	=	162.1 ml	NOZZLE DIA.	=	0.3910 inch

GAS ANALYSIS	:	5.08 % O2	0.00 % CO	
		4.98 % CO2	89.94 % N2	

****

Vm(std) = [T(std) + 460 / 29.92] x Vm x Y x (Pb + (dH / 13.6)) / (Tm + 460).....	=	90.541	dscf
Vw(std) =(8.9148 x 10e-5) x (Tstd + 460) x Vic	=	7.514	scf
Bws = Vw(std) / (Vm(std) + Vw(std)).....	=	0.077	Lower Bws value used.
Bws @ Saturated Conditions = Vapor Press. of H2O @ Dew Point Temp. / (Ps, in.Hg.)	=	1.000	
%EA =(%O2 - 0.5%CO)/(0.264%N2 - (%O2-0.5%CO)) x 100	=	27.22	
Md =(.44 x %CO2)+(.32 x %O2)+[.28 x (%N2 + %CO)]	=	29.00	
Ms = (Md x (1-Bws)) + (18.0 x Bws).....	=	28.16	
P(stack) □ Pbar + [Pstatic / 13.6]	=	29.88	in. Hg
vs = 85.49 x CP x (Sq.Rt.dP) x [Sq.Rt.(Ts + 460) / (Ms x Ps)]	=	44.75	ft/sec
Qs □ vs x As x 60	=	13,181	acf/min
Qs(std) = Qs x (1-Bws)x((Tstd + 460)/(Ts + 460)) x (Ps/29.92)	=	4,460	dscf/min
I = (Ts+460) x [(0.002669 x Vlc) + (Vm(std)/(Tstd + 460)/ 29.92] x 100 / (Time x Ps x An x vs x 60)	=	99.59	%

WWW

SOURCE TEST CALCULATIONS

PLANT : TEXACO R&M
SRU INCINERATOR

RUN NO.: 3
DATE : DECEMBER 20, 1991

STANDARD TEMP.: 60 DEG. F

METER TEMP.	◘	68.54 DEG. F	STATIC PRESS.	=	-0.31 in. H2O
STACK TEMP.	◘	959.08 DEG. F	Cp	=	0.840
SQ.RT. dP	=	0.4825 in. H2O	STACK I.D.	=	30.00 inch
METER ORIFICE	◘	1.84 in. H2O	DUCT LENGTH	=	inch
METER VOLUME	=	90.045 Cu.Ft.	DUCT WIDTH	=	inch
METER Y	◘	1.0048	STACK AREA	◘	4.909 Sq.Ft.
BAR. PRESSURE	◘	29.88 in.Hg	TEST TIME	=	120.00 min.
COND.(Vlc)	=	126.1 ml	NOZZLE DIA.	=	0.3910 inch

GAS ANALYSIS : 5.36 % O2 0.00 % CO
4.97 % CO2 89.67 % N2

****

Vm(std) = [T(std) + 460 / 29.92] x Vm x Y x (Pb + (dH / 13.6)) / (Tm + 460)..... = 89.299 dscf

Vw(std) =(8.9148 x 10e-5) x (Tstd + 460) x Vic = 5.846 scf

Bws = Vw(std) / (Vm(std) + Vw(std))..... = 0.061 | Lower Bws value used.

Bws @ Saturated Conditions = Vapor Press. of H2O @ Dew Point Temp. / (Ps, in.Hg.) ..... = 1.000

%EA =(%O2 - 0.5%CO)/(0.264%N2 - (%O2-0.5%CO)) x 100 = 29.27

Md =(.44 x %CO2)+(.32 x %O2)+[.28 x (%N2 + %CO)] = 29.01

Ms = (Md x (1-Bws)) + (18.0 x Bws)..... = 28.33

P(stack) = Pbar + [Pstatic / 13.6] ..... = 29.86 in. Hg

vs = 85.49 x CP x (Sq.Rt.dP) x [Sq.Rt.(Ts + 460) / (Ms x Ps)] ..... = 44.88 ft/sec

Qs = vs x As x 60 ..... = 13,217 acf/min

Qs(std) ◘ Qs x (1-Bws)x((Tstd + 460)/(Ts + 460)) x (Ps/29.92) ..... = 4,536 dscf/min

I ◘ (Ts+460) x [(0.002669 x Vlc) + (Vm(std)/(Tstd + 460)/ 29.92] x 100 / (Time x Ps x An x vs x 60) = 96.58 %

EMISSION RATE CALCULATIONS

PLANT :TEXACO R&M
SRU INCINERATOR

RUN NO.: 2
DATE : DECEMBER 20, 1991
O2 CORR.: 3.0 %

STANDARD TEMP. : 60 DEG. F

Front Half Wash (FHW)	0.12338 grams	¦	Vm(std)	90.541 ft3
Mass Filter (MF)	0.08386 grams	¦	Vw(std)	7.514 ft3
Back Half Wash (BHW)	0.07706 grams	¦	Qs(std)	4,460 dscfm
Front Half Sulfate (FHS)	59.10 mg H2SO4	¦	Bws	0.077
Back Half Sulfate (BHS)	44.41 mg H2SO4	¦	CO2	4.98 %
H2O2 Catch (SO2)	8913.19 mg H2SO4	¦	O2	5.08 %

F-FACTOR

10E6 x [3.64(%H) + 1.53(%C) + 0.57(%S) + 0.14(%N) - 0.46(%O2)] / (Btu/lb) x [(Tstd + 460)/528] ..... dscf/MMBtu

FILTERABLE PARTICULATE

15.432 x (FHW + MF) / [Vm(std) + Vw(std)]	0.0326	gr/scf
15.432 x (FHW + MF) / Vm(std)	0.0353	gr/dscf
gr/dscf x (12 / %CO2)	0.0851	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	1.35	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

TOTAL PARTICULATE

15.432 x (FHW + MF + BHW) / [(Vm(std) + Vw(std)] ...	0.0447	gr/scf
15.432 x (FHW + MF + BHW) / (Vm(std)	0.0485	gr/dscf
gr/dscf x (12 / %CO2)	0.1168	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	1.85	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

TOTAL SULFATE

0.015432 x (FHS + BHS) / [Vm(std) + Vw(std)]	0.0163	gr/scf
0.015432 x (FHS + BHS) / Vm(std)	0.0176	gr/dscf
gr/dscf x (12 / %CO2)	0.0425	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	0.67	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

SULFUR DIOXIDE (SO2)

1.60864 x [T(std) + 460] x (mg H2SO4) / [98.076 x Vm(std)]	839.63	ppm
ppm x [(20.9 - Oxygen Corr.) / (20.9 - %O2)]	950.02	@ O2 corr.
ppm x (1 - Bws)	775.29	ppm (wet)
8.223E-5 x Qs(std) x 64.062 x ppm / [T(std) + 460]..	37.94	lb/hr
F-Factor x 64.062 x [1.3711E-6 / [T(std)+ 460]] x [20.9 / (20.9 - %O2)] x ppm		lb/MMBtu
lb/hr / (dscfm x 60 min/hr) 1.42E-04		lb/dscf

SULFUR (S)

(lb/MMBtu SO2) / 2		lb/MMBtu
(lb/MMBtu Total Sulfate) x (32 / 98.076)		lb/MMBtu
Total Sulfur		lb/MMBtu

EMISSION RATE CALCULATIONS

PLANT :TEXACO R&M
SRU INCINERATOR

RUN NO.: 3
DATE : DECEMBER 20, 1991
O2 CORR.: 3.0 %

STANDARD TEMP. : 60 DEG. F

Front Half Wash (FHW)	0.04275 grams	Vm(std)	89.299 ft3
Mass Filter (MF)	0.06128 grams	Vw(std)	5.846 ft3
Back Half Wash (BHW)	0.06976 grams	Qs(std)	4,536 dscfm
Front Half Sulfate (FHS)	26.09 mg H2SO4	Bws	0.061
Back Half Sulfate (BHS)	40.61 mg H2SO4	CO2	4.97 %
H2O2 Catch (SO2)	9447.08 mg H2SO4	O2	5.36 %

F-FACTOR

10E6 x [3.64(%H) + 1.53(%C) + 0.57(%S) + 0.14(%N) - 0.46(%O2)] / (Btu/lb) x [(Tstd + 460)/528] ..... dscf/MMBtu

FILTERABLE PARTICULATE

15.432 x (FHW + MF) / [Vm(std) + Vw(std)]	0.0169	gr/scf
15.432 x (FHW + MF) / Vm(std)	0.0180	gr/dscf
gr/dscf x (12 / %CO2)	0.0434	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	0.70	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

TOTAL PARTICULATE

15.432 x (FHW + MF + BHW) / [(Vm(std) + Vw(std)] ...	0.0282	gr/scf
15.432 x (FHW + MF + BHW) / (Vm(std)	0.0300	gr/dscf
gr/dscf x (12 / %CO2)	0.0725	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	1.17	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

TOTAL SULFATE

0.015432 x (FHS + BHS) / [Vm(std) + Vw(std)]	0.0108	gr/scf
0.015432 x (FHS + BHS) / Vm(std)	0.0115	gr/dscf
gr/dscf x (12 / %CO2)	0.0278	@ 12% CO2
0.00857 x Qs(std) x gr/dscf	0.45	lb/hr
F-Fac x 1.4286E-4 x [20.9 / (20.9-%O2)] x gr/dscf ..		lb/MMBtu

SULFUR DIOXIDE (SO2)

1.60864 x [T(std) + 460] x (mg H2SO4) / [98.076 x Vm(std)]	902.30	ppm
ppm x [(20.9 - Oxygen Corr.) / (20.9 - %O2)]	1039.33	@ O2 corr.
ppm x (1 - Bws)	846.86	ppm (wet)
8.223E-5 x Qs(std) x 64.062 x ppm / [T(std) + 460]..	41.46	lb/hr
F-Factor x 64.062 x [1.3711E-6 / [T(std)+ 460]] x [20.9 / (20.9 - %O2)] x ppm		lb/MMBtu
lb/hr / (dscfm x 60 min/hr)	1.52E-04	lb/dscf

SULFUR (S)

(lb/MMBtu SO2) / 2		lb/MMBtu
(lb/MMBtu Total Sulfate) x (32 / 98.076)		lb/MMBtu
Total Sulfur		lb/MMBtu

EMISSION RATE CALCULATIONS

PLANT : TEXACO R&M
SOURCE : SRU INCINERATOR
Temp. Std. : 60 dF
Press. Std.: 29.92 in. Hg. 3 % O2 Correction

Run No.	1	2	3	AVERAGE
Date	12/20/91	12/20/91	12/20/91	
Oxygen (%)	5.23	5.08	5.36	5.22
Qs(std), dscfm	4,460	4,460	4,536	4,485
NOx, ppm	36.75	32.73	24.68	31.39
SO2, ppm				
CO, ppm	131.50	157.54	204.77	164.60
HC, ppm				
F-Factor				
NOx, MW = 46.005				
NOx, lb/hr	1.19	1.06	0.81	1.02
NOx, ppm @ O2	41.99	37.02	28.43	35.81
NOx, lb/MMBtu				
SO2, MW = 64.058				
SO2, lb/hr				
SO2, ppm @ O2				
SO2, lb/MMBtu				
CO, MW = 28.010				
CO, lb/hr	2.60	3.11	4.11	3.27
CO, ppm @ O2	150.26	178.21	235.85	188.11
CO, lb/MMBtu				
HC, MW = 16.043				
HC, lb/hr				
HC, ppm @ O2				
HC, lb/MMBtu				

* lb/hr = 8.223E-5 x Qs(std) x MW x ppm / (Tstd + 460)

* ppm @ O2 = ppm measured x [(20.9 - O2% correction) / (20.9 - %O2 measured)]

* lb/MMBtu = F-Factor x MW x [1.3711E-6 / (Tstd + 460)] x [20.9 / (20.9 - O2%)] x ppm

* lb/Bbl = (lb/MMBtu) x (MMBtu/Bbl)

DRY GAS METER / ORIFICE METER CALIBRATION DATA

Date 10-29-91
Bar. Press. in.Hg 29.67
Meter Box No. ... 635

Dry Gas Meter No. ... 2409937
Standard Test Meter # 69279
Operator ..... JP

STANDARD TEST METER			DRY TEST METER				
Press. dHs (in. H2O)	Temp. Ts (dF)	Volume Vs (ft3)	Press. dH (in. H2O)	Temp. Tdi (dF)	Temp. Tdo (dF)	Volume Vd (ft3)	Time t (min)
	67.0	183.329		91	86	642.954	
-1.2	66.0	160.348	0.5	80	80	619.242	56.0
Avg/Net :	66.5	22.981			84	23.712	
	68.0	210.175		92	86	670.550	
-1.9	68.0	183.483	1.0	81	81	643.112	47.0
Avg/Net :	68.0	26.692			85	27.438	
	68.0	236.853		99	88	697.911	
-2.6	68.0	210.401	1.5	93	85	670.769	38.0
Avg/Net :	68.0	26.452			91	27.142	
	69.0	257.744		100	86	719.252	
-3.2	68.0	237.022	2.0	97	86	698.079	26.0
Avg/Net :	68.5	20.722			92	21.173	
	69.0	283.353		103	88	745.220	
-4.4	69.0	258.023	3.0	97	86	719.524	26.0
Avg/Net :	69.0	25.330			94	25.696	

$$y = Vs \times (Pbar + (dHs / 13.6)) \times (Avg.\ Td + 460) / [\ Vd \times (Pbar + (dH / 13.6)) \times (\ Ts + 460)]$$

$$Ko = [(Vs/t) \times [(Tdo + 460) / (Ts + 460)] \times [(Pbar + (dHs/13.6) / (Pbar + (dH/13.6)] / [((Tdo + 460) \times dH) / (Pbar + (dH/13.6)) \times (Mm)]^{0.5}$$

dH :	0.5	1.0	1.5	2.0	3.0	Avg.	Std.Dev.
y :	0.9976	0.9969	1.0072	1.0096	1.0126	1.0048	0.0064
Ko :	0.7502	0.7307	0.7315	0.7228	0.7183	0.7307	0.0109

y : 0.63 % Relative Std. Dev.

Ko : 1.50 % Relative Std. Dev.

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: SP2750-90REL.11 PAGE 2

COMPONENT	CONCENTRATION(v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: CC98701						
			Monitor Labs Model 8440		12/21/90	01/02/91
Nitric Oxide	19.41 ± 0.39 ppm	GMIS	S/N 136	07/02/92	19.37 ppm	19.44 ppm
		Cylinder #	Continuous		19.46 ppm	19.36 ppm
Nitrogen,O2-Free Balance		CAL5735	Chemiluminescence		19.41 ppm	19.42 ppm
Cylinder Pressure: 2000 psig		@ 19.42 ppm	Last Cal Date: 10/23/90	Mean:	19.41 ppm	19.41 ppm
CYLINDER NO.: CC98699						
			Monitor Labs Model 8440		12/21/90	01/02/91
Nitric Oxide	19.85 ± 0.40 ppm	GMIS	S/N 136	07/02/92	19.91 ppm	19.93 ppm
		Cylinder #	Continuous		19.82 ppm	19.82 ppm
Nitrogen,O2-Free Balance		CAL5735	Chemiluminescence		19.79 ppm	19.81 ppm
Cylinder Pressure: 2000 psig		@ 19.42 ppm	Last Cal Date: 10/23/90	Mean:	19.84 ppm	19.85 ppm
CYLINDER NO.: CC98760						
			Monitor Labs Model 8440		12/12/90	12/27/90
Nitric Oxide	206.9 ± 2.1 ppm	GMIS	S/N 136	06/27/92	206.9 ppm	207.4 ppm
		Cylinder #	Continuous		206.8 ppm	207.1 ppm
Nitrogen,O2-Free Balance		CC7341	Chemiluminescence		206.4 ppm	206.7 ppm
Cylinder Pressure: 2000 psig		@ 247.5 ppm	Last Cal Date: 10/23/90	Mean:	206.7 ppm	207.1 ppm
CYLINDER NO.: CC98703						
			Monitor Labs Model 8440		12/12/90	12/27/90
Nitric Oxide	205.1 ± 2.1 ppm	GMIS	S/N 136	06/27/92	204.8 ppm	205.2 ppm
		Cylinder #	Continuous		205.2 ppm	205.7 ppm
Nitrogen,O2-Free Balance		CC7341	Chemiluminescence		204.5 ppm	205.0 ppm
Cylinder Pressure: 2000 psig		@ 247.5 ppm	Last Cal Date: 10/23/90	Mean:	204.9 ppm	205.3 ppm

CC98760	NOx	206.9 ppm	CC98701	NOx	19.76 ppm
	NO2	<1 ppm		NO2	<0.35 ppm
CC98703	NOx	205.1 ppm	CC98699	NOx	19.85 ppm
	NO2	<1 ppm		NO2	<0.1 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

SCOTT - MARRIN, INC. 2001 THIRD ST., UNIT H RIVERSIDE, CALIFORNIA 92507

REPORT OF ANALYSIS

CUSTOMER ORDER NUMBER: Bl.-SP-2750-90 Rel. 6

CYLINDER NUMBER CC7380

COMPONENT	CONCENTRATION (v/v)
Nitric Oxide	82.7 ± 0.8 ppm
Nitrogen Dioxide	<0.4 ppm
Nitrogen*	Balance

Cylinder Pressure: 2000 psig

*Oxygen-free.

Replicate	11/9/90	82.5 ppm	11/16/90	82.9 ppm
Analysis		82.7 ppm		82.7 ppm
Data On		82.3 ppm		83.0 ppm
NO:	Mean	82.5 ppm		82.9 ppm

Expiration Date NO: 5/16/92

above analysis was performed in accordance with Section 3.0.4 of the revised EPA traceability protocol No. 1 dated June 9, 1987. The analysis is traceable to the National Institute of Standards & Technology by direct intercomparison with GMIS, cylinder number CC12643 at 99.3 ppm Nitric Oxide in Oxygen-free Nitrogen. The analysis was performed using a Monitor Labs Model 8440, S/N 136 analyzer with continuous chemiluminescence detection. The last multipoint calibration was performed 10/23/90.

CYLINDER NUMBER _____

COMPONENT CONCENTRATION (v/v)

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
EPA PROTOCOL GAS MIXTURES

PAPE01

TO: DATE : 01/14/91

SUE POWERS
STEINER ENVIRONMENTAL
4930 BOYLAN STREET
BAKERSFIELD, CA 93308

CUSTOMER ORDER NUMBER: SP 2750-90REL11 PAGE 1

COMPONENT	CONCENTRATION (v/v)	REFERENCE STANDARD	ANALYZER MAKE,MODEL,S/N,DETECTION	EXPIRATION DATE	REPLICATE ANALYSIS DATA	
CYLINDER NO.: CC60408						
			Carle Instr Model 8000		12/31/90	01/07/91
Carbon Monoxide	8.37 ± 0.17 ppm	GMIS	S/N 8249	07/07/92	8.46 ppm	8.31 ppm
		Cylinder #	Methanation/FID		8.42 ppm	8.37 ppm
Nitrogen	Balance	CC163	Gas Chromatography		8.32 ppm	8.29 ppm
Cylinder Pressure: 2000 psig		@ 9.85 ppm	Last Cal Date: 12/24/90		Mean: 8.40 ppm	8.33 ppm
CYLINDER NO.: CC91366						
			Carle Instr Model 8000		12/31/90	01/07/91
Carbon Monoxide	8.54 ± 0.17 ppm	GMIS	S/N 8249	07/07/92	8.64 ppm	8.46 ppm
		Cylinder #	Methanation/FID		8.56 ppm	8.52 ppm
Nitrogen	Balance	CC163	Gas Chromatography		8.50 ppm	8.54 ppm
Cylinder Pressure: 2000 psig		@ 9.85 ppm	Last Cal Date: 12/24/90		Mean: 8.57 ppm	8.51 ppm

ppm = umole/mole % = mole-%

The above analyses were performed in accordance with EPA-1987 Traceability Protocol # 1, Section 3.0.4, Procedure G1.

Analyst: Mark Monson
M.J. Monson

Approved:
J.T.Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

STEI01
TO:

DATE: 11/20/91

SUE POWERS
STEINER ENVIRONMENTAL, INC.
4950 BOYLAN STREET
BAKERSFIELD, CA 93308

CUSTOMER ORDER NUMBER: SP-2750-90REL43

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC60269	Carbon Monoxide	38.2 ± 0.4 ppm	SRM 2614a
	Carbon Dioxide	15.93 ± 0.16 %	SRM 1675b
	Oxygen	7.58 ± 0.08 %	SRM 2658a
	Nitrogen	Balance	

ppm = umole/mole % = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/202491.

Analyst: M.S. Calhoun

Approved: J.T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

STEI01

TO:

DATE: 11/18/91

SUE POWERS
STEINER ENVIRONMENTAL, INC.
4930 BOYLAN STREET
BAKERSFIELD, CA 93308

CUSTOMER ORDER NUMBER: SP-2750-90REL44

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC265	Carbon Monoxide	399 ± 4 ppm	SRM 1680b
	Carbon Dioxide	9.15 ± 0.09 %	SRM 1675b
	Oxygen	0.975 ± 0.010 %	SRM 2657
	Nitrogen	Balance	
CC89601	Carbon Monoxide	39.8 ± 0.4 ppm	SRM 2614a
	Oxygen	3.48 ± 0.03 %	SRM 2658a
	Carbon Dioxide	15.15 ± 0.15 %	SRM 1675b
	Nitrogen	Balance	

ppm = umole/mole % = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/20Z491.

Analyst: M.S. Calhoun

Approved: J.T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

KERN COUNTY RESULTS

K.C. Vm(std) = 90.54 K.C. Q(std) = 4460

SITE-RUN	gr/dscf	gr/scf	gr/scf@T%C	%O2	lb/hr
OUTLET- 2 PM	0.0482	0.0445	0.1162	5.08	1.84

KERN COUNTY RESULTS

K.C. Vm(std) = 90.54 K.C. Q(std) = 4452

SITE-RUN	gr/dscf	gr/scf	gr/scf@T%C	%O2	lb/hr
OUTLET- 2 PM	0.0353	0.0326	0.0850	5.08	1.35
OUTLET- 2 SO4	0.0177	0.0164	0.0428	5.08	0.68

SITE-RUN	ppm(dry)	ppm(wet)	lb/hr
OUTLET- 2 SO2	841.25	776.65	37.96

SITE-RUN	ppm(dry)	ppm@3%O2	%O2	lb/hr
OUTLET- 2 NOx	32.7	37.0	5.08	1.06

SITE-RUN	ppm(dry)	ppm@%O2	%O2	lb/hr
OUTLET- 2 CO	157.00	177.64	5.08	3.10

****

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_4	SO_2	NO_2	CO
Jan - Mar	1425.63 ~~642.83~~	~~782.58~~	55479.23	1425.41	4569.70
Apr - Jun	1689.68 ~~761.90~~	~~927.52~~	65754.88	1689.42	5416.08
Jul - Sep	1611.79 ~~726.77~~	~~884.77~~	62723.64	1611.54	5166.41
Oct - Dec	1776.69 ~~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.

Figure #1: Maps showing General Location of incinerator taken out of service.

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.

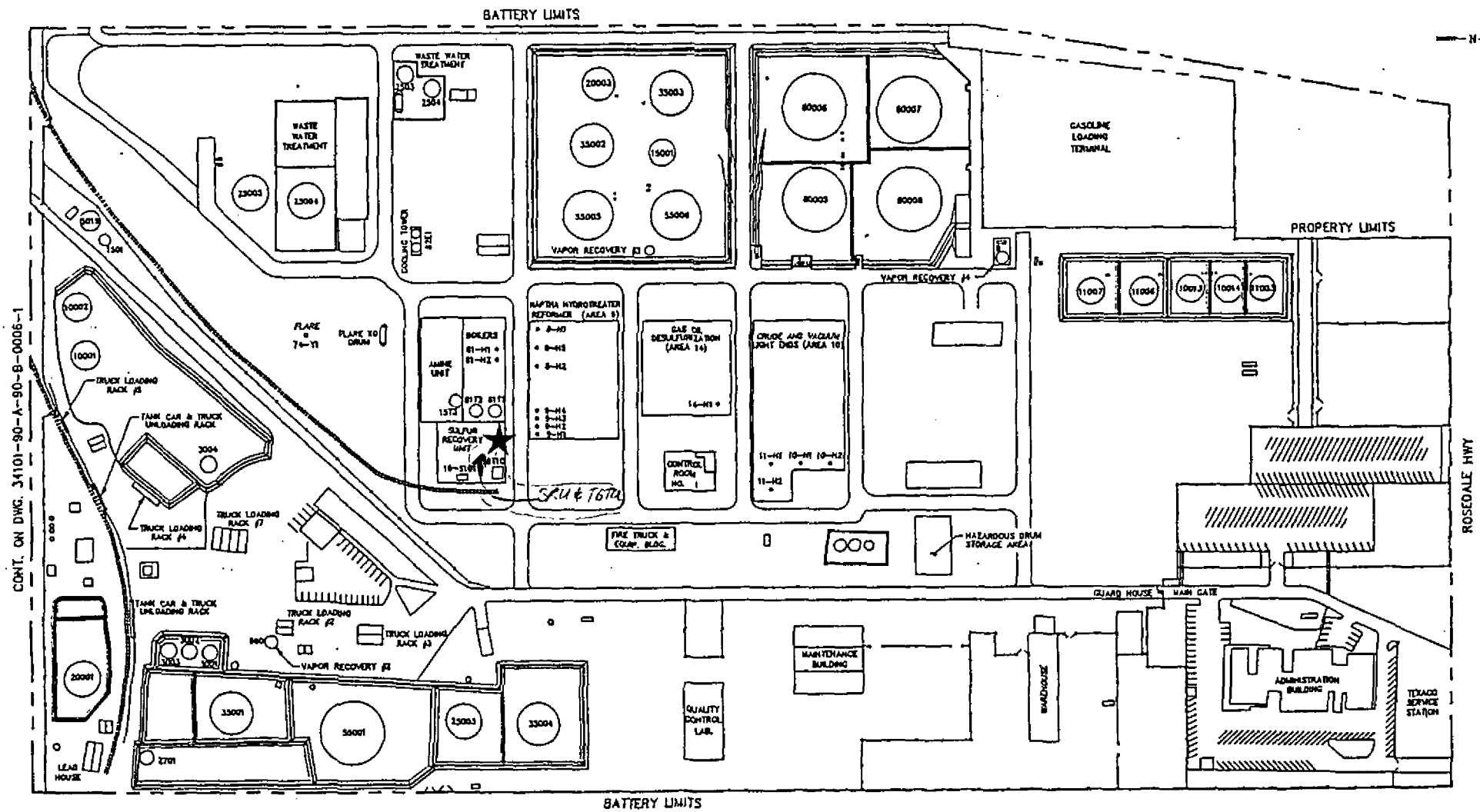
VI. CONTROL EQUIPMENT EVALUATION:

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".



TEXACO REFINING & MARKETING, INC.
PROJECT LOCATION

★ Project Location

FIGURE 1

2007027/101/201/301/401/601

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 Appendix "B"). The quarterly fuel use were obtained by by the following calculations:

Mscf/hr · 24 hr/day · 30 days/month[1] = Mscf/month
Mscf/month · 90 days/quarter[2] = 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 Factors:

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 PM_{10} factor includes SO_4 emissions as the total PM_{10}. ~~Therefore, the PM_{10} factor must be reduced by the SO_4 factor to represent PM_{10} and SO_4 emissions separately. The adjusted factors are listed below the source test factors.~~ The applicant decided not to have SO_4 emissions represented separately; therefore, the SO_4 factor is deleted and no additional adjustments are made to the original source test factors. Adjusted factor on the following page.

Emission Factors From Source Tests (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	VOC	CO
0.0302	0.0166	1.1753	0.0302	NA	0.0968

~~Adjusted Emission Factors Used (in Lbs/Mscf)~~

~~PM_{10}~~	~~SO_4~~	~~SO_2~~	~~NO_2~~	~~VOC~~	~~CO~~
~~0.0136~~	~~0.0166~~	~~1.1753~~	~~0.0302~~	~~NA~~	~~0.0968~~

---

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

Adjusted Emission Factors Used (in Lbs/Mscf)

PM_{10}	SO_4	SO_2	NO_2	VOC	CO
0.0302	NA	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 emission reductions (AER) to be banked are included in Attachment "C". HAE for each quarter are as follows:

Historical Actual Emissions (in Lbs/Quarter)

Quarter	PM_{10}	SO_4	SO_2	NO_2	CO
Jan - Mar	1583.79	~~869.53~~	61643.59	1583.79	5077.44
Apr - Jun	1877.13	~~1030.58~~	73060.97	1877.13	6017.87
Jul - Sep	1790.60	~~983.07~~	69692.93	1790.60	5740.45
Oct - Dec	1973.79	~~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 Appendix "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:

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

Quarter	PM_{10}	SO_4	SO_2	NO_2	CO
Jan - Mar	158.38	~~86.95~~	6164.36	158.38	507.74
Apr - Jun	187.71	~~103.06~~	7306.10	187.71	601.79
Jul - Sep	179.06	~~98.34~~	6969.29	179.06	574.05
Oct - Dec	197.38	~~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	1.76	~~0.97~~	68.49	1.76	5.64
Apr - Jun	2.06	~~1.13~~	80.29	2.06	6.61
Jul - Sep	1.95	~~1.07~~	75.75	1.95	6.24
Oct - Dec	2.15	~~1.18~~	83.50	2.15	6.88

F. Bankable Emission Reductions:

The HAE less the community bank adjustment gives bankable emission reductions of:

Bankable Emission Reductions (in Lbs/Qtr)

Quarter	PM_{10}	SO_4	SO_2	NO_2	CO
Jan - Mar	1425.41	~~782.58~~	55479.23	1425.41	4569.70
Apr - Jun	1689.42	~~927.52~~	65754.88	1689.42	5416.08
Jul - Sep	1611.54	~~884.77~~	62723.64	1611.54	5166.41
Oct - Dec	1776.42	~~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 Appendix 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-M101has 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 with in 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 Certificates S-0002-2, '-3, '-4 and -5. See pages 9 - 12 for emission reductions on draft ERC Certificates.

X. BILLING INFORMATION:

According to Rule 306 the application for ERC Certificate 4007612/401/501/601 requires a non-refundable $650 fee. The $650 fee has been paid. The fee to be paid to the District will equal $33.40 for each hour the Engineer has spent processing the application; plus $16.61 for one hour of clerical time. If the previous described total exceeds $650 the difference shall be paid by the applicant prior to issuance of the ERC Certificate. Calculations show the maximum engineer processing time and the applicant not to pay additional fees is 18.96 hours.

Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate S-0002-2

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For NO_x Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1425 lbs.	1689 lbs.	1612 lbs.	1776 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

_____
Seyed Sadredin
Director of Permit Services

Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-3

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
4570 lbs.	5416 lbs.	5166 lbs.	5695 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-4

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For PM_{10} Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1584 lbs.	1877 lbs.	1791 lbs.	1974 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

_____
Seyed Sadredin
Director of Permit Services

Southern Regional Office • 2700 M St., Suite 275 • Bakersfield, CA 93301

Emission Reduction Credit Certificate
S-0002-5

Issued To: TEXACO REFINING AND MARKETING INC.
December 17, 1992

Location of Reduction: NE Section 27, Township 29 South, Range 27 East
6451 Rosedale Highway, Area 1 of Texaco Refinery

For SO_X Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
55479 lbs.	65755 lbs.	62724 lbs.	69141 lbs.

[ ] Conditions Attached

Method Of Reduction
[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Unit
[ ] Other: _____

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

ATTACHMENT A

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

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

Number: 2007027(A)

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

By: _____

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.

For Period: 08-31-90 TO 08-31-91

COPY

CONDITIONAL 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 oulet 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:

Manager of Engineering

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 ot exceed 2000 ppm by volumne 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)

COPY

EMISSION SAMPLING LIMITS:

Sulfur Compounds:	40.00	lbm/hr	(as SO_2)	(Rule 210.1)

2007027B
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.

COPY

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)

2007027B
Continued

OPERATIONAL CONDITIONS:

a. Area 1 fuel gas system sulfur content shall not exceed 0.10 gr/dscf as H_2S. (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:

COPY

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)

2007027B
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)

COPY

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.

2007027B
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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)	
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)
	20.64 lbm/day	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)	stack
	51.24 lbm/day	(Rule 210.1)	fugitive
Carbon Monoxide:	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.

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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.

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED FOR:

Claus Sulfur Recovery Unit, Tail Gas Treating Unit and Waste Gas Incinerator.

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 Erikson
Manager of Engineering

2007245
Continued

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,

COPY

2007245
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.

COPY

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)

2007245
Continued

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 H_2S. (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:

Particulates (PM-10):	0.99	lbm/hr	(Rule 210.1)	
Sulfur Compounds:	5.74	lbm/hr	(of SO_2)	(Rule 210.1)
	0.86	lbm/hr	(of SO_4)	(Rule 210.1)
Oxides of Nitrogen:	3.50	lbm/hr	(as NO_2)	(Rule 210.1)
Hydrocarbons:	0.07	lbm/hr	(Rule 210.1)	stack
	2.14	lbm/hr	(Rule 210.1)	fugitive
Carbon Monoxide:	0.88	lbm/hr	(Rule 210.1)	

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2007245
Continued

COMPLIANCE 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)

COPY

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.

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:

Particulate Matter (PM-10):	23.64 lbm/day	(Rule 210.1)		
Sulfur Compounds:	137.76 lbm/day	(of SO_2)	(Rule 210.1)	
	20.64 lbm/day	(of SO_4)	(Rule 210.1)	
Oxides of Nitrogen:	84.00 lbm/day	(as NO_2)	(Rule 210.1)	
Hydrocarbons:	1.68 lbm/day	(Rule 210.1)	stack	
	51.24 lbm/day	(Rule 210.1)	fugitive	
Carbon Monoxide:	21.00 lbm/day	(Rule 210.1)		

COPY

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	
TIME	MSCFHR
1200	34.16
1300	32.46
1400	33.12
1500	33.84
1600	34.20
1700	34.39
1800	34.03
1900	34.03
AVG	33.78

TEST RESULTS AND EMISSION FACTORS		
	LB/HR	LB/MSCFHR
PARTICULATE	1.02	0.030
SULFATE	0.56	0.017
SO2	39.70	1.175
NOX	1.02	0.030
CO	3.27	0.097

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 Test Condition	1 Offset	2 Offset	3 Offset	Average
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
0.0302	NA	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	1584.03	0.00	61643.59	1583.79	5077.44
APR-JUN	1877.42	0.00	73060.97	1877.13	6017.87
JUL-SEP	1790.87	0.00	69692.93	1790.60	5740.45
OCT-DEC	1974.10	0.00	76823.38	1973.80	6327.77

10% DEDUCTION FOR COMMUNITY BANK
Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	158.40	0.00	6164.36	158.38	507.74
APR-JUN	187.74	0.00	7306.10	187.71	601.79
JUL-SEP	179.09	0.00	6969.29	179.06	574.05
OCT-DEC	197.41	0.00	7682.34	197.38	632.78

10% DEDUCTION FOR COMMUNITY BANK
Lb/Day

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	1.76	0.00	68.49	1.76	5.64
APR-JUN	2.06	0.00	80.29	2.06	6.61
JUL-SEP	1.95	0.00	75.75	1.95	6.24
OCT-DEC	2.15	0.00	83.50	2.15	6.88

REMAINING EMISSION REDUCTIONS QUALIFYING FOR EMISSION REDUCTION CREDITS
Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	1425.63	0.00	55479.23	1425.41	4569.70
APR-JUN	1689.68	0.00	65754.88	1689.42	5416.08
JUL-SEP	1611.79	0.00	62723.64	1611.54	5166.41
OCT-DEC	1776.69	0.00	69141.04	1776.42	5694.99

REMAINING EMISSION REDUCTIONS QUALIFYING FOR EMISSION REDUCTION CREDITS
Lb/Day

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	15.84	0.00	616.44	15.84	50.77
APR-JUN	18.57	0.00	722.58	18.57	59.52
JUL-SEP	17.52	0.00	681.78	17.52	56.16
OCT-DEC	19.31	0.00	751.53	19.31	61.90

ATTACHMENT D

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

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.

Fuel Type	ppm NOx @3% O_2	lb NO_2/MMBtu
Gaseous Fuel	30	0.036
Liquid Fuel	40	0.048

EMISSIONS ESTIMATES:

	NOx - Tons/Day			
	1987	1994	1997	2000
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

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.

Control Technique	Unit Size Range (MMBtu/hr)	Cost Effectiveness ($/ton NOx reduced)
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:

Boiler Size (MMBtu/hr)	Total Equipment Cost	Cost Effectiveness $/ton NOx reduced
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

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.

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.

Bakersfield Californian. April 14, 1991. "New pipelines to avert natural gas shortages in Kern".

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.

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			

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
EMISSION REDUCTIONS FOR DEPOSIT IN COMMUNITY BANK

To: KERN ZONE Zone, SJVUAPCD Date: 10/29/92

Attn: Patty Lee Young

From: KERN ZONE Zone, SJVUAPCD

Zone Contact: Glen Stephens Phone: 861-3682

RE: EMISSIONS REDUCTIONS FOR DEPOSIT IN THE COMMUNITY BANK:

Emission credits are to be added to the Community Bank because they are:

✓ onsite actual emissions reductions.
____ excess offsets required and obtained pursuant to offset ratios
____ unclaimed actual emissions reductions.
____ returned from a source that has not engaged in a continuous program of construction within one year of ATC issuance.
____ Other (Description)

COPY

Company Name: TEXACO REFINING AND MARKETING, INC.

Permit No: ~~2007027/101/201/301/401/601~~ S-0007-2, -3, -41-15 Date Issued: 12/17/92

Describe Action Generating Credits: Tailgas incinerator removed from service

Date Reductions Occurred: February 1992

AVERAGE DAILY EMISSIONS REDUCTION CREDITS (lbs/day)

QUARTER	VOC	NOx	CO	PM10	SOx
1ST	[redacted]	1.76	5.64	1.76	68.49
2ND	[redacted]	2.06	6.61	2.06	80.29
3RD	[redacted]	1.95	6.24	1.95	75.75
4TH	[redacted]	2.15	6.88	2.15	83.50

SJVUAPCD Form EN4

FINAL CHECKLIST

- ✓ Engineering analysis includes all items described in guidelines, all items appear in correct order, and all parts of analysis read logically and are legible.
- N/A Rule 210.1 Certificate of compliance, if required, has been received and is of proper content and form.
- ✓ Package is divided into sections (each one in a folder) as described in guidelines and each folder has a correctly prepared label.
- ✓ Rough draft 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 and Operational condition is followed by number of rule requiring the condition or providing basis for the condition.
- N/A Applicant has been notified by telephone of all conditions appearing in A's to C but not proposed in application.
- ✓ Emissions summary sheets (one for whole project and one System 36 printout for each A to C) have been prepared including net emissions change for whole stationary source. NSPS status has been marked.
- N/A Emission profiles have been prepared according to guidelines, a maximum daily emission rate has been set, and compliance (on a "moving" yearly average) has been required.
- N/A NSPS/NESHAPS, BACT/LAER, and/or NSR report has been prepared, with three copies of each.
- N/A KCAPCD Grant Objectives report has been prepared for approval of source emitting over 82 lbm/day PM_{10} and for sources "netting out" of NSR requirements for any criteria air contaminant.
- N/A Source test requirements summary has been prepared (don't specify emission limits, just mark "inlet", "outlet", "units", etc.), and one copy has been made.
- N/A Permit fee billing edit 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.
- ✓ Problems encountered summary sheet has been prepared which includes all items (understandably and clearly described) which resulted in 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.
- ✓ Engineering evaluation time sheet has been prepared which incudes all time spent in processing the applications. This includes time spent discussing the application with others, time spent revising, etc.

gned: _____, Project Evaluation Engineer

itialed: _____, Reviewing Engineer

PROJECT ROUTING FORM

PROJECT NUMBER: 920116 FACILITY ID: 2007

APPLICANT NAME: TEXACO REFINING & MARKETING INC.

MAILING ADDRESS: P.O. Box 1476
Bakersfield, CA 93309

APPROVAL BLOCK	INITIAL	DATE
A. Preliminary Review - Application Deemed Incomplete		~~08/19/92~~
1. Supervising Engineer Approval		
B. Preliminary Review - Application Deemed Complete		08/17/92
1. Supervising Engineer Approval		
C. Preliminary Review - Application Denied		
1. Supervising Engineer Approval		
2. Permit Services Manager Approval		
D. Engineering Evaluation Complete		10/01/92
E. Supervising Engineer Approval		10/1/92
F. Compliance Division Approval	Not Required	
G. Permit Services Manager Approval		20 Oct 92

PUBLIC NOTIFICATION PERIOD: [ ] NOT REQUIRED [✓] REQUIRED

DISTRICT MANAGER REVIEW: [ ] NOT REQUIRED [✓] REQUIRED
- [ ] Engineering Evaluation Enclosed
- [ ] Draft Imminent Denial Letter Enclosed
- [ ] Draft ATC(s) Enclosed
- [ ] PRELIMIN.PN Enclosed

H. District Manager of Permit Services Approval		

PROJECTS REQUIRING PUBLIC NOTIFICATION

[ ] PRELIMINARY DISPOSITION:
- [ ] Deliver Ad to the Newspaper NOT LATER THAN _____
- [ ] Mail copies of Cover Letter and Engineering Evaluation to Distribution.

[ ] FINAL DISPOSITION - APPROVAL:
- [ ] Deliver Ad to the Newspaper NOT LATER THAN _____
- [ ] Mail copies of Cover Letter and Authority(ies) to Construct to Distribution.

[ ] FINAL DISPOSITION - DENIAL:
- [ ] Deliver Ad to the Newspaper NOT LATER THAN _____
- [ ] Mail copies of Cover Letter to Distribution.

PROJECTS NOT REQUIRING PUBLIC NOTIFICATION

[ ] PRELIMINARY DISPOSITION - DENIAL: [ ] Mail Imminent Denial Letter to the Applicant.

[ ] FINAL DISPOSITION - APPROVAL: [ ] Mail Authority(ies) to Construct to the Applicant.

[ ] FINAL DISPOSITION - DENIAL: [ ] Mail Denial Letter to the Applicant.

ENGINEERING EVALUATION OF APPLICATIONS FOR AUTHORITY TO CONSTRUCT

BREAKDOWN OF PROCESSING TIME

Company Name: Texaco Refining & Marketing, Inc.

Company Number: 2007 Project Number: 920716

Project Description: ERC For Shutdown of SRU #1 incinerator

Processing Dates, Including Preliminaries: 8/17/92 → 12/17/92

PROCESSING ACTIVITY:	ACTIVITY TIME (HOURS):	INITAL:
Initial Contact: ___ telephone ___ in person	NA	
Project Entry into System 36:	.5	
Preliminary Review:	1.0	
Organization/Familiarization:	1.0	
Project Description/Schematic/Equipment Listing:	2.0	
Listing of Applicable Rules:	.5	
Design Review of Air Pollution Control Equipment:	NA	
Calculation of Expected Emissions:	5.0	
Air Quality Impact Assessment Review (Modeling):	NA	
Preparation of Emission Profiles:	NA	
CEQA Review:	NA	
Health Risk Assessment Review:	NA	
Reworking of Application Due to Changes:	3.0	
Preparation of Rough Draft A's to C:	1.5	
Preparation of Written Requests for Information:	1.0	
Telephone and Verbal Requests for Information:	—	
General Meetings with Applicant:	NA	
System 36 Data Entry (Including Emissions):	—	
_____ :	_____	
TOTAL TIME SPENT ON EVALUATION:	15.5	

CHANGE OF STATUS FORM

Requested By: [signature] Date: 12/17/92
(Please Sign)

Company Name: Texaco Refining and Marketing Inc.

Permit Number: 2007027/101/201 304/401/609 Project Number: 920716

Action: (Check Below) Effective Date: 12/17/92

==========

_____Cancelled	___✓___Issued
_____Denied	_____Other (Please Explain)
_____Implemented	_____Transferred

==========

Remarks: _____

_____

_____

NOTE: The Permit Processor is responsible for making any required changes to the AS/400 system or to the document contents.