San Joaquin Valley Unified APCD
Permit Services Division
Applications for Authority to Construct or Emission Reduction Credits
Breakdown of Processing Time

Company Name: TEXACO EXPLORATION AND PRODUCTION, INC.

Facility Id: C-2885 Project Number: 970158

Project Description: SHUTDOWN OF 13 IC ENGINES → EMISSION REDUCTION BANKING

BC

Code	Date	Time Spent	Initials
11 - 19	OCT 12-13, 1998	18	JR
TOTAL			

Activity Code List
01- Pre-Application Meeting (phone)
02- Pre-Application Meeting (in person)
03- Application Log-in
04- Preliminary Review
05- Defficiency Letter
06- Verbal/telephone request for information
07- Billing
08- Completeness Letter
09- Post Application Meetings
10- BACT Determination
11- Emissions Calculations
12- Compliance Determination
13- Project Description, Flow Digram, Equipment Listing
14- Risk Assessment
15- CEQA Review
16- Draft Conditions
17- Prepare ATC
18- Prepare ERC
19- Prepare Preliminary Notice
20- Prepare Final Notice
99- Reworking of Engineering Evaluation

TOTAL BILLING HOURS	

CLERK.

RECEIVED
JAN 14 1999
ADMN. SERVICES
SJVUAPCD

SJVUAPCD

ATTN FINANCE DEPARTMENT

1999 TUOLUMNE STREET #200

FRESNO , CA 93721

PROOF OF PUBLICATION

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE

#73000

NOTICE OF FINAL ACTION FOR THE ISSUANCE OF EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for emission reductions resulting from permanent shutdown of 13 natural gas-fired internal combustion engines at Sections 19F, 31B, and 24 of Township 19S, Range 15E in Coalinga, CA.

All comments received following the District's preliminary decision on this project were considered.

The application reviews for Project #970158 is available for public inspection at the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1999 TUOLUMNE STREET, SUITE 200, FRESNO, CA 93721.

(January 13, 1999)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

Jan. 13, 1999

Beginning on the day of 19 ,
to the day of 19 inclusive.

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

Dated JANUARY 13, 1999

Cathy Aguilera

FPROOFAD

Steve R.

San Joaquin Valley
Unified Air Pollution Control District

January 7, 1999

Mike Polyniak
Texaco Exploration and Production, Inc.
Star Route Box 42
San Ardo, CA 93450

Re: Notice of Final Action - Emission Reduction Credits
Project Number: 970158

Dear Mr. Polyniak:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for emission reductions resulting from permanent shutdown of 13 natural gas-fired internal combustion engines at Sections 19F, 31B, and 24 of Township 19S, Range 15E in Coalinga, CA.

Enclosed are the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

All comments received following the District's preliminary decision on this project were considered.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 497-1100.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:SR/cl
Enclosures
c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street, Suite 200, Fresno, CA 93721 (559) 497-1000 FAX (559) 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
(559) 497-1000 FAX (559) 233-2057

Southern Region
2700 M Street, Suite 275, Bakersfield, CA 93301
(805) 862-5200 FAX (805) 862-5201

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT FEES

FACILITY I.D. #C-2885
PROJECT #970158
Texaco Exploration and Production, Inc.
Star Route Box 42
San Ardo, CA 93450

BILLING FOR: Engineering Evaluation & Public Notice Processing Time

BILLING DATE: 1/7/99

TOTAL FEES	$ 999.00
LESS AMOUNT PAID	$ 650.00
BALANCE DUE	$ 349.00

THE ABOVE TOTAL IS BASED ON THE FOLLOWING ITEMIZED LISTING:

PERMIT UNIT	FEE	DESCRIPTION
ENGINEERING TIME (18 HRS X $55.50/HR)	$999.00	ENGINEERING EVALUATION & PUBLIC NOTICE PROCESSING TIME

PLEASE **RETURN A COPY OF THIS BILL**, WITH THE AMOUNT DUE, WITHIN 30 DAYS TO:

SAN JOAQUIN VALLEY UNIFIED APCD
1999 TUOLUMNE STREET, SUITE 200
FRESNO, CA 93721
ATTENTION: Mr. Steven Roeder

San Joaquin Valley
Unified Air Pollution Control District

January 7, 1999

Raymond Menebroker, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Final Action - Emission Reduction Credits
Project Number: 970158

Dear Mr. Menebroker:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for emission reductions resulting from permanent shutdown of 13 natural gas-fired internal combustion engines at Sections 19F, 31B, and 24 of Township 19S, Range 15E in Coalinga, CA.

Enclosed are copies of the ERC Certificates and of the notice of final action to be published approximately three days from the date of this letter.

All comments received following the District's preliminary decision on this project were considered.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 497-1100.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:SR/cl
Enclosures
c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer
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(805) 862-5200 FAX (805) 862-5201

San Joaquin Valley
Unified Air Pollution Control District

January 7, 1999

Matt Haber, Chief
Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Final Action - Emission Reduction Credits
Project Number: 970158

Dear Mr. Haber:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for emission reductions resulting from permanent shutdown of 13 natural gas-fired internal combustion engines at Sections 19F, 31B, and 24 of Township 19S, Range 15E in Coalinga, CA.

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Sincerely,

Seyed Sadredin
Director of Permit Services

SS:SR/cl
Enclosures
c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer
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Fresno Bee

NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for emission reductions resulting from permanent shutdown of 13 natural gas-fired internal combustion engines at Sections 19F, 31B, and 24 of Township 19S, Range 15E in Coalinga, CA.

All comments received following the District's preliminary decision on this project were considered.

The application review for Project #970158 is available for public inspection at the **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1999 TUOLUMNE STREET, SUITE 200, FRESNO, CA 93721.**

San Joaquin Valley
Unified Air Pollution Control District
Central Regional Office * 1999 Tuolumne St., Suite 200 * Fresno, CA 93721

Emission Reduction Credit Certificate
C-0251-1

ISSUED TO: Texaco Exploration and Production, Inc

ISSUED DATE: January 7, 1999

LOCATION OF REDUCTION: Township 19S Range 15E
Coalinga, CA

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
10,351 lbs	10,351 lbs	10,351 lbs	10,351 lbs

[ ] Conditions Attached

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

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley
Unified Air Pollution Control District
Central Regional Office * 1999 Tuolumne St., Suite 200 * Fresno, CA 93721

Emission Reduction Credit Certificate
C-0251-2

ISSUED TO: Texaco Exploration and Production, Inc

ISSUED DATE: January 7, 1999

LOCATION OF REDUCTION: Township 19S Range 15E
Coalinga, CA

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
2,977 lbs	2,977 lbs	2,977 lbs	2,977 lbs

[ ] Conditions Attached

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

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley
Unified Air Pollution Control District
Central Regional Office • 1999 Tuolumne St., Suite 200 • Fresno, CA 93721

Emission Reduction Credit Certificate
C-0251-3

ISSUED TO: Texaco Exploration and Production, Inc

ISSUED DATE: January 7, 1999

LOCATION OF REDUCTION: Township 19S Range 15E
Coalinga, CA

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
15,709 lbs	15,709 lbs	15,709 lbs	15,709 lbs

[ ] Conditions Attached

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

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley
Unified Air Pollution Control District
Central Regional Office * 1999 Tuolumne St., Suite 200 * Fresno, CA 93721

Emission Reduction Credit Certificate
C-0251-4

ISSUED TO: Texaco Exploration and Production, Inc

ISSUED DATE: January 7, 1999

LOCATION OF REDUCTION: Township 19S Range 15E
Coalinga, CA

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
355 lbs	355 lbs	355 lbs	355 lbs

[ ] Conditions Attached

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

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley
Unified Air Pollution Control District
Central Regional Office * 1999 Tuolumne St., Suite 200 * Fresno, CA 93721

Emission Reduction Credit Certificate
C-0251-5

ISSUED TO: Texaco Exploration and Production, Inc

ISSUED DATE: January 7, 1999

LOCATION OF REDUCTION: Township 19S Range 15E
Coalinga, CA

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
22 lbs	22 lbs	22 lbs	22 lbs

[ ] Conditions Attached

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

David L. Crow, APCO

Seyed Sadredin
Director of Permit Services

Steve R.

SJVUAPCD

ATTN FINANCE DEPARTMENT

1999 TUOLUMNE STREET #200

FRESNO , CA 93721

NOV 1 3 1998

PROOF OF PUBLICATION

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE

#46064

NOTICE OF PRELIMINARY DECISION FOR THE PROPOSED ISSUANCE OF EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for the shutdown 13 natural gas-fired internal combustion engines located at Sections 7, 19F, 318 and 24 of Township 19s, Range 15E. The quantity of ERCs proposed for banking is: 88 lb-SQx, 11,908 lb-NOx, 62,836 lb-CO, 41,404 lb-VOC and 1,420 lb-PM per year.

The analysis of the regulatory basis for this proposed action, Project #970158, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **SEYED SADREDIN, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1999 TUOLUMNE STREET, SUITE 200, FRESNO, CA 93721.**

(November 10, 1998)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

Nov. 10, 1998

Beginning on the day of 19 ,
to the day of 19 inclusive.

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

Dated NOVEMBER 10, 1998

Cathy Aguilera

FPROOFAD

Steve R.

San Joaquin Valley
Unified Air Pollution Control District

November 5, 1998

Mike Polyniak
Texaco Exploration and Production, Inc.
Star Route Box 42
San Ardo, CA 93450

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: 970158

Dear Mr. Polyniak:

Enclosed for your review and comment is the District's analysis of Texaco Exploration and Production, Inc.'s application for Emission Reduction Credits (ERCs) resulting from the shutdown of 13 natural gas-fired internal combustion engines located at Sections 7, 19F, 31B and 24 of Township 19s, Range 15E. The quantity of ERCs proposed for banking is: 88 lb-SO_x, 11,908 lb-NO_x, 62,836 lb-CO, 41,404 lb-VOC and 1,420 lb-PM_{10} per year.

Also enclosed is the public notice of this decision which will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (209) 497-1100.

Sincerely,

Seyed Sadredin
Director of Permit Services

SS:SR/cl
Enclosures
c: David Warner, Permit Services Manager

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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San Joaquin Valley
Unified Air Pollution Control District

November 5, 1998

Raymond Menebroker, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: 970158

Dear Mr. Menebroker:

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San Joaquin Valley
Unified Air Pollution Control District

November 5, 1998

Matt Haber, Chief
Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: 970158

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Sincerely,

Seyed Sadredin
Director of Permit Services

SS:SR/cl
Enclosures
c: David Warner, Permit Services Manager

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Executive Director/ Air Pollution Control Officer
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Fresno Bee

NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Texaco Exploration and Production, Inc. for the shutdown 13 natural gas-fired internal combustion engines located at Sections 7, 19F, 31B and 24 of Township 19s, Range 15E. The quantity of ERCs proposed for banking is: 88 lb-SO_x, 11,908 lb-NO_x, 62,836 lb-CO, 41,404 lb-VOC and 1,420 lb-PM_{10} per year.

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ERC APPLICATION
Final Evaluation
Project Number: 970158

Processing Engineer: **Steve Roeder**
Lead Engineer: **Jovencio Refuerzo**
Date: **November 4, 1998**

Facility Name: **Texaco Exploration and Production, Inc.**
Mailing Address: **Star Route Box 42**
San Ardo, CA 93450

Contact Name: **Mike Polyniac**
Telephone: **(805) 392-2299**

Date Received: **February 27, 1997**
Deemed Complete: **March 5, 1998**

I. Summary

The primary business of this facility is oilfield gas production. Texaco has submitted applications to bank CO, NO_x, PM_{10}, SO_x and VOC emission reduction credits (ERC's) for the shutdown of thirteen natural gas-fired internal combustion (IC) engines. The facility surrendered their Permits to Operate (PTO's) with the original applications which were received by the District on February 27, 1997. Copies of the surrendered permits are included in Appendix A of this report.

The purpose of this report is to quantify the amount of emission reductions which can be banked.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (6/15/95)
Rule 2301	Emission Reduction Credit Banking (12/17/92)
Rule 4701	Stationary Internal Combustion Engines (December 19, 1996)

III. Location of Reduction

The equipment was located at the following sites:

Section 7	Township 19S	Range 15E	Gas Production	Fresno County
Section 19F	Township 19S	Range 15E	Gas Production	Fresno County
Section 31B	Township 19S	Range 15E	Gas Production	Fresno County
Section 24	Township 19S	Range 15E	Gas Production	Fresno County

IV. Method of Generating Reductions

The facility was permitted to operate and ceased operations of thirteen gas-fired IC engines as follows:

Texaco Permit	Unocal Permit	Fresno County Permit	Quantity	Description
C-2885-15-0	C-1659-61-0	3040060107	1	300 hp natural gas fired I.C. engine, S/N 39508, ID #1, located at Whiskey HL Plant. The engine drives a gas compressor.
C-2885-17-0	C-1659-63-0	3040060112	5	1802 hp total natural gas fired I.C. engines at the 19F Plant.: (2) 500 hp (S/N 22616 & 22617); 600 hp (S/N A21062) for driving gas compressors; and (2) 101 hp for pump/fans.
C-2885-18-0	C-1659-64-0	3040060113	2	(2) 365 hp (ID #1 & 2) natural gas fired I.C. engines located at Site 31B driving gas compressors.
C-2885-22-0	C-1659-62-0	3040060111	1	300 hp natural gas fired I.C. engine (ID #1), Clark Model HMA-8, driving gas compressors.
C-2885-23-0	C-1659-62-0	3040060111	1	265 hp natural gas fired I.C. engine (ID #2), Clark Model HMA-6, driving gas compressors.
C-2885-24-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #3), Clark Model MA-6, driving gas compressors.
C-2885-25-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #4), Clark Model MA-6, driving gas compressors.
C-2885-26-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #5), Clark Model MA-36, driving gas compressors.

V. Calculations

A. Historical Actual Emissions (HAE)

In order to calculate Historical Actual Emissions, the historical emission factors will first be established, then the historical fuel use data wil be presented. Finally, the HAE will be calculated.

1. Assumptions

- Engines are lean-burn (per applicant for similar units listed in Compliance Plan for Rule 4701)
- Annual emissions will be rounded to the nearest pound in final calculations in accordance with District Policy NSR/ERC 8.
- hhv for natural gas = 1054 btu/scf (Per Applicant)

2. Emission Factors

Since there is no source test emissions data available for these engines, and since we were unable to locate actual source test data from similar engines, the actual emissions must be estimated as accurately as possible. There are two sources of emission factors which will be considered. The emission factors from each source will be compared and the lowest value for each pollutant will be selected for historical annual emission calculations.

a. Emission Factors from Records of Fuel Use and Emission Data

Records of daily fuel consumption and daily emissions have been supplied to the District by Unocal Corporation in 1990 (see Appendix B). This supplied data was considered to be reasonable and was later used by the District to create the emission limits which appear on Permits to Operate C-2885-15, -17 and -18, which represent 7 of the 13 engines referenced in this project.

Average emission factors (in lb/MMscf) for SO_x, NO_x, CO and HC will be calculated from these figures by adding the total sum of each pollutant on a daily basis and then dividing by the total daily fuel use as presented in the following table:

Emission Factors Derived from Facility Records					
Unit	SOx (lb/day)	NOx (lb/day)	CO (lb/day)	VOC (lb/day)	Fuel Use scf/day
C-2885-15	0.23	306.9	38.8	126.4	69120
C-2885-17	0.38	511.5	64.7	210.6	115200
C-2885-17	0.38	511.5	64.7	210.6	115200
C-2885-17	0.46	613.8	77.6	210.6	138461
C-2885-17	0.08	103.3	13.1	42.5	23270
C-2885-17	0.08	103.3	13.1	42.5	23270
C-2885-18	0.2	269.8	34.1	111.1	70956
C-2885-22	0.2	269.8	34.1	111.1	70956
C-2885-23	0.16	219.6	27.8	90.4	54696
C-2885-24	0.17	230.2	29.1	94.8	51840
C-2885-25	0.17	230.2	29.1	94.8	51840
C-2885-26	0.17	230.2	29.1	94.8	51840
TOTAL:	**2.68**	**3600.1**	**455.3**	**1440.2**	**836649**
Emission Factors	**3.20 (lb/MMscf)**	**4303.00 (lb/MMscf)**	**544.19 (lb/MMscf)**	**1721.39 (lb/MMscf)**	

b. Emission Factors from AP-42

The following emission factors for NO_x, CO and VOC are from AP-42 Table 3.2-1 *Criteria Emission Factors for Natural Gas Prime Movers* dated 10/96. Since this AP-42 table does not supply emission factors for SO_x and PM_{10}, the emission factors for SO_x and PM_{10} are taken from EPA publication 450-4-90-003 "*Airs Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Pollutants*," section - Natural Gas Commercial I.C. Engines.

Emission Factors from AP-42 and EPA 450-4-90-003						
SOx	0.6	(lb/MMscf)				
NOx	3.2	(lb/MMBtu) x	1054	(Btu/scf) =	3373	(lb/MMscf)
CO	0.42	(lb/MMBtu) x	1054	(Btu/scf) =	442.7	(lb/MMscf)
TOC	1.3	(lb/MMBtu) x	1054	(Btu/scf) =	1370	(lb/MMscf)
PM10	10	(lb/MMscf)				

c. Comparison of Emission Factors for Historical Actual Emissions

Since these engines have not been source tested to verify the accuracy of the emissions data supplied by Unocal, the emission factors derived from this data will be compared with the emission factors presented in AP-42. The lower emission factor for each pollutant shall be selected as the most accurate estimate of historical actual emission factors.

Historical Actual Emission Factors			
	Derived (lb/MMscf)	AP-42 (lb/MMscf)	Selected (lb/MMscf)
SOx	3.2	0.6	0.6
NOx	4303	3373	3373
CO	544.19	442.7	442.7
VOC	1721.39	1370	1370
PM10		10	10

In all cases, the emission factors from AP-42 are lower than the emission factors derived from the supplied emissions data. Therefore, the AP-42 emission factors have been selected as the most conservative estimate of actual emissions.

3. Fuel Use Data

Fuel use data must be based upon an acceptable baseline period. First, the shutdown date will be established, then the baseline period will be determined. Finally, fuel use data for the selected period will be presented.

a. Baseline Period Determination

1. Shutdown Date

Pursuant to Rule 2301 Section 3.11, the date of shutdown for permitted sources shall be the date of surrender of the operating permits or the cessation of emissions, whichever is earlier. Fuel usage records presented in Appendix C of this report indicate that these engines were last operated in 1993. However, since the engines were maintained in operable condition until the surrender of permits in 1997, and because of the variable nature of oilfield operations, the District expects that Texaco intended to operate the engines if needed. Therefore, the date permits were surrendered is considered the shut-down date, which is February 27, 1997.

2. Baseline Period

Pursuant to Rule 2201 Section 3.7, the baseline period consists of two years immediately preceding the date of reduction, or at least two consecutive years within five years prior to the ATC application, if they are more representative of "normal source operation".

As verified by the fuel use records supplied by the applicant (Appendix C), of the 5 years preceding the shutdown date, the engines were operated only in 1992 and 1993. Natural gas production has decreased significantly in the area over the years, which may have contributed to Texaco's decision to shut-down these engines. Fuel use data from 1989 show that the compressor engines were used at a higher rate in the past. Since there are no fuel usage records available for 1994-1996 because the engines did not operate during this time, 1992 and 1993 will be used to represent normal source operations and the baseline emissions.

b. Fuel Use Data

The fuel use data is from the actual fuel use records supplied in Appendix C of this report. Data for the two years presented will be averaged together in order to produce average annual emissions.

Historic Annual Average Fuel Use					
			1992	1993	Average
Permit	Hp	Unit	Actual Fuel Use (MMscf)	Actual Fuel Use (MMscf)	Actual Fuel Use (MMscf)
C-2885-15-0	300	Whiskey Hill	25.23	8.41	16.82
C-2885-17-0	1802	19F	151.62	50.52	101.07
C-2885-18-0	730	31-B-Plt	51.8	17.26	34.53
C-2885-22-0	300	Binkley #1	23.13	0	11.57
C-2885-23-0	265	Binkley #2	18.3	0	9.15
C-2885-24-0	225	Binkley #3	17.34	0	8.67
C-2885-25-0	225	Binkley #4	17.34	0	8.67
C-2885-26-0	225	Binkley #5	17.34	0	8.67
Total:			322.1	76.19	**199.15**

4. Historical Actual Emissions (HAE)

Historical Actual Emissions are determined by multiplying the historical annual average fuel use (above) by the emission factors appearing in Section V.A.2.c:

Historical Actual Annual Emissions						
		SOx	NOx	CO	VOC	PM10
Emission Factors (lb/MMScf):		0.6	3373	442.7	1370	10
	Average fuel	Historical Annual Emissions (pounds)				
Unit	use (MMscf/yr)	SOx	NOx	CO	VOC	PM10
C-2885-15-0	16.82	10	56734	7446	23043	168
C-2885-17-0	101.07	61	340909	44744	138466	1011
C-2885-18-0	34.53	21	116470	15286	47306	345
C-2885-22-0	11.57	7	39026	5122	15851	116
C-2885-23-0	9.15	5	30863	4051	12536	92
C-2885-24-0	8.67	5	29244	3838	11878	87
C-2885-25-0	8.67	5	29244	3838	11878	87
C-2885-26-0	8.67	5	29244	3838	11878	87
Total:	199.15	**119**	**671733**	**88164**	**272836**	**1992**

B. Emissions Adjusted for Rule 4701

Pursuant to Rule 2201 Section 3.2.3, actual emission reductions are reductions beyond reductions attributed to control measures, a District Air Quality Plan, or other laws. Emission factors used for calculating emission reductions may not therefore exceed the emission factor limits for NO_x, CO and VOC from Rule 4701 which are posted below. The emission factors from Rule 4701 will first be presented, and then compared to the historical emission factors. Finally, Emissions Adjusted for Rule 4701 will be calculated.

1. Assumptions

- Emission Factors for NO_x and CO taken from Rule 4701 are from Section 5.1.3, Table 3, Section 3.b
- F-factor for natural gas combustion is 8740 dscf per MMBtu
- Molecular weight of NO_x is 46 (gram/mole)
- Molecular weight of CO is 28 (gram/mole)
- Molecular weight of VOC, as methane [CH_4] is 16 (gram/mole)
- Standard atmospheric pressure is 101,325 (Pa)
- Standard temperature is 288 (°K)

2. Emission Factors

The emission factors from Rule 4701 are given in *parts per million by volume* (ppmv) and will be converted into *pounds per million standard cubic feet of exhaust* (lb/MMscf) for the purpose of comparison with emission factors derived from permit conditions and for calculating annual emissions. The emission factors presented in Rule 4701 will then be compared to the emission factors used for calculating HAE and the more conservative figure shall be selected for calculating emission adjusted for Rule 4701.

a. Emission Factors from Rule 4701

Emission Factors from Rule 4701	
Pollutant	Emission Factor
NO_x	75 ppmv
CO	2000 ppmv
VOC	750 ppmv

Conversion from ppmv in the exhaust stream to lb of pollutant per MMscf of heat input for any gaseous pollutant can be calculated as follows:

$$\frac{lb}{MMscf_{in}} = \frac{F\frac{dscf}{MMBtu} \times H\frac{Btu}{scf} \times \frac{ppm}{1000000} \times 101325\,Pa \times MW\frac{g}{mole}}{35.32\frac{ft^3}{M^3} \times 8.3145\frac{Pa \cdot M^3}{Mole \cdot K} \times 288\,K \times 454\frac{g}{lb}}$$

$$\frac{lb}{MMscf_{in}} = F \times H \times ppmv \times MW \times 2.639 \times 10^{-9}$$

where:
F = F factor of the fuel in (dscf/MMBtu)
H = higher heating value for the fuel used in (Btu/scf)
ppmv = emission factor in parts per million
MW = molecular weight of the pollutant in (gram/mole)

Emission Factors for NOx, CO and VOC Derived from Rule 4701					
Pollutant	F (dscf/MMBtu)	H (Btu/scf)	ppmv	MW (g/mole)	**Emission Factor (lb/MMscf)**
NOx	8740	1054	75	46	**83.9**
CO	8740	1054	2000	28	**1361.4**
VOC	8740	1054	750	16	**291.7**

b. Comparison and Selection of Emission Factors

The the emission factors from Rule 4701 (above) will be compared with the historical actual emission factors, and the more conservative figure shall be selected for calculating emission adjusted for Rule 4701.

Selected Emission Factors			
Pollutant	Rule 4701 Emission Factors (lb/MMscf)	Historical Actual Emission Factors (lb/MMscf)	**Final Emission Factors (lb/MMscf)**
NOx	83.9	3373	**83.9**
CO	1361.4	442.7	**442.7**
VOC	291.7	1370	**291.7**

3. Annual Emissions Adjusted for Rule 4701

The annual emissions adjusted for Rule 4701 are calculated as follows:

Historical Annual Emissions Adjusted for Rule 4701						
Emission Factors (lb/MMScf):		SOx 0.6	NOx 83.9	CO 442.7	VOC 291.7	PM10 10
Unit	Average fuel use (MMscf/yr)	Adjusted Annual Emissions (pounds)				
		SOx	NOx	CO	VOC	PM10
C-2885-15-0	16.82	10	1411	7446	4906	168
C-2885-17-0	101.07	61	8480	44744	29482	1011
C-2885-18-0	34.53	21	2897	15286	10072	345
C-2885-22-0	11.57	7	971	5122	3375	116
C-2885-23-0	9.15	5	768	4051	2669	92
C-2885-24-0	8.67	5	727	3838	2529	87
C-2885-25-0	8.67	5	727	3838	2529	87
C-2885-26-0	8.67	5	727	3838	2529	87
Total:	199.15	**119**	**16709**	**88164**	**58092**	**1992**

C. Emissions Adjusted for Fuel Use Limits

Pursuant to Rule 2201 Section 6.2.1.4, Actual Emissions may not exceed the emissions associated with the maximum allowable fuel consumption posted on the Permits to Operate. First, adjustments to the annual duty cycle will be made, then adjustments in the annual fuel consumption will be made. The adjusted fuel consumption for the two years presented will then be averaged together and finally, emissions adjusted for fuel use limits will be calculated.

1. Adjustment for Annual Duty Cycle

Fuel use records from 1992 (Appendix C) indicate that these engines are capable of, and have burning much more fuel than the permitted amount. Pursuant to Rule 2201 Section 6.2.1.4, actual emissions may not exceed the maximum permitted emissions described in the permit conditions. This means that the amount of actual emissions may not exceed the amount of emissions associated with the burning of the maximum permitted fuel use on a daily basis.

For example, these engines could have burned up the amount of fuel posted in the 1992 annual fuel register in less than 365 days and then remained shut down for the rest of the days in that year. If this were the case, then Actual Emissions would have to be adjusted to only reflect emissions created during the number of the days per year that the equipment operated.

Since daily fuel use records are not available, the District must determine whether or not the engines were operated on a daily basis. Two factors are immediately considered. First, gas production seems to be consistant. Gas production records for the Coalinga Nose Unit (Appendix D) indicate that there was substantial gas production with the exception of only two days during the period from May 1, 1996 to March 25, 1998. This supports the idea that the engines have been operated on a regular basis.

The second consideration is the emmense amount of fuel consumed in 1992. Based on the fuel records for that year (Appendix C), units C-2885-15-0, C-2885-17-0 and C-2885-18-0 consumed a total of 228.65 MMscf of natural gas, which is considerably above their calculated annual maximum allowed fuel consumption (calculated above) of 145.74 MMscf.

These two factors combine to indicate that these engines were indeed fired a lot. Since there is no indication otherwise, we will accept that these engines were fired every day.

Therefore, no adjustment is required for the annual duty cycle.

2. Adjustment for Maximum Permitted Fuel Use

The following permit units have permit conditions which limit the maximum consumption of natural gas on a daily basis.

Permit	Fuel Use [scf/day]
C-2885-15-0	42,300
C-2885-17-0	254,000
C-2885-18-0	103,000

Emission reductions, however, are determined on an annual basis. Since daily fuel use records are not available, and there is no adjustment necessary for the annual duty cycle (above), the maximum allowed annual fuel use may be obtained by multiplying the daily use by 365 as follows:

Maximum Allowable Annual Fuel Useage						
C-2885-15-0	42300	(scf/day) x	365	(day/year) =	**15.44**	**(MMscf/year)**
C-2885-17-0	254000	(scf/day) x	365	(day/year) =	**92.71**	**(MMscf/year)**
C-2885-18-0	103000	(scf/day) x	365	(day/year) =	**37.60**	**(MMscf/year)**

The maximum allowable annual fuel usage posted above will be compared to the historical annual fuel use for 1992 and 1993. The more conservative figure for each permit unit will be selected for determining average adjusted annual fuel use.

Adjusted Annual Fuel Use for 1992			
Unit	Max Allowed Fuel Use (MMscf/year)	Actual Annual Fuel Use (MMscf/year)	**Adjusted Annual Fuel Use (MMscf/year)**
C-2885-15-0	15.44	25.23	**15.44**
C-2885-17-0	92.71	151.62	**92.71**
C-2885-18-0	37.60	51.80	**37.60**

Adjusted Annual Fuel Use for 1993			
Unit	Max Allowed Fuel Use (MMscf/year)	Actual Annual Fuel Use (MMscf/year)	**Adjusted Annual Fuel Use (MMscf/year)**
C-2885-15-0	15.44	8.41	**8.41**
C-2885-17-0	92.71	50.52	**50.52**
C-2885-18-0	37.60	17.26	**17.26**

The adjusted annual fuel use values are averaged together in the following table:

Annual Average Adjusted Fuel Use					
			1992	1993	Average
Permit	Hp	Unit	Adjusted Fuel Use (MMscf)	Adjusted Fuel Use (MMscf)	Adjusted Fuel Use (MMscf)
C-2885-15-0	300	Whiskey Hill	15.44	8.41	11.93
C-2885-17-0	1802	19F	92.71	50.52	71.62
C-2885-18-0	730	31-B-Plt	37.6	17.26	27.43
C-2885-22-0	300	Binkley #1	23.13	0	11.57
C-2885-23-0	265	Binkley #2	18.3	0	9.15
C-2885-24-0	225	Binkley #3	17.34	0	8.67
C-2885-25-0	225	Binkley #4	17.34	0	8.67
C-2885-26-0	225	Binkley #5	17.34	0	8.67
Total:			239.2	76.19	**157.70**

3. Annual Emissions Adjusted for Fuel Use Limits

The annual emissions adjusted for fuel use limits are obtained by multiplying the selected emission factors adjusted for Rule 4701 by the adjusted fuel use data presented above. The results are posted in the following table:

Historical Annual Emissions Adjusted for Maximum Permitted Fuel Use						
		SOx	NOx	CO	VOC	PM10
Emission Factors (lb/MMScf):		0.6	83.9	442.7	291.7	10
	Average fuel	Adjusted Annual Emissions (pounds)				
Unit	use (MMscf/yr)	SOx	NOx	CO	VOC	PM10
C-2885-15-0	11.93	7	1001	5281	3480	119
C-2885-17-0	71.62	43	6009	31706	20892	716
C-2885-18-0	27.43	16	2301	12143	8001	274
C-2885-22-0	11.57	7	971	5122	3375	116
C-2885-23-0	9.15	5	768	4051	2669	92
C-2885-24-0	8.67	5	727	3838	2529	87
C-2885-25-0	8.67	5	727	3838	2529	87
C-2885-26-0	8.67	5	727	3838	2529	87
Total:	157.71	**95**	**13232**	**69818**	**46004**	**1577**

D. Further Adjustments to HAE

Pursuant to Section 6.2.1 of Rule 2201, HAE must be discounted for any emissions reductions proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act. There are no further adjustments required beyond the adjustments for Rule 4701 emission factors and fuel use limits posted above.

E. Actual Emissions Reductions (AER)

Per Rule 2201, Section 6.5.2, the Actual Emissions Reductions due to shutdown of an emissions unit is equal to the Adjusted Annual Emissions presented in Section V.C.3 above.

Actual Emission Reductions				
SOx	NOx	CO	VOC	PM10
95 lb/year	13232 lb/year	69818 lb/year	46004 lb/year	1577 lb/year

F. Air Quality Improvement Deduction (AQID)

Pursuant to Rule 2201 Section 6.5, the amount of emission reductions which may be banked due to equipment shutdown must be adjusted by a 10% Air Quality Improvement Deduction. The remaining bankable emission reductions are calculated in the Table in Section H below.

G. Increases in Permitted Emissions (IPE)

There is no IPE associated with this project.

H. Bankable Emissions Reductions Credits

The bankable Emission Reduction Credits for this shutdown are calculated in the table below using the formula: ERC = AER - AQID. The ERC values are rounded to the nearest whole pound. The quarterly values are then determined by dividing the bankable values evenly into quarters and rounded to the nearest pound. The bankable annual total for each pollutant is posted for completeness.

Bankable Emission Reduction Credits					
	HAE		AQID		ERC
SOx	95	-	9.5	=	86
NOx	13232	-	1323.2	=	11909
CO	69818	-	6981.8	=	62836
VOC	46004	-	4600.4	=	41404
PM10	1577	-	157.7	=	1419

	Quarter 1		**Quarter 2**		**Quarter 3**		**Quarter 4**		Total
SOx	**22**		**22**		**22**		**22**		88
NOx	**2977**		**2977**		**2977**		**2977**		11908
CO	**15709**		**15709**		**15709**		**15709**		62836
VOC	**10351**		**10351**		**10351**		**10351**		41404
PM10	**355**		**355**		**355**		**355**		1420

VI. Compliance

Pursuant to Rule 2201 Section 3.2.1, Actual Emissions Reductions the reductions must be:

A. Real

The emissions reductions are generated by the shutdown of the processing equipment. The emissions reductions are calculated from actual historic fuel usage data and approved emission factors. Therefore, the reductions are real.

B. Enforceable

The Permits to Operate the engines have been surrendered. The equipment cannot be legally operated without a valid PTO. Therefore, the reductions are enforceable.

C. Quantifiable

Reduction amounts are calculated based on historic fuel usage data and approved emission factors. Therefore, the reductions are quantifiable.

D. Permanent

The equipment has been shutdown and the PTO's surrendered. Further operation requires prior District approval by filing an application. Therefore, the reductions are permanent.

E. Surplus

Texaco voluntarily shutdown their engines. The shut down was not required by any law, rule, agreement, regulation, nor attributed to a control measure noticed for workshop or contained in the District Air Quality Attainment Plan. However, as shown in Sections V.A. and V.B of this report, these engines are subject to the requirements of Rule 4701 and permit conditions for emission factors and fuel use. Only the emissions which are allowed by Rule 4701 and the permit conditions on the Permits to Operate are considered to be surplus actual emissions.

The bankable emissions reductions posted in Section V.H above have been corrected for Rule 4701 and permit conditions and are therefore considered to be surplus emissions.

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

The emission reduction credits generated by the shutdown of the test operation have not been used for the approval of any Authority to Construct or as offsets.

G. Timely submittal

The permits for the engines were surrendered on February 17, 1997, which is the shut-down date of the equipment. The ERC application was submitted March 3, 1997. Therefore, the application was submitted in a timely fashion, within 180 days of the shutdown, in compliance with Sections 4.2.3 and 5.5 of Rule 2301.

VII. Recommendation

Issue Emission Reduction Credit as presented in the following table:

Emission Reduction Credits					
Pollutant	Quarter 1 (lb)	Quarter 2 (lb)	Quarter 3 (lb)	Quarter 4 (lb)	TOTAL (lb)
SOx	22	22	22	22	88
NOx	2977	2977	2977	2977	11908
CO	15709	15709	15709	15709	62836
VOC	10351	10351	10351	10351	41404
PM10	355	355	355	355	1420

Appendix A: Former Permits to Operate

San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-17-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 19F TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
1802 HP NATURAL GAS FIRED IC ENGINES AT THE 19F PLANT. 2-500 HP(SN 22616 AND 22617) & 600 HP(SN A21062) FOR DRIVING GAS COMPRESSORS; AND 2-101 HP FOR PUMP/ FANS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. Equipment may only be fueled by natural gas.
4. Combined natural gas consumption rate shall not exceed 254,000 scf per day.
5. Emissions shall not exceed 830 lb NOx/day, 107 lb CO day, nor 336 lb VOC/day.
6. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW

Executive Director/APCO

Central Regional Office * 1999 Tuolumne, Suite 200 * Fresno, California 93721 * (209)497-1000 * FAX (209) 233-2203

1996 7 12 SAEAOS

San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-18-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 31B TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
730 HP NATURAL GAS FIRED IC ENGINES LOCATED AT SITE 31B. 2-365 HP(ID #1 & #2) DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. Natural gas consumption rate shall not exceed 103,000 scf per day.
4. Equipment may only be fueled by natural gas.
5. Emissions shall not exceed 336 lb NOx/day, 44 lb CO day, nor 136 lb VOC/day.
6. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW

Executive Director/APCO

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1996 T12 NAKAOS

San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-22-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 24 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
300 HP NATURAL GAS FIRED IC ENGINE (ID #1), CLARK MODEL HMA-8, DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
6. The engine shall be fired on natural gas only.
7. Emissions from the engine shall not exceed 172.8 lb NOx/day, 23.8 lb CO/day, 6.8 lb VOC/day, nor 4.0 lb PM-10/day.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW
Executive Director/APCO

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San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-23-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 24 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
265 HP NATURAL GAS FIRED IC ENGINE (ID #2), CLARK, MODEL HMA-6, DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
6. The engine shall be fired on natural gas only.
7. Emissions from the engine shall not exceed 152.6 lb NOx/day, 21.0 lb CO/day, 6.0 lb VOC/day, nor 3.5 lb PM-10/day.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW

Executive Director/APCO

Central Regional Office * 1999 Tuolumne, Suite 200 * Fresno, California 93721 * (209)497-1000 * FAX (209) 233-2203

San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-24-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 24 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
225 HP NATURAL GAS FIRED IC ENGINE (ID #3), CLARK, MODEL MA-6, DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
6. The engine shall be fired on natural gas only.
7. Emissions from the engine shall not exceed 129.6 lb NOx/day, 17.8 lb CO/day, 5.1 lb VOC/day, nor 3.0 lb PM-10/day.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

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San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-25-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 24 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
225 HP NATURAL GAS FIRED IC ENGINE (ID #4), CLARK, MODEL MA-6, DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
6. The engine shall be fired on natural gas only.
7. Emissions from the engine shall not exceed 129.6 lb NOx/day, 17.8 lb CO/day, 5.1 lb VOC/day, nor 3.0 lb PM-10/day.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

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San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-26-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 24 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
225 HP NATURAL GAS FIRED IC ENGINE (ID #5), CLARK, MODEL MA-36, DRIVING GAS COMPRESSORS.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. No air contaminant shall be released into the atmosphere which causes a public nuisance.
4. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere.
6. The engine shall be fired on natural gas only.
7. Emissions from the engine shall not exceed 129.6 lb NOx/day, 17.8 lb CO/day, 5.1 lb VOC/day, nor 3.0 lb PM-10/day.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW
Executive Director/APCO

Central Regional Office * 1999 Tuolumne, Suite 200 * Fresno, California 93721 * (209)497-1000 * FAX (209) 233-2203

BC

San Joaquin Valley
Unified Air Pollution Control District

PERMIT TO OPERATE

PERMIT NO: C-2885-15-0 **EXPIRATION DATE:** 10/31/1997

LEGAL OWNER OR OPERATOR: TEXACO EXPLORATION & PROD
MAILING ADDRESS: STAR ROUTE BOX 42
SAN ARDO, CA 93450

LOCATION: GAS PRODUCTION, FRESNO COUNTY SECTION 7 TOWNSHIP 19S RANGE 15E

EQUIPMENT DESCRIPTION:
300 HP NATURAL GAS FIRED I.C. ENGINE, SN 39508, ID #1, LOCATED AT WHISKY HL PLANT. THE ENGINE DRIVES A GAS COMPRESSOR.

CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration.
3. Natural gas consumption rate shall not exceed 42,300 scf per day.
4. Equipment may only be fueled by natural gas.
5. Emissions shall not exceed 138 lb NOx/day, 18 lb CO day, nor 56 lb VOC/day.
6. A record of daily fuel consumption shall be maintained, retained on the premises for a period of at least two years and made available for District inspection upon request.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require a new permit. This permit shall be posted as prescribed in District Rule 2010.

DAVID L. CROW

Executive Director/APCO

Central Regional Office • 1999 Tuolumne, Suite 200 • Fresno, California 93721 * (209)497-1000 * FAX (209) 233-2203

1996-7-12 NAKAOS

Appendix B: Emissions Data from Unocal

Unocal Oil & Gas Divisi
Unocal Corporation
P.O. Box 1074
Coalinga, California 93210

FEB 07 1990

UNOCAL 76

BC

February 6, 1990

Mr. Dale Chapman
County of Fresno
Air Pollution Control District
1221 Fulton Mall
P.O. Box 11867
Fresno, CA 93775

Dear Mr. Chapman:

As per our conversation on February 5, 1990, in regards to the Permits to Operate numbers 3040060104 thru 3040060162, I am supplying the attached information. Also as discussed, the fuel gas that feeds these engines is not measured by meters in all cases. All the engines located on Sections 13, 24, 6, 7, 18, and 19 are metered from one common gas meter. The engines located on Sections 20, 34, and 1 are not metered. All Scf/Day usage is the same for the years 1987, 1988, and 1989.

If you have any further questions, please feel free to call.

Sincerely,

George N. Folks Jr.

George N. Folks Jr.
Environmental Specialist

GNF/ksg

NATL.GAS FIRED COMPRESSORS

BC

#	EQUIP. LOCATION	EQUIP. MANUFACTURI	SERIAL NUMBER	EQUIP. TYPE	HP RATING	FUEL CONSUMP. (BTU/HP-HR)	NOX (LB/DAY)	CO (LB/DAY)	HC (LB/DAY)	SO2 (LB/DAY)	PM (LB/DAY)	NATL/GAS (SCF/DAY)	
1	7-F PLT.	CLARK	20137	RA-3	300	10000	306.9	38.8	126.4	0.23	NA	61,920	
1A	7-F PLT.	INGERSOLL	8EV948	XVG-8	300	9000	248.6	31.4	102.4	0.19	NA	61,920	
2	7-F PLT.	CLARK	22253	RA-3	300	10000	306.9	38.8	126.4	0.23	NA	61,920	
3	7-F PLT.	CLARK	22286	RA-3	300	10000	306.9	38.8	126.4	0.23	NA	61,920	
4	7-F PLT.	CLARK	22345	RA-3	300	10000	306.9	38.8	126.4	0.23	NA	61,920	
5	7-F PLT.	CLARK	A21152	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
6	7-F PLT.	CLARK	A21174	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
7	7-F PLT.	CLARK	A21264	HRA-6	660	9000	546.9	69.2	225.2	0.41	NA	136,224	
8	7-F PLT.	CLARK	A2265	HRA-6	660	9000	546.9	69.2	225.2	0.41	NA	136,224	
9	7-F PLT.	CLARK	A21266	HRA-6	660	9000	546.9	69.2	225.2	0.41	NA	136,224	
10	7-F PLT.	CLARK	22627	RA-5	500	10000	511.5	64.7	210.6	0.38	NA	115,200	
11	7-F PLT.	CLARK	22606	RA-5	500	10000	511.5	64.7	210.6	0.38	NA	115,200	
12	7-F PLT.	CLARK	A25624	HRA-8	880	9000	729.1	92.2	300.2	0.54	NA	181,632	
13	7-F PLT.	CLARK	A25625	HRA-8	880	9000	729.1	92.2	300.2	0.54	NA	181,632	
14	7-F PLT.	CLARK	A25623	HRA-8	880	9000	729.1	92.2	300.2	0.54	NA	181,632	
1	31B PLT.	COOPER	43259	GMX-6	365	8500	269.8	34.1	111.1	0.20	NA	70,956	2885-18
2	31B PLT.	COOPER	42922	GMX-6	365	8500	269.8	34.1	111.1	0.20	NA	70,956	[illegible]
1	18F PLT.	CLARK	A21486	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
2	18F PLT.	CLARK	A21487	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
3	18F PLT.	CLARK	A21123	HRA-6	660	9000	546.9	69.2	225.2	0.41	NA	136,224	
1	19F PLT.	CLARK	22616	RA-5	500	10000	511.5	64.7	210.6	0.38	NA	115,200	[illegible]
2	19F PLT.	CLARK	22617	RA-5	500	10000	511.5	64.7	210.6	0.38	NA	115,200	[illegible]
3	19F PLT.	CLARK	A21062	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	[illegible]
1	2-7F PLT.	CLARK	21345	HRA-6	660	9000	546.9	69.2	225.2	0.41	NA	136,224	
2	2-7F PLT.	CLARK	21352	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
3	2-7F PLT.	CLARK	21346	RA-6	600	10000	613.8	77.6	252.7	0.46	NA	138,461	
4	2-7F PLT.	COOPER	42683	GMX-6	365	8500	269.8	34.1	111.1	0.20	NA	70,956	
1	BINK PLT.	CLARK	39540	MA-8	300	10000	306.9	38.8	126.4	0.23	NA	69,120	2885-22
2	BINK PLT.	CLARK	50503	HMA-6	265	9000	219.6	27.8	90.4	0.16	NA	54,696	2885-23
3	BINK PLT.	CLARK	38537	MA-6	225	10000	230.2	29.1	94.8	0.17	NA	51,840	2885-24
4	BINK PLT.	CLARK	38509	MA-6	225	10000	230.2	29.1	94.8	0.17	NA	51,840	2885-25
5	BINK PLT.	CLARK	38510	MA-6	225	10000	230.2	29.1	94.8	0.17	NA	51,840	2885-26
1	WHISKY HI	CLARK	39508	MA-8	300	10000	306.9	38.8	126.4	0.23	NA	69,120	

NATL. GAS FIRED
SUPPORT EQUIP.

#	EQUIP. NAME	EQUIP. MANUFATURE	SERIAL NUMBER	EQUIP. TYPE	RATED HP	FUEL CONSUMP. (BTU/HP-HR)	NOX (LB/DAY)	CO (LB/DAY)	HC (LB/DAY)	SO2 (LB/DAY)	PM (LB/DAY)	NATL/GAS (SCF/DAY)
17	7-F FF	FORD	00512G-61	FRD-6	101	10000	103.3	13.1	42.5	0.08	NA	23,270
19F	FAN	FORD	19250R191	FRD-6	101	10000	103.3	13.1	42.5	0.08	NA	23,270
19F	TW-1	FORD	00250G091	FRD-6	101	10000	103.3	13.1	42.5	0.08	NA	23,270
2-7	JKT/WTR	MOLINE	31002905	MM-504	104	8800	82.4	10.4	33.9	0.06	NA	21,120
2-7	F/FAN	MOLINE	31002895	MM-504	104	8800	82.4	10.4	33.9	0.06	NA	21,120
18F	FIN FAN	MOLINE	31002911	MM-504	104	8800	82.4	10.4	33.9	0.06	NA	21,120
18F	TW-1	MOLINE	31002893	MM-504	104	8800	82.4	10.4	33.9	0.06	NA	21,120
1	BINK SHIP	WAUKESHA	843635	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	7F W.WELL	WAUKESHA	689200	CWAJ	190	8700	147.1	18.6	60.6	0.11	NA	38,146
1	7F W-BST	WAUKESHA	71580	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
2	7F W-BST	WAUKESHA	80140	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	6F SUMP	WAUKESHA	515303	140GK	68	10500	76.7	9.7	31.6	0.06	NA	16,476
1	7-F FIRE	WAUKESHA	1075905	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	PV SHPG	WAUKESHA	879538	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	PV 64-20	MOLINE	31002898	MM-504	130	9300	115.0	14.5	47.4	0.09	NA	21,120
2	PV 86-20	WAUKESHA	879679	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	34F-55	WAUKESHA	970477	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	POLV 28X	WAUKESHA	910475	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
2	POLV 571	WAUKESHA	970476	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
3	POLV 55-1H	MOLINE	31002813	MM-504	130	9300	115.0	14.5	47.4	0.09	NA	21,120
1	CRYO TW	WAUKESHA	820613	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
2	CRYO TW	WAUKESHA	1062114	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	CRYO FD H20	FORD	1211K02TF	FRD-6	101	10000	103.3	13.1	42.5	0.08	NA	23,270
1	34-F SHPG	WAUKESHA	910578	145GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
2	34-F SHPG	WAUKESHA	890292	140GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
1	34-F KOBE	WAUKESHA	960108	140GK	130	9300	115.0	14.5	47.4	0.09	NA	27,900
8	7-F FF	FORD	02721b271	FRD-6	101	10000	103.3	13.1	42.5	0.08	NA	23,270

Appendix C: Fuel Use Records

1992

POLV28X	3040060110*	36,20S,16E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0
POLV571	3040060110*	1,20S,16E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0
POLV55-1H	3040060110*	1,20S,16E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
BINKLEY 1	3040060111*	24,20S,15E	300	GIC	23.13	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.0	0.0
BINKLEY 2	3040060111*	24,20S,15E	265	GIC	18.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.9	0.0
BINKLEY 3	3040060111*	24,20S,15E	225	GIC	17.34	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.7	0.0
BINKLEY 4	3040060111*	24,20S,15E	225	GIC	17.34	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.7	0.0
BINKLEY 5	3040060111*	24,20S,15E	225	GIC	17.34	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.7	0.0
BINKLEY SHPG.	3040060111*	24,20S,15E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0
19F PLT.#1	3040060112*	19,20S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0
19F PLT #2	3040060112*	19,20S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0
19F PLT #1	3040060112*	19,20S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
19F PLT FAN	3040060112*	19,20S,15E	101	GIC	8.49	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.8	0.0
19F PLT.H20	3040060112*	19,20S,15E	101	GIC	8.49	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.8	0.0
31-B PLT	3040060113*	31,19S,15E	365	GIC	25.90	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.6	0.0
31-B PLT.	3040060113*	31,19S,15E	365	GIC	25.90	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.6	0.0
A-SOLAR	3040060701*	7,19S,15E	1150	GT	100.55	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.5	21.6	0.0
B-SOLAR	3040060702*	7,19S,15E	1150	GT	100.55	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.5	21.6	0.0
C-SOLAR	3040060703*	7,19S,15E	1150	GT	100.55	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.5	21.6	0.0
BOILER #1	3040060705*	7,19S,15E	9.9	GB	99.28	MMCF	1054/0	N/A	4.500	21.000	0.600	100.000	5.800	0.2	1.0	0.0
BOILER #2	3040060704*	7,19S,15E	9.9	GB	99.28	MMCF	1054/0	N/A	10.000	21.000	0.600	100.000	5.800	0.5	1.0	0.0
REGEN-H300	3040060706*	7,19S,15E	5.3	GB	24.09	MMCF	1054/0	N/A	10.000	21.000	0.600	100.000	5.800	0.1	0.3	0.0
			51.796													
			134.634													
			646.22													
			176.695													
			150.797													
			25.228													
			93.445													
* - SLC Emission Factors (based on source test data)					1278.815											
** - AP42 Emission Factors																
Company:																
Address:											Name/title of responsible official					
City,State,Zip											I certify that the information contained in this Emission Statement is accurate to the best of my knowledge.					
Telephone																
Address/location of facility if different from above															signature of responsible offici	

1992

CALENDAR YEAR 1992 EMISSIONS

COMPANY NAME	UNOCAL OIL & GAS CENTRAL CALIFORNIA
ADDRESS	CALAVERAS AVE.
	P.O. BOX 1074
CITY, STATE, ZIP	COALINGA , CA 93210
NAME/TITLE OF RESPONSIBLE OFFICIAL	GEORGE N. FOLKS JR.
PHONE NUMBER	(209) 935-0771

DEV ID	APCD PERMIT #	SECTION/ TOWNSHIP/ RANGE	H.P. RATING	EQUIP. TYPE	FUEL USE	FUEL UNITS	PROCESS GAS HEAT CONT./PPM(S)	CONTROL DEVICE(S)	USE EMISSION FACTORS IN LB/MMCF OR LB/1000 GAL FOR FUEL BURNING DEVICES					TONS/YEAR (TPY) = [(EF x FUEL USE)/20		
									PM EF	CO EF	SOX EF	NOX EF	TOG EF	PM TPY	CO TPY	SOX TPY
7F PLT.#12	3040060101*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	0.0
7F PLT.#13	3040060102*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	#VALUE!
7F PLT.#14	3040060103*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	0.0
7F PLT.#1	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0
7F PLT.XVG	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0
7F PLT.#2	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0
7F PLT.#3	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0
7F PLT.#4	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0
7F PLT.#5	3040060104*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
7F PLT.#6	3040060104*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
7F PLT.#7	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0
7F PLT.#8	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0
7F PLT #9	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0
7F PLT.#10	3040060104*	7,19S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0
7F PLT.#11	3040060104*	7,19S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0
7F CRYO TWR1	3040060104*	7,19S,15E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0
7F CRYO TWR2	3040060104*	7,19S,15E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0
7F CRYP FDWTR	3040060104*	7,19S,15E	101	GIC	8.49	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.8	0.0
2-7F PLT #1	3040060105*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0
2-7F PLT.#2	3040060105*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
2-7F PLT.#3	3040060105*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
2-7F PLT.#4	3040060105*	7,19S,15E	365	GIC	25.90	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.6	0.0
2-7F PLT H20	3040060105*	7,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
2-7F PLT FAN	3040060105*	7,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
18F PLT #1	3040060106*	18,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
18F PLT #2	3040060106*	18,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0
18F PLT #3	3040060106*	18,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0
18F PLT FAN	3040060106*	18,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
18F PLT.H20	3040060106*	18,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
WHISKEY HILL	3040060107*	7,19S,15E	300	GIC	25.23	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.4	0.0
7F H20 WELL	3040060108*	7,19S,15E	190	GIC	13.92	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.0	0.0
7F H20 BSTR	3040060108*	7,19S,15E	130	GIC	5.09	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.1	0.0
7F H20 BSTR	3040060108*	7,19S,15E	130	GIC	5.09	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.1	0.0
7F SMP H20	3040060108*	7,19S,15E	68	GIC	6.01	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.3	0.0
7F FIRE ENG	3040060108*	7,19S,15E	130	GIC	0.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.1	0.0
7F FAN	3040060108*	7,19S,15E	101	GIC	8.66	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0
7F FAN	3040060108*	7,19S,15E	101	GIC	8.66	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0
PV SHPG	3040060109*	20,20S,15E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0
PV 64-20	3040060109*	20,20S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0
PV 86-20	3040060109*	20,20S,15E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0
GH34F SHPG	3040060109*	34,20S,16E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0
GH34F SHPG	3040060109*	34,20S,16E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0
GH34F KOBE	3040060109*	34,20S,16E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0
GH55-34	3040060110*	34,20S,16E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0

BC

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CALENDAR YEAR 1993 EMISSIONS

COMPANY NAME: UNOCAL OIL & GAS CENTAL CALIFORNIA
ADDRESS: CALAVERAS AVE.
P.O. BOX 1074
CITY, STATE, ZIP: COALINGA, CA 93210

NAME/TITLE OF RESPONSIBLE OFFICIAL: GEORGE N. FOLKS JR.
PHONE NUMBER: (209) 935-0771

USE EMISSION FACTORS IN LB/MMCF OR LB/1000 GAL

DEV ID	APCD PERMIT #	SECTION/ OWNSHI RANGE	H.P RATING	EQUIP. TYPE	FUEL USE	FUEL UNITS	PROCESS GAS HEAT CONT./PPM(S)	CONTROL DEVICE(S)	FOR FUEL BURNING DEVICES: PM EF	CO EF	SOX EF	NOX EF	TOG EF	TONS/YEAR (TPY) = [(EF x FUEL USE)/2000] x %S (IF OIL-FIRED) FRACTION: PM TPY	CO TPY	SOX TPY	NOX TPY	TOG TPY	ROG	ROG TPY	SOURCE TEST (S-T) DATE	RANGE OF CELLS FOR S-T DATA IF AVG USED
7F PLT #12	3040060101*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	0.0	112.7	46.4	0.3965	18.4		
7F PLT #13	3040060102*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	#VALUE!	112.7	46.4	0.3965	18.4		
7F PLT #14	3040060103*	7,19S,15E	880	GIC	66.30	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	14.3	0.0	112.7	46.4	0.3965	18.4		
7F PLT #1	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0	38.4	15.8	0.3965	6.3		
7F PLT XVG	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0	38.4	15.8	0.3965	6.3		
7F PLT #2	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0	38.4	15.8	0.3965	6.3		
7F PLT #3	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0	38.4	15.8	0.3965	6.3		
7F PLT #4	3040060104*	7,19S,15E	300	GIC	22.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	4.9	0.0	38.4	15.8	0.3965	6.3		
7F PLT #5	3040060104*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0	85.9	35.4	0.3965	14.0		
7F PLT #6	3040060104*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0	85.9	35.4	0.3965	14.0	5/20/92 & 11/23/88	5/
7F PLT #7	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0	84.5	34.8	0.3965	13.8	5/20/92 & 11/23/88	5/
7F PLT #8	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0	84.5	34.8	0.3965	13.8		
7F PLT #9	3040060104*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0	84.5	34.8	0.3965	13.8		
7F PLT #10	3040060104*	7,19S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0	71.5	29.4	0.3965	11.7		
7F PLT #11	3040060104*	7,19S,15E	500	GIC	42.05	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	9.0	0.0	71.5	29.4	0.3965	11.7		
7F CRYO TWR1	3040060104*	7,19S,15E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0	17.3	7.1	0.3965	2.8		
7F CRYO TWR2	3040060104*	7,19S,15E	130	GIC	10.18	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	2.2	0.0	17.3	7.1	0.3965	2.8		
7F CRYP FDWT	3040060104*	7,19S,15E	101	GIC	8.49	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.8	0.0	14.4	5.9	0.3965	2.4		
2-7F PLT #1	3040060105*	7,19S,15E	660	GIC	49.72	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.2	10.7	0.0	84.5	34.8	0.3965	13.8	8/20/92 & 4/16/90	8
2-7F PLT #2	3040060105*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0	85.9	35.4	0.3965	14.0		
2-7F PLT #3	3040060105*	7,19S,15E	600	GIC	50.54	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.3	10.9	0.0	85.9	35.4	0.3965	14.0		
2-7F PLT #4	3040060105*	7,19S,15E	365	GIC	25.90	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	5.6	0.0	44.0	18.1	0.3965	7.2		
2-7F PLT H20	3040060105*	7,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0	13.1	5.4	0.3965	2.1		
2-7F PLT FAN	3040060105*	7,19S,15E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0	13.1	5.4	0.3965	2.1		
18F PLT #1	3040060106*	18,19S,15	600	GIC	16.84	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.6	0.0	28.6	11.8	0.3965	4.7		
18F PLT #2	3040060106*	18,19S,15	600	GIC	16.84	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.6	0.0	28.6	11.8	0.3965	4.7		
18F PLT #3	3040060106*	18,19S,15	660	GIC	16.57	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.6	0.0	28.2	11.6	0.3965	4.6		
18F PLT FAN	3040060106*	18,19S,15	104	GIC	2.57	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.6	0.0	4.4	1.8	0.3965	0.7		
18F PLT H20	3040060106*	18,19S,15	104	GIC	2.57	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.6	0.0	4.4	1.8	0.3965	0.7		
WHISKEY HILL	3040060107*	7,19S,15E	300	GIC	8.41	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.8	0.0	14.3	5.9	0.3965	2.3		
7F H20 WELL	3040060108*	7,19S,15E	190	GIC	13.92	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.0	0.0	23.7	9.7	0.3965	3.9		
7F H20 BSTR	3040060108*	7,19S,15E	130	GIC	5.09	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.1	0.0	8.7	3.6	0.3965	1.4		
7F H20 BSTR	3040060108*	7,19S,15E	130	GIC	5.09	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.1	0.0	8.7	3.6	0.3965	1.4		
7F SMP H20	3040060108*	7,19S,15E	68	GIC	6.01	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.3	0.0	10.2	4.2	0.3965	1.7		
7F FIRE ENG.	3040060108*	7,19S,15E	130	GIC	0.60	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.1	0.0	1.0	0.4	0.3965	0.2		
7F FAN	3040060108*	7,19S,15E	101	GIC	8.66	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0	14.7	6.1	0.3965	2.4		

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7F FAN	3040060108*	7,19S,15E	101	GIC	8.66	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0	14.7	6.1	0.3965	2.4		
PV SHPG	3040060109*	20,20S,15	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
PV 64-20	3040060109*	20,20S,15	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0	13.1	5.4	0.3965	2.1		
PV 86-20	3040060109*	20,20S,15	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
GH34F SHPG	3040060109*	34,20S,16	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
GH34F SHPG	3040060109*	34,20S,16	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
GH34F KOBE	3040060109*	34,20S,16	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
GH55-34	3040060110*	34,20S,16	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
POLV28X	3040060110*	36,20S,16	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
POLV571	3040060110*	1,20S,16E	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
POLV55-1H	3040060110*	1,20S,16E	104	GIC	7.71	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.7	0.0	13.1	5.4	0.3965	2.1		
BINKLEY 1	3040060111*	24,20S,15	300	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
BINKLEY 2	3040060111*	24,20S,15	265	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
BINKLEY 3	3040060111*	24,20S,15	225	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
BINKLEY 4	3040060111*	24,20S,15	225	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
BINKLEY 5	3040060111*	24,20S,15	225	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
BINKLEY SHPG.	3040060111*	24,20S,15	130	GIC	0.00	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.0	0.0	0.0	0.0	0.3965	0.0		
19F PLT.#1	3040060112*	19,20S,15	500	GIC	14.01	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.0	0.0	23.8	9.8	0.3965	3.9		
19F PLT.#2	3040060112*	19,20S,15	500	GIC	14.01	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.0	0.0	23.8	9.8	0.3965	3.9		
19F PLT.#1	3040060112*	19,20S,15	600	GIC	16.84	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.1	3.6	0.0	28.6	11.8	0.3965	4.7		
19F PLT. FAN	3040060112*	19,20S,15	101	GIC	2.83	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.6	0.0	4.8	2.0	0.3965	0.8		
19F PLT.H20	3040060112*	19,20S,15	101	GIC	2.83	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	0.6	0.0	4.8	2.0	0.3965	0.8		
31-B PLT.	3040060113*	31,19S,15	365	GIC	8.63	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0	14.7	6.0	0.3965	2.4		
31-B PLT.	3040060113*	31,19S,15	365	GIC	8.63	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.0	1.9	0.0	14.7	6.0	0.3965	2.4		
A-SOLAR	3040060701*	7,19S,15E	1150	GT	75.41	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.4	16.2	0.0	128.2	52.8	0.3965	20.9		
B-SOLAR	3040060702*	7,19S,15E	1150	GT	75.41	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.4	16.2	0.0	128.2	52.8	0.3965	20.9		
C-SOLAR	3040060703*	7,19S,15E	1150	GT	75.41	MMCF	1054/0	N/A	10.000	430.000	0.600	3400.000	1400.000	0.4	16.2	0.0	128.2	52.8	0.3965	20.9		
BOILER #1	3040060705*	7,19S,15E	9.9	GB	74.45	MMCF	1054/0	N/A	4.500	21.000	0.600	100.000	5.800	0.2	0.8	0.0	3.7	0.2	0.3965	0.1		
BOILER #2	3040060704*	7,19S,15E	9.9	GB	74.45	MMCF	1054/0	N/A	10.000	21.000	0.600	100.000	5.800	0.4	0.8	0.0	3.7	0.2	0.3965	0.1		
REGEN-H300	3040060706*	7,19S,15E	5.3	GB	24.09	MMCF	1054/0	N/A	10.000	21.000	0.600	100.000	5.800	0.1	0.3	0.0	1.2	0.1	0.3965	0.0		
			17.26																			
			44.86																			
			646.22																			
			176.695																			
			50.25																			
			8.41																			
			0																			
* - SLC Emission Factors (based on source test data)					943.695																	
** - AP42 Emission Factors																						

Appendix D: Days of Production from Coalinga Nose Unit

CNU GAS PRODUCTION 1996

May 96'		Jun. 96'		Jul. 96'		Aug. 96'		Sep. 96'		Oct. 96'		Nov. 96'		Dec. 96'	
1	**65520**	1	68748	1	66527	1	63215	1	63702	1	60524	1	54293	1	53344
2	68310	2	68005	2	66318	2	62649	2	63407	2	59944	2	56230	2	53033
3	68100	3	66910	3	64098	3	59091	3	63160	3	62336	3	57710	3	52100
4	68010	4	67090	4	65745	4	62652	4	62809	4	62430	4	57785	4	53053
5	67770	5	67340	5	66764	5	62315	5	62816	5	62432	5	56951	5	54194
6	62870	6	67366	6	66091	6	62225	6	62982	6	57329	6	56210	6	56831
7	62930	7	67311	7	65475	7	62028	7	62007	7	62313	7	55803	7	52219
8	64690	8	67318	8	65914	8	62067	8	62924	8	62064	8	54609	8	54091
9	65510	9	67377	9	66249	9	61933	9	62824	9	62243	9	55442	9	53413
10	66930	10	67199	10	64553	10	61837	10	62837	10	61940	10	54912	10	54554
11	67490	11	67333	11	64480	11	58730	11	62367	11	61548	11	55973	11	53712
12	64440	12	68247	12	65030	12	56436	12	62149	12	61564	12	55593	12	53105
13	67810	13	66188	13	64948	13	61147	13	62132	13	59812	13	55211	13	52524
14	65490	14	65664	14	61200	14	61241	14	62503	14	61068	14	56178	14	53247
15	65180	15	66990	15	64880	15	62271	15	56749	15	61030	15	55822	15	53454
16	65800	16	67510	16	64389	16	63591	16	62387	16	60900	16	55824	16	53045
17	66640	17	67128	17	63482	17	63322	17	62216	17	60927	17	52186	17	52695
18	66990	18	66721	18	63538	18	59140	18	62820	18	60903	18	55027	18	54648
19	67220	19	67158	19	64674	19	63238	19	62930	19	61012	19	54471	19	54540
20	67150	20	67694	20	64419	20	62902	20	62900	20	61087	20	54308	20	55210
21	66840	21	66474	21	62525	21	63073	21	62879	21	60400	21	54569	21	59380
22	65770	22	67457	22	64814	22	63030	22	62867	22	60460	22	53047	22	52560
23	66500	23	67574	23	64193	23	63050	23	62632	23	60517	23	53329	23	56902
24	67390	24	67397	24	64092	24	63020	24	63011	24	58629	24	53672	24	55668
25	66560	25	61289	25	63916	25	62898	25	63742	25	59060	25	53458	25	56273
26	66580	26	66978	26	64213	26	92742	26	63080	26	58711	26	53273	26	55315
27	67830	27	66230	27	64047	27	62845	27	62600	27	55331	27	54608	27	55216
28	60500	28	66262	28	64006	28	62644	28	62840	28	57547	28	53825	28	54340
29	69270	29	66249	29	63908	29	63432	29	62742	29	58849	29	53639	29	54227
30	69308	30	66416	30	63570	30	62235	30	62788	30	58161	30	53621	30	54289
31	69690			31	63281	31	62727			31	57246			31	**54572**

CNU GAS PRODUCTION 1997

Jan. 97		Feb. 97'		Mar. 97'		Apr. 97'		May 97'		Jun. 97'		Jul. 97'		Aug. 97'		Sep. 97'		Oct. 97'		Nov. 97'		Dec.97'	
1	**54306**	1	50476	1	49512	1	48859	1	50102	1	47685	1	47797	1	46760	1	45412	1	43880	1	41291	1	41637
2	52010	2	50862	2	49065	2	49496	2	50157	2	45478	2	47981	2	46397	2	44918	2	43697	2	41594	2	40140
3	52647	3	50625	3	49071	3	49560	3	49650	3	48019	3	62680	3	46548	3	45425	3	43502	3	41540	3	40000
4	51711	4	50572	4	48000	4	50297	4	49018	4	49015	4	47561	4	46209	4	45147	4	44346	4	41555	4	40350
5	50328	5	50391	5	46716	5		5	49603	5	51043	5	47392	5	45439	5	44552	5	44086	5	41753	5	40054
6	51742	6	51277	6	47140	6	48964	6	49637	6	50343	6	45267	6	46286	6	45099	6	43763	6	41448	6	39707
7	51683	7	51676	7	47240	7	44358	7	49510	7	49144	7	47141	7	45980	7	44725	7	43667	7	41391	7	40556
8	51029	8	51933	8	48657	8	47944	8	49363	8	48372	8	17537	8	45878	8	44623	8	43625	8	38482	8	40285
9	51376	9	51460	9	49266	9	47812	9	49070	9	49127	9	47366	9	45872	9	44344	9	43460	9	41442	9	39618
10	51807	10	50833	10	49264	10	48473	10	48694	10	48629	10	47187	10	45762	10	44414	10	42889	10	41032	10	38224
11	52046	11	50467	11	48996	11	48696	11	46215	11	48961	11	47138	11	45282	11	45023	11	43532	11	40553	11	39304
12	51140	12	50685	12	48896	12	48867	12	48039	12	48834	12	46650	12	45312	12	44555	12	43247	12	40110	12	39790
13	48788	13	50294	13	48656	13	48350	13	48336	13	49055	13	46976	13	46024	13	44420	13	43247	13	40236	13	39887
14	49034	14	49851	14	47834	14	47147	14	48925	14	48464	14	46926	14	46089	14	44256	14	42981	14	40631	14	39966
15	50723	15	49838	15	48263	15	47063	15	48764	15	48114	15	46742	15	46265	15	44150	15	42792	15	40796	15	39725
16	49886	16	50060	16	47225	16	47835	16	48511	16	46518	16	46916	16	46000	16	44341	16	42205	16	40941	16	39103
17	50886	17	49663	17	48898	17		17	48879	17	47691	17	48239	17	45686	17	43907	17	42691	17	40018	17	39855
18	80142	18	49213	18	47643	18	48512	18	48459	18	38516	18	47893	18	45290	18	43737	18	42604	18	39747	18	39650
19	49474	19	49233	19	45595	19	48812	19	48766	19	45053	19	47529	19	45076	19	73566	19	42640	19	39410	19	38457
20	48089	20	48966	20	44471	20	47234	20	47633	20	45211	20	47230	20	45530	20	46378	20	42613	20	39942	20	38494
21	50156	21	48973	21	48500	21	47895	21	48180	21	45068	21	46404	21	45135	21	43513	21	42767	21	39496	21	37905
22	45097	22	48741	22	48767	22	47868	22	48858	22	45567	22	46124	22	43930	22	43273	22	43261	22	39872	22	38314
23	48358	23	48472	23	49128	23	48246	23	48589	23	46520	23	46099	23	45519	23	43141	23	42845	23	39709	23	39078
24	50151	24	48614	24	48969	24	48847	24	48579	24	46351	24	47549	24	45011	24	43189	24	42882	24	3932	24	39043
25	49715	25	48595	25	49410	25	49862	25	47901	25	45374	25	47456	25	45251	25	43546	25	42404	25	39737	25	38968
26	49602	26	48940	26	49220	26	49589	26	47927	26	46863	26	46499	26	45944	26	44461	26	42474	26	39711	26	38835
27	49891	27	49453	27	49086	27	49778	27	48025	27	47393	27	47175	27	45541	27	44061	27	42131	27	39764	27	38842
28	49045	28	49203	28	49301	28	49572	28	48028	28	46104	28	47049	28	45298	28	44061	28	41900	28	40188	28	38327
29	50815			29	50218	29	50273	29	47427	29	45885	29	46996	29	46114	29	44062	29	41906	29	40399	29	37335
30	50993			30	49620	30	49976	30	48184	30	47204	30	47145	30	45620	30	43938	30	42360	30	40321	30	36177
31	50145			31	49072			31	48472			31	46491	31	45575			31	42280			31	**37095**

CNU GAS PRODUCTION 1998					
Jan. 98'		Feb. 98'		Mar. 98'	
1	**36305**	1	37837	1	34080
2	37385	2	37731	2	33840
3	37947	3	37888	3	35381
4	37954	4	37874	4	35772
5	37694	5	37441	5	35711
6	38779	6	36722	6	36023
7	39498	7	36091	7	35795
8	39242	8	36416	8	35765
9	38888	9	36485	9	33999
10	39062	10	37701	10	33735
11	38656	11	38012	11	33668
12	36409	12	38072	12	36051
13	36846	13	37582	13	35932
14	37488	14	37098	14	35165
15	37199	15	38855	15	34502
16	37166	16	38750	16	34349
17	36800	17	36404	17	34443
18	36508	18	36456	18	35146
19	37146	19	36169	19	34621
20	36935	20	34406	20	33955
21	36838	21	37098	21	33754
22	38437	22	34406	22	33798
23	37498	23	35571	23	33810
24	38236	24	34663	24	33725
25	38099	25	35571	25	**33853**
26	38112	26	35508	26	
27	37762	27	34589	27	
28	38065	28	34363	28	
29	37636			29	
30	38038			30	
31	37798			31	

Texaco Exploration
and Production Inc

Box 5197X
Bakersfield CA 93388
805 392 2200
FAX 805 392 2202

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SJVUAPCD

February 24, 1997

Mr. David Warner
Manager, Permit Services
SJVUAPCD - Central Region
1999 Tuolumne Street, Suite 200
Fresno, CA 93721-1638

SUBJECT: Applications for Emission Reduction Credit Certificates for Thirteen Internal Combustion Engines

Dear Mr. Warner:

The purpose of this submittal is to surrender the permits to operate for 13 gas-fired Internal Combustion Engines and to request Emission Reduction Credit Certificates. These internal combustion engines were permitted to operate within the Coalinga Nose Unit in Western Fresno County.

Enclosed with this submittal are the following:

A. A check, Number 80057200 in the amount of $650. to cover ERCC filing fees.
B. Four ERC Certificate Applications.
C. A spreadsheet, Attachment I, listing the engine unit designations, their previous permit to operate numbers and their current permit to operate numbers.
D. Spreadsheets listing fuel useage for these units during 1992 and 1993.
E. Attachment II which displays the calculations which were used to determine NOX emission reductions.

The pollutant reductions that are listed in Attachment I were established based on AP-42 for the SOX, ROG, PM-10 and CO emissions. These emission factors were then multiplied by the fuel useage numbers for 1992 and 1993 and then divided by 730 days. The NOX reductions that are listed in Attachment I were determined by using the emission limit from Table 3 in Section 5.1.3 of SJVUAPCD Rule 4701 and reducing that limit to zero.

Based on the records that we have obtained, none of these engines operated in 1994, 1995 or 1996. However, based on our fuel records these emissions were real and we are using accepted emission factors to quantify those emissions. Since these the permits for these engines are being surrendered, these emissions are also permanent and enforceable. Therefore, we request that you issue these ERC Certificates to Texaco at your earliest convenience.

If you have any questions or comments regarding this submittal, please call Mike Polyniak at (805) 392-2299.

Sincerely,

S. L. Bulkeley
EH&S Manager
Bakersfield Region

enclosures
1011env.doc

ATTACHMENT II
NOX ERC CALCULATIONS

Fuel Rate in MMSCF/Year * Air/Fuel Ratio for Natural Gas * 75 parts/ Million Parts =

Cubic Feet NO2 * Density of NO2 @ 60 degrees F divided by 730 days for two years.

Fuel Rate for Binkley #1 = 23.13 MMSCF for 1992
0.00 MMSCF for 1993.

Therefore:

23.13 MMSCF/2 years * 32.452 A/F Ratio * 75 parts/ 1,000,000 parts = 58,030.857 ft3 NO2.

(58,030.857 ft3 NO2 • 0.1214 Lbm/ft3) / 730 days = **9.651 Lbm/day NO2.**

San Joaquin Valley Unified Air Pollution Control District

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PERMIT SERVICES
SJVUAPCD

APPLICATION FOR:

[X] EMISSION REDUCTION CREDIT (ERC) [ ] ERC WITHDRAWAL
[ ] CONSOLIDATION OF ERC CERTIFICATES [ ] ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO: TEXACO EXPLORATION + PRODUCTION, INC.

2. MAILING ADDRESS:
STREET/P.O. BOX: STAR ROUTE BOX 42
CITY: SAN ARDO STATE: CA 9-DIGIT ZIP CODE: 93450

3. LOCATION OF REDUCTION:
STREET:
CITY: Coalinga
/4 SECTION 7 TOWNSHIP 19S RANGE 15E

4. DATE OF REDUCTION:

5. PERMIT NO(S): EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:
[X] SHUTDOWN [ ] RETROFIT [ ] PROCESS CHANGE [ ] OTHER
DESCRIPTION:

(Use additional sheets if necessary)

7. REQUESTED ERCS (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM-10	SOx	OTHER
1ST QUARTER	783.90	1,263.24	1,783.35	41.49	2.52	
2ND QUARTER	792.61	1,277.28	1,803.17	41.95	2.55	
3RD QUARTER	801.32	1,291.31	1,822.98	42.41	2.58	
4TH QUARTER	801.32	1,291.31	1,822.98	42.41	2.58	

8. SIGNATURE OF APPLICANT: for MEMills
TYPE OR PRINT TITLE OF APPLICANT: Vice President, Bakersfield Region

9. TYPE OR PRINT NAME OF APPLICANT: M. E. Mills
DATE:
TELEPHONE NO: 392-2299

FOR APCD USE ONLY:

DATE STAMP
RECEIVED
MAR 03 1997
FINANCE
SJVUAPCD

FILING FEE RECEIVED: $ 650.00 ck# 8005720 0
DATE PAID: PM 2-27-97
PROJECT NO.: 970158 FACILITY ID.: 2885

San Joaquin Valley Unified Air Pollution Control District

RECEIVED
FEB 27 1997
PERMIT SERVICES
SJVUAPCD

APPLICATION FOR:

[X] EMISSION REDUCTION CREDIT (ERC) [ ] ERC WITHDRAWAL
[ ] CONSOLIDATION OF ERC CERTIFICATES [ ] ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO: TEXACO EXPLORATION + PRODUCTION, INC.

2. MAILING ADDRESS:
STREET/P.O. BOX: STAR ROUTE BOX 42
CITY: SAN ARDO STATE: CA 9-DIGIT ZIP CODE: 93450

3. LOCATION OF REDUCTION:
STREET:
CITY: Coalinga
/4 SECTION 31 TOWNSHIP 19S RANGE 15E

4. DATE OF REDUCTION:

5. PERMIT NO(S): EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:
[X] SHUTDOWN [ ] RETROFIT [ ] PROCESS CHANGE [ ] OTHER
DESCRIPTION:

(Use additional sheets if necessary)

7. REQUESTED ERCS (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM-10	SOx	OTHER
1ST QUARTER	1,609.20	2,593.26	3,661.02	8.51	5.01	
2ND QUARTER	1,627.08	2,622.07	3,701.70	8.61	5.10	
3RD QUARTER	1,649.96	2,650.89	3,742.38	8.70	5.15	
4TH QUARTER	1,649.96	2,650.89	3,742.38	8.70	5.15	

8. SIGNATURE OF APPLICANT: for M.E. MILLS
TYPE OR PRINT TITLE OF APPLICANT: Vice President, Bakersfield Region

9. TYPE OR PRINT NAME OF APPLICANT: M. E. Mills
DATE:
TELEPHONE NO: 392-2299

FOR APCD USE ONLY:

DATE STAMP
RECEIVED
MAR 03 1997
FINANCE
SJVUAPCD

FILING FEE RECEIVED: $ 1
DATE PAID:
PROJECT NO.: 970158 FACILITY ID.: 2885

San Joaquin Valley Unified Air Pollution Control District

RECEIVED
FEB 27 1997
PERMIT SERVICES
SJVUAPCD

APPLICATION FOR:

[X] EMISSION REDUCTION CREDIT (ERC) [ ] ERC WITHDRAWAL
[ ] CONSOLIDATION OF ERC CERTIFICATES [ ] ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO: TEXACO EXPLORATION + PRODUCTION, INC.

2. MAILING ADDRESS:
STREET/P.O. BOX: STAR ROUTE BOX 42
CITY: SAN ARDO STATE: CA 9-DIGIT ZIP CODE: 93450

3. LOCATION OF REDUCTION:
STREET:
CITY: Coalinga
/4 SECTION 19 TOWNSHIP 20S RANGE 15E

4. DATE OF REDUCTION:

5. PERMIT NO(S): EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:
[X] SHUTDOWN [ ] RETROFIT [ ] PROCESS CHANGE [ ] OTHER
DESCRIPTION:

(Use additional sheets if necessary)

7. REQUESTED ERCS (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM-10	SOx	OTHER
1ST QUARTER	4,710.15	7,590.51	10,716.21	249.21	11.34	
2ND QUARTER	4,762.49	7,674.85	10,835.28	251.98	11.47	
3RD QUARTER	4,819.82	7,759.19	10,954.35	254.75	11.59	
4TH QUARTER	4,819.82	7,759.19	10,954.35	254.75	11.59	

8. SIGNATURE OF APPLICANT: for M E MILLS
TYPE OR PRINT TITLE OF APPLICANT: Vice President, Bakersfield Region

9. TYPE OR PRINT NAME OF APPLICANT: M. E. MILLS
DATE:
TELEPHONE NO: 392-2299

FOR APCD USE ONLY:

RECEIVED
DATE STAMP
MAR 03 1997
FINANCE
SJVUAPCD

FILING FEE RECEIVED: $ 1
DATE PAID:
PROJECT NO.: 970158 FACILITY ID.: 2885

Printed on Recycled Paper.

San Joaquin Valley Unified Air Pollution Control District

RECEIVED
FEB 27 1997
PERMIT SERVICES
SJVUAPCD

APPLICATION FOR:

[X] EMISSION REDUCTION CREDIT (ERC) [ ] ERC WITHDRAWAL
[ ] CONSOLIDATION OF ERC CERTIFICATES [ ] ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO: TEXACO EXPLORATION + PRODUCTION, INC.

2. MAILING ADDRESS:
STREET/P.O. BOX: STAR ROUTE BOX 42
CITY: SAN ARDO STATE: CA 9-DIGIT ZIP CODE: 93450.

3. LOCATION OF REDUCTION:
STREET:
CITY: Coalinga
/4 SECTION 24 TOWNSHIP 20S RANGE 15E

4. DATE OF REDUCTION:

5. PERMIT NO(S): EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:
[X] SHUTDOWN [ ] RETROFIT [ ] PROCESS CHANGE [ ] OTHER
DESCRIPTION:

(Use additional sheets if necessary)

7. REQUESTED ERCS (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM-10	SOx	OTHER
1ST QUARTER	2,177.46	3,509.19	4,954.14	115.38	6.84	
2ND QUARTER	2,201.65	3,548.18	5,009.19	116.66	6.92	
3RD QUARTER	2,225.85	3,587.17	5,064.23	117.94	6.99	
4TH QUARTER	2,225.85	3,587.17	5,064.23	117.94	6.99	

8. SIGNATURE OF APPLICANT: E. MILLS
TYPE OR PRINT TITLE OF APPLICANT: Vice President, Bakersfield Region

9. TYPE OR PRINT NAME OF APPLICANT: M. E. Mills
DATE:
TELEPHONE NO: 392-2299

FOR APCD USE ONLY:

DATE STAMP
RECEIVED
MAR 03 1997
FINANCE
SJVUAPCD

FILING FEE RECEIVED: $ 1
DATE PAID:
PROJECT NO.: 970158 FACILITY ID.: 2885

Printed on Recycled Paper.

FRESNO COUNTY AIR POLLUTION CONTROL DISTRICT
P.O. Box 11867, 1221 Fulton Mall
Fresno California 93775
Telephone: (209) 445-3239

1989 PRODUCTION DATA FORM

COMPANY NAME Unocal Corporation DATE February 26 19 90

REPORTING PERIOD: From January 1 19 89 to December 31 19 89

Process Name/ Permit Number	Materials Used/ Processed/or Fuel(s) Burned	Max. Daily Throughput or Consumption	Total Annual Throughput Consumption	Operating Schedule		
				Hr/Day	Day/Wk	Wk/Yr
3040060101	Natural Gas	181,632 SCF	66,295,680 SCF	24	7	52
3040060102	Natural Gas	181,632 SCF	66,295,680 SCF	24	7	52
3040060103	Natural Gas	181,632 SCF	66,295,680 SCF	24	7	52
3040060104	Natural Gas	1,304,664 SCF	476,202,360 SCF	24	7	52
3040060105	Natural Gas	526,342 SCF	192,114,830 SCF	24	7	52
3040060106	Natural Gas	455,386 SCF	166,215,890 SCF	24	7	52
3040060107	Natural Gas	69,120 SCF	25,228,800 SCF	24	7	52
3040060108	Natural Gas	184,862 SCF	67,474,630 SCF	24	7	52
3040060109	Natural Gas	160,620 SCF	58,626,300 SCF	24	7	52
3040060110	Natural Gas	104,820 SCF	38,259,300 SCF	24	7	52
3040060111	Natural Gas	307,236 SCF	112,141,140 SCF	24	7	52
3040060112	Natural Gas	415,401 SCF	151,621,365 SCF	24	7	52
3040060113	Natural Gas	141,912 SCF	51,797,880 SCF	24	7	52

Name George N. Folks Jr. Title Environmental Specialist

Signature George N. Folks

1/90
pdf/ema

COMPRESSORS

#	EQUIP. LOCATION	EQUIP. MANUFACTURE	SERIAL NUMBER	EQUIP. TYPE	HP RATING	FUEL CONSUMP. (BTU/HP-HR)	NOX (LB/DAY)	CO (LB/DAY)	HC (LB/DAY)	SO2 (LB/DAY)	PM (LB/DAY)	NATL/GAS (SCF/DAY)
1	7-F PLT.	CLARK	20137	RA-3	300	10,000	306.9	38.8	126.4	0.23	NA	61,920
1A	7-F PLT.	INGERSOLL	8EV948	XVG-8	300	9,000	248.6	31.4	102.4	0.19	NA	61,920
2	7-F PLT.	CLARK	22253	RA-3	300	10,000	306.9	38.8	126.4	0.23	NA	61,920
3	7-F PLT.	CLARK	22286	RA-3	300	10,000	306.9	38.8	126.4	0.23	NA	61,920
4	7-F PLT.	CLARK	22345	RA-3	300	10,000	306.9	38.8	126.4	0.23	NA	61,920
5	7-F PLT.	CLARK	A21152	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
6	7-F PLT.	CLARK	A21174	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
7	7-F PLT.	CLARK	A21264	HRA-6	660	9,000	546.9	69.2	225.2	0.41	NA	136,224
8	7-F PLT.	CLARK	A2265	HRA-6	660	9,000	546.9	69.2	225.2	0.41	NA	136,224
9	7-F PLT.	CLARK	A21266	HRA-6	660	9,000	546.9	69.2	225.2	0.41	NA	136,224
10	7-F PLT.	CLARK	22627	RA-5	500	10,000	511.5	64.7	210.6	0.38	NA	115,200
11	7-F PLT.	CLARK	22606	RA-5	500	10,000	511.5	64.7	210.6	0.38	NA	115,200
12	7-F PLT.	CLARK	A25624	HRA-8	880	9,000	729.1	92.2	300.2	0.54	NA	181,632
13	7-F PLT.	CLARK	A25625	HRA-8	880	9,000	729.1	92.2	300.2	0.54	NA	181,632
14	7-F PLT.	CLARK	A25623	HRA-8	880	9,000	729.1	92.2	300.2	0.54	NA	181,632
1	31B PLT.	COOPER	43259	GMX-6	365	8,500	269.8	34.1	111.1	0.20	NA	70,956
2	31B PLT.	COOPER	42922	GMX-6	365	8,500	269.8	34.1	111.1	0.20	NA	70,956
1	18F PLT.	CLARK	A21486	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
2	18F PLT.	CLARK	A21487	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
3	18F PLT.	CLARK	A21123	HRA-6	660	9,000	546.9	69.2	225.2	0.41	NA	136,224
1	19F PLT.	CLARK	22616	RA-5	500	10,000	511.5	64.7	210.6	0.38	NA	115,200
2	19F PLT.	CLARK	22617	RA-5	500	10,000	511.5	64.7	210.6	0.38	NA	115,200
3	19F PLT.	CLARK	A21062	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
1	2-7F PLT.	CLARK	21345	HRA-6	660	9,000	546.9	69.2	225.2	0.41	NA	136,224
2	2-7F PLT.	CLARK	21352	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
3	2-7F PLT.	CLARK	21346	RA-6	600	10,000	613.8	77.6	252.7	0.46	NA	138,461
4	2-7F PLT.	COOPER	42683	GMX-6	365	8,500	269.8	34.1	111.1	0.20	NA	70,956
1	BINK PLT.	CLARK	39540	MA-8	300	10,000	306.9	38.8	126.4	0.23	NA	69,120
2	BINK PLT.	CLARK	50503	HMA-6	265	9,000	219.6	27.8	90.4	0.16	NA	54,696
3	BINK PLT.	CLARK	38537	MA-6	225	10,000	230.2	29.1	94.8	0.17	NA	51,840
4	BINK PLT.	CLARK	38509	MA-6	225	10,000	230.2	29.1	94.8	0.17	NA	51,840
5	BINK PLT.	CLARK	38510	MA-6	225	10,000	230.2	29.1	94.8	0.17	NA	51,840
1	WHISKY HL.	CLARK	39508	MA-8	300	10,000	306.9	38.8	126.4	0.23	NA	69,120

TABLE OF CONVERSIONS

BC

1. Reference Values

Molecular Weight = MW

MW NO	= 30.0 g/mole	MW CO	= 28.0 g/mole
MW NO_2	= 46.0 g/mole	MW THC	= 18 g/mole
MW NO_x	= 30.8 g/mole assuming 5% NO_2	MW NMHC	= 33 g mole

Typical rich burn exhaust flow rate = 98 scfh/bhp

Typical lean burn exhaust flow rate = 130 scfh/bhp

Standard mole volume = 22.4 liters/mole

1 ft^3 = 28.32 liters

scfh = 12.3826 * lb/hr of exhaust

$$\text{scfh} = \text{acfh} * \left(\frac{530}{°F + 460}\right) * \left(\frac{\text{in W.C.} + 408}{408}\right)$$

2. Conversions

a. g/bhp-hr to ppm

$$\frac{\text{g/bhp-hr}}{\text{exhaust flow (scfh)}} * \text{bhp} * \frac{1}{MW} * 790{,}960.452 = \text{ppm}$$ @15% O_2

b. lb/hr to ppm

$$\frac{\text{lb/hr}}{\text{exhaust flow (scfh)}} * \frac{454\ g}{lb} * \frac{1}{MW} * 790{,}960.452 = \text{ppm}$$

TELEPHONE RECORD FORM

Date / Time	Names of All Persons Involved and Conversation Record
3/5/98	Wendy Garcia spoke w/ Mike Polymak to request records of fuel use for ICEs prior to 1992 to support ~~use~~ selection of base line period 92/93. He said he would get records, but it may be a few weeks.

PROJECT ROUTING FORM

PROJECT NUMBER: 970158 FACILITY ID: 2885 PERMIT NOs: _____

APPLICANT NAME: TEXACO EXPLORATION & PRODUCTION, INC.

PREMISE ADDRESS: STAR ROUTE BOX 42, SAN ARDO CA

PRELIMINARY REVIEW	ENGR	DATE	SUPR	DATE
A. Application Deemed Incomplete		Revised 4/13/98	NFG	
B. Application Deemed Complete [ ] Awaiting CB Offsets	NFG	3/4/98	[illegible]	9/14/98
C. Application Pending Denial				
D. Application Denied				

ENGINEERING EVALUATION	INIT	DATE
E. Engineering Evaluation Complete	[illegible]	10/12/98
F. Supervising Engineer Approval	[illegible]	10/13/98
G. Compliance Division Approval [ ] Not Required		
H. Permit Services Manager Approval	[illegible]	10/20

prelim to SS
finals to SS

Director Review: [ ] Not Required [ ] Required SW 1/7

CLERICAL STAFF: Perform tasks as indicated below. Initial and date when completed.

[ ] **PRELIMINARY REVIEW**
- [ ] _____ Mail Incompleteness Letter to the Applicant.
- [ ] _____ Mail Completeness Letter to the Applicant.
- [ ] _____ Mail Intent to Deny Letter to the Applicant (Certified Mail).
- [ ] _____ Mail Denial Letter to the Applicant (Certified Mail).

[ ] **PROJECTS NOT REQUIRING PUBLIC NOTIFICATION**

[ ] PRELIMINARY DISPOSITION:
- [ ] _____ Mail Imminent Denial Letter to the Applicant (Certified Mail).

[ ] FINAL DISPOSITION:
- [ ] _____ Mail ATC(s) to Distribution.
- [ ] _____ Mail Denial Letter to the Applicant (Certified Mail).

[ ] **PROJECTS REQUIRING PUBLIC NOTIFICATION**

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

[ ] FINAL DECISION: 7/7/99
- [ ] _____ Deliver Ad to the Newspaper NOT LATER THAN _____
- [ ] _____ Mail copies of Cover Letter and ATC(s) to Distribution.
- [ ] _____ Mail copies of Cover Letter to Distribution.

DISTRIBUTION

[ ] _____ APPLICANT
[ ] _____ ENGINEER
[ ] _____ COMPLIANCE
[ ] _____ PREMISE FILE
[ ] _____ EPA - 75 Hawthorne St., San Francisco, CA 94105 Attn: A-3-4
[ ] _____ ARB - Stationary Source Div. Chief, PO Box 2815, Sacramento, CA 95812
[ ] _____ SJVUAPCD - 1999 Tuolumne St., Fresno, CA 93721 Attn: Seyed Sadredin

[ ] _____ BLDG DEPT _____
[ ] _____ OTHER _____

[ ] _____ FIRE DEPT _____
[ ] _____ SCHOOL _____

San Joaquin Valley
Unified Air Pollution Control District

Fax Transmittal (3rd Floor)

1999 Tuolumne Street, Suite 200
Fresno, California 93721
Phone (209) 497-1100 Fax (209) 233-2203

Date : 1/13/99

To : MIKE POLYNIAK **Fax Number :**

From : STEVE ROEDER **Number of pages (including cover sheet):**

Description : ORIGINALS SHOULD BE THERE VERY SOON.

[ ]	Per Your Request	[ ]	For Your Information
[ ]	Per Our Conversation	[ ]	For Your Approval
[ ]	Take Appropriate Action	[ ]	Review & Comment
[ ]	Please Answer	[ ]	Review & Return

[ ] Original transmittal will follow via mail

Remarks / Response :

San Joaquin Valley
Unified Air Pollution Control District

April 15, 1998

FILE

Mike Polyniak
Texaco Exploration and Production Company
Star Route Box 42
San Ardo, CA 93450

Re: Receipt of Complete Application
Project Number:970158

Dear Mr. Polyniak: 768-3326
805 762-8214 fax 762-8323 Home 805-397-8300

The District has completed a preliminary review of your application for emission reduction credits (ERCs) for the shutdown of thirteen internal combustion that were involved in natural gas production in the Fresno County Oilfield.

Based on this preliminary review, the applications appear to be complete. However, during processing of your applications, the District may request additional information to clarify, correct, or otherwise supplement, the information on file.

In general, complete applications are processed on a first-come first-served basis. If you have any questions, please contact Mr. David Warner at (209) 497-1100.

Sincerely,

Seyed Sadredin
Director of Permit Services

for David Warner
Permit Services Manager

wfg

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) 862-5200 • Fax (805) 862-5201

DATE: April 2, 1998

TO: Wendy Fairchild Garcia

FROM: Mike Polyniak

SUBJECT: I. C. Engine Fuel Use for Coalinga Nose Unit

Dear Wendy:

Attached, as we discussed, are the additional data that I've gathered for the Coalinga Nose Unit I. C. Engines. Hopefully this will help you in determining whether these engines operated at a higher rate in the recent past. I've also included an engineering evaluation dated September 14, 1993. In that evaluation, the District Engineer provides fuel useage data for eight consecutive calendar quarters. I've included that too.

Since we have only operated this unit since 1996 this data is sketchy, but it's the best I could come up with. If you need additional data I will have to travel to Coalinga and dig through their very old files.

If you have additional questions or comments, please call me at (805) 762-8323.

Sincerely,

Mike Polyniak

Mike Polyniak

RECEIVED
APR 0 6 1998
PERMIT SERVICES
SJVUAPCD

ERC APPLICATION
PRELIMINARY REVIEW

Project #970158

Engineer: Wendy Garcia
Date: March 4, 1998

Facility: Texaco Exploration and Production, Inc.
Mailing Address: Star Route Box 42, San Ardo, CA 93450

Contact Name: Mike Polyniak
Phone: (805) 392-2299

Date Application Received: February 27, 1997
Date Deemed Complete: March 5, 1998

I. Summary

The primary business of this facility is oilfield gas production. Texaco has submitted applications to bank CO, NO_x, PM_{10}, SO_x, and VOC emission reduction credits (ERCs) for shutdown of thirteen (13) gas-fired I.C. engines. The facility surrendered their Permits to Operate (PTOs) with the original applications received on February 27, 1997. Copies of the permits are presented in Attachment A.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (06/15/95)
Rule 2301 Emission Reduction Credit Banking

III. Location of Reduction

The physical location of the equipment was at:
Section 7, Township 19S, Range 15E; Gas Production, Fresno County
Section 19F, Township 19S, Range 15E; Gas Production, Fresno County
Section 31B, Township 19S, Range 15E; Gas Production, Fresno County
Section 24, Township 19S, Range 15E; Gas Production, Fresno County

  - VOC: 1 g/hp-hr = 212 ppmv
- Annual emissions will be rounded to the nearest pound in accordance with District Policy NSR/ERC 8.
- Annual fuel use is assumed to be divided evenly among the four quarters.

2. Emission Factors

Actual emission reductions, as defined in Rule 2201, Section 3.2.3, are reductions beyond reductions attributed to control measures, a District air quality plan, or other laws. Emission limits for I.C. engines are required by District Rule 4701 for CO, NO_x and VOC. Therefore emission factors for these pollutants are taken from Rule 4701, Table 3, for Engine Type 3.b.

Emission factors for PM_{10} and SO_x are from EPA publication 450-4-90-003 "Airs Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Pollutants," section - Natural Gas Commercial I.C. Engines.

Table 1. Emission Factors for Calculation of Actual Emission Reductions

	Rule 4701 Emission Limit ppmv, corrected to 15% O_2	g/hp-hr	lb/MMscf
CO	2000	16.67	
NO_x	75	1.03	
PM_{10}			10
SO_x			0.6
VOC	750	3.54	

B. Baseline Period Determination and Data

As defined in Rule 2201, the baseline period consists of two years immediately preceding the date of reduction, or at least two consecutive years within five years prior to the ATC application, if they are more representative of "normal source operation" (Rule 2201, Section 3.7).

The emissions reductions involved in this project result from the shut-down of engines. According to District Rule 2301 Emission Reduction Credit Banking Section 3.11, the date of shutdown for permitted sources shall be the date of surrender of the operating permits or the cessation of emissions, whichever is earlier. Fuel use records show that the engines were last operated in 1993. However, the engines were maintained in operable condition until the surrender of permits in 1997. Because of the variable nature of oilfield operations, the District expects that Texaco intended to operate the engines if needed. Therefore, the date permits were surrendered is considered the shut-down date. The permits were surrendered on February 27, 1997.

The last five years of operation from Feburuary 27 1992 to February 27, 1997 will be used to determine the baseline period. The engines were operated only in 1992 and 1993 during this period. Natural gas production has decreased significantly in the area over the years, which may have contributed to Texaco's decision to shut-down these engines. Fuel use data from 1989 show that the compressor engines were used at a higher rate in the past (see Attachment B). Therefore the baseline period, reflecting normal source operation with respect to the past five years, will be 1992-1993, because the operating years better reflect the engines' historical use.

Actual emission reductions, as defined in Rule 2201, Section 3.2.3, are reductions beyond reductions attributed to control measures, a District air quality plan, or other laws. Therefore, the baseline emissions must be adjusted to meet emission limits on existing permits to operate (PTOs). The PTOs which specify fuel use limits are listed below.

Permit	Fuel Use [scf/day]
C-2885-15-0	42,300
C-2885-17-0	254,000
C-2885-18-0	103,000

The applicant has provided annual fuel use records (see Attachment B). Table 2 shows the annual emissions adjusted to meet the permitted fuel use limits. The quarterly totals are the annual amounts divided by four. As shown in Table 2, there are no fuel usage records available for 1994-1996 because the engines did not operate during this time. Therefore, 1992 and 1993 will be used to represent normal source operations and the baseline emissions.

IV. Method of Generating Reductions

The facility was permitted to operate thirteen (13) gas-fired I.C. engines as follows:

Texaco Permit	Unocal Permit	Fresno County Permit	Quantity	Description
C-2885-15-0	C-1659-61-0	3040060107	1	300 hp natural gas fired I.C. engine, S/N 39508, ID #1, located at Whiskey HL Plant. The engine drives a gas compressor.
C-2885-17-0	C-1659-63-0	3040060112	5	1802 hp natural gas fired I.C. engines at the 19F Plant.: (2) 500 hp (S/N 22616 & 22617); 600 hp (S/N A21062) for driving gas compressors; and (2) 101 hp for pump/fans.
C-2885-18-0	C-1659-64-0	3040060113	2	(2) 365 hp (ID #1 & 2) natural gas fired I.C. engines located at Site 31B driving gas compressors.
C-2885-22-0	C-1659-62-0	3040060111	1	300 hp natural gas fired I.C. engine (ID #1), Clark Model HMA-8, driving gas compressors.
C-2885-23-0	C-1659-62-0	3040060111	1	265 hp natural gas fired I.C. engine (ID #2), Clark Model HMA-6, driving gas compressors.
C-2885-24-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #3), Clark Model MA-6, driving gas compressors.
C-2885-25-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #4), Clark Model MA-6, driving gas compressors.
C-2885-26-0	C-1659-62-0	3040060111	1	225 hp natural gas fired I.C. engine (ID #5), Clark Model MA-36, driving gas compressors.

V. Calculations

A. Assumptions and Emission Factors

1. Assumptions

- Natural gas heating value is 1054 Btu/scf per the applicant.
- Engines are lean-burn (per applicant for similar units listed in Compliance Plan for Rule 4701 - Attachment C)
- Conversion factors for ppmv @ 15%O_2 to g/hp-hr for lean-burn engines are [Ref. EPA-453/R-93-032 "Alternative Control Techniques Document--NOx Emissions from Stationary Reciprocating Internal Combustion Engines":
  - CO: 1 g/hp-hr = 120 ppmv
  - NO_x: 1 g/hp-hr = 73 ppmv

Table 2: Historic Fuel Usage							
Permit	Hp	Unit	1992 Fuel Usage				
			1st Qtr [MMscf]	2nd Qtr [MMscf]	3rd Qtr [MMscf]	4th Qtr [MMscf]	Annual [MMscf]
C-2885-15-0[1]	300	Whiskey Hill	3.86	3.86	3.86	3.86	15.44
C-2885-17-0[2]	500	19F Plt #1	6.43	6.43	6.43	6.43	25.71
	500	19F Plt #2	6.43	6.43	6.43	3.50	25.71
	600	19F Plt #1	7.73	7.73	7.73	7.73	7.73
	101	19F Plt Fan	1.30	1.30	1.30	1.30	5.19
	101	19F Plt H_2O	1.30	1.30	1.30	1.30	5.19
C-2885-18-0	365	31-B- Plt	6.48	6.48	6.48	6.48	25.90
	365	31-B-Plt	6.48	6.48	6.48	6.48	25.90
C-2885-22-0	300	Binkley #1	5.78	5.78	5.78	5.78	23.13
C-2885-23-0	265	Binkley #2	4.58	4.58	4.58	4.58	18.30
C-2885-24-0	225	Binkley #3	4.34	4.34	4.34	4.34	17.34
C-2885-25-0	225	Binkley #4	4.34	4.34	4.34	4.34	17.34
C-2885-26-0	225	Binkley #5	4.34	4.34	4.34	4.34	17.34
Quarterly Total Fuel Use			63.39	63.39	63.39	63.39	
Permit	Hp	Unit	1993 Fuel Usage				
			1st Qtr [MMscf]	2nd Qtr [MMscf]	3rd Qtr [MMscf]	4th Qtr [MMscf]	Annual [MMscf]
C-2885-15-0	300	Whiskey Hill	2.10	2.10	2.10	2.10	8.41
C-2885-17-0	500	19F Plt #1	3.50	3.50	3.50	3.50	14.01
	500	19F Plt #2	3.50	3.50	3.50	3.50	14.01
	600	19F Plt #1	4.21	4.21	4.21	4.21	16.84
	101	19F Plt Fan	0.71	0.71	0.71	0.71	2.83
	101	19F Plt H_2O	0.71	0.71	0.71	0.71	2.83
C-2885-18-0	365	31-B- Plt	2.16	2.16	2.16	2.16	8.63
	365	31-B-Plt	2.16	2.16	2.16	2.16	8.63
C-2885-22-0	300	Binkley #1	0.00	0.00	0.00	0.00	0.00
C-2885-23-0	265	Binkley #2	0.00	0.00	0.00	0.00	0.00
C-2885-24-0	225	Binkley #3	0.00	0.00	0.00	0.00	0.00
C-2885-25-0	225	Binkley #4	0.00	0.00	0.00	0.00	0.00
C-2885-26-0	225	Binkley #5	0.00	0.00	0.00	0.00	0.00
Quarterly Total Fuel Use			19.05	19.05	19.05	19.05	

#17 total = 365(234,000) = 92,710,000

total hp = 1802 = 51,448.39 per hp/yr

1 25.724195 → 25.72
2 25.724195 25.72
3 30869034 30.87
4 5196282.4 5.20
5 5196282.4 5.20

[1] Actual fuel use was in excess of permit limit. Therefore historic fuel use adjusted: 42,300 scf/day x 365 day/yr = 15.44 MMscf/yr

[2] Total fuel use of 151.62 MMscf/yr is in excess of permit limit (92.71 MMscf/yr). Annual use rates adjusted to the allowable total based upon each engines percentage contribution to the total.

Considering the historical production data for 1992 and 1993 given in Table 2, the average quarterly fuel use for the baseline period is:

Table 3: Baseline Historical Fuel Usage			
1st Quarter [MMscf]	2nd Quarter [MMscf]	3rd Quarter [MMscf]	4th Quarter [MMscf]
41.22	41.22	41.22	41.22

This two-year period is considered most representative of normal source operation level.

C. Historical Actual Emissions (HAE)

Historical Actual Emissions are emissions having actually occurred and are calculated using process data and recognized emission factors (Rule 2201, Section 6.2.1). In this case, the historical average fuel usage during the baseline period is multiplied by the combustion emission factors.

The HAE will be presented in Table 4.

Sample calculation for C-2885-15-0:
PM10 = (25.23 MMscf/yr)(10 lb/MMscf)
= 252 lb/yr
SOx = (25.23 MMscf/yr)(0.6 lb/MMscf)
= 15 lb/yr

D. Adjustments to HAE

Pursuant to Section 6.2.1 of Rule 2201, Historical Actual Emissions must be discounted for any emissions reductions proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act.

There is no applicable regulatory measure according to District's list of regulatory measures scheduled for consideration. In this case, adjustment to HAE is not required.

E. Actual Emissions Reductions (AER)

Per Rule 2201, Section 6.5.2, the Actual Emissions Reductions due to shutdown of an emissions unit is:

AER = HAE (for the unit prior to shutdown)

AER will be presented as Table 5.

F. Air Quality Improvement Deduction (AQID)

The air quality improvement deduction per Rule 2201, Section 6.5, is 10% of the Actual Emissions Reductions, and will be presented as Table 6.

G. Increases in Permitted Emissions (IPE)

No IPE associated with this project.

H. Bankable Emissions Reductions Credits

ERC = AER - AQID

The bankable emissions reduction credits will be determined by subtraction of the Air Quality Improvement Deduction (Table 6) from the AER (Table 5), and will be presented as Table 7.

Table 7: Bankable Emissions Reduction Credits

	1st Quarter [lb/qtr]	2nd Quarter [lb/qtr]	3rd Quarter [lb/qtr]	4th Quarter [lb/qtr]
C-2885-15-0				
C-2885-17-0				
C-2885-18-0				
C-2885-22-0				
C-2885-23-0				
C-2885-24-0				
C-2885-25-0				
C-2885-26-0				

VI. Compliance

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

A. Real

The emissions reductions are generated by the shutdown of the processing equipment. The emissions reductions are calculated from actual historic fuel usage data and approved emission factors. Therefore, the reductions are real.

B. Enforceable

The Permits to Operate (PTOs) for the engines have been surrendered. The equipment cannot be legally operated without a valid PTO. Therefore, the reductions are enforceable.

C. Quantifiable

Reduction amounts are calculated based on historic fuel usage data and approved emission factors. Therefore, the reductions are quantifiable.

D. Permanent

The equipment has been shutdown and the PTOs surrendered. Further operation requires prior District approval by filing an application. Therefore, the reductions are permanent.

E. Surplus

Texaco voluntarily shutdown their engines and is not required to by any law, rule, agreement, regulation, nor attributed to a control measure noticed for workshop or contained in the District Air Quality Attainment Plan. Therefore, the reductions are surplus.

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

The emission reduction credits generated by the shutdown of the test operation have not been used for the approval of any Authority to Construct or as offsets.

G. Timely submittal

The permits for the engines were surrendered on February 17, 1997, which is the shut-down date of the equipment. The ERC application was submitted March 3, 1997. Therefore, the application was submitted in a timely fashion, within 180 days of the shutdown, in compliance with Sections 4.2.3 and 5.5 of Rule 2301.

VII. Recommendation

Based on this Preliminary Review, I recommend that the Emission Reduction Credit application can be deemed complete and the attached completeness letter issued.

San Joaquin Valley
Unified Air Pollution Control District

Wendy:
Page 7 of this Project Analysis provides quarterly fuel consumption from 4th quarter 1990 to 4th quarter 1992.
Mike

Certified Mail

September 14, 1993

George Folks
Environmental Specialist
Unocal Corp.
P.O. Box 1074
Coalinga, CA 93210

Re: Application #920394
Project Description: Ten Waukesha I.C. Engines

Dear Mr. Folks:

On October 26, 1992, the Air Pollution Control District received the above referenced application for Authority to Construct. The District has completed its review of the application and has determined offsets are required for the increase in permitted emissions of non-methane hydrocarbons (VOC) and carbon monoxide. Attached is a copy of the engineering analysis. The quantity of offsets required is 58,661 pounds CO and 85,005 pounds VOC per calendar quarter as shown on page 10.

Since the District's review indicates offsets are required, Unocal must identify the source of offsets or provide better emissions data (such as source tests or manufacturer's information) than those shown in the engineering analysis. Enclosed is a list of banked emission reduction credits. We request this information be identified and submitted to the District within 30 days of your receipt of this letter. Failure to provide the requested information may result in the denial of your project.

Thank you for your cooperation in this matter. Should you have any questions, please telephone Mr. David Warner at (209) 497-1100.

Sincerely,

Seyed Sadredin
Director of Permit Services

David Warner
Permit Services Manager - Central Region

Enclosures
mk

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

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Application Review

Project # 920394
Deemed Complete: 12/15/92

Engineer: Martin Keast
Date: May 17, 1993

Facility Name: Unocal Corp.
Mailing Address: P.O. Box 1074
Coalinga, CA 93210

Contact Name: George Folks
Phone: (209) 935-0771
Application: C-1659-38-0 through C-1659-47-0

Section 1 - Proposal

Unocal Corporation operates oil and natural gas production operations at the Coalinga Nose Unit near Coalinga, CA. This facility currently operates many internal combustion engines for gas compression. Unocal proposes to replace 33 existing i.c. engines with 10 BACT-equipped engines and later apply for emission reduction credits.

The total horsepower rating before modification was 16275, and after is 14780. Since total HP is not being increased, the new engines are viewed as functionally identical equipment.

Section 2 - Applicable Rules

Rule 2020 Exemptions (Adopted 12/17/92)

Rule 2201 New and Modified Stationary Source Review Rule (Adopted 12/17/92)

Rule 3010 Permit Fee (Adopted 12/17/92)

Rule 4101 Visible Emissions (Adopted 12/17/92)

Rule 4102 Nuisance (Adopted 12/17/92)

Section 3 - Project Location

There is no school within 1,000 feet from the equipment location.

Section 4 - Process Description

The 33 existing engines are fueled by natural gas. These engines are used to drive compressors which ship produced gas to sales pipelines. The engines operate up to 24 hours a day, 7 days a week, 52 weeks per year.

Section 5 - Equipment Listing

Table 1

Existing I.C. Engines to be Cancelled

PTO Number	I.D.	Location	HP Rating
3040060104	1	7-F	300
3040060104	1A	7-F	300
3040060104	2	7-F	300
3040060104	3	7-F	300
3040060104	4	7-F	300
3040060104	5	7-F	600
3040060104	6	7-F	600
3040060104	7	7-F	660
3040060104	8	7-F	660
3040060104	9	7-F	660
3040060104	10	7-F	500
3040060104	11	7-F	500
3040060101	12	7-F	880
3040060102	13	7-F	880
3040060103	14	7-F	880
3040060113	1	31-B	365
3040060113	2	31-B	365
3040060106	1	18F	600
3040060106	2	18F	600
3040060106	3	18F	660
3040060112	1	19F	500
3040060112	2	19F	500

Table 1			
3040060112	3	19F	600
3040060105	1	2-7F	660
3040060105	2	2-7F	600
3040060105	3	2-7F	600
3040060105	4	2-7F	365
3040060111	1	BINK	300
3040060111	2	BINK	265
3040060111	3	BINK	225
3040060111	4	BINK	225
3040060111	5	BINK	225
3040060107	1	WH	300
Total 37	-	-	16275

The new equipment consists of ten 1478 bhp Waukesha 7042 GL turbocharged lean combustion gas engines designed for low emissions and fuel efficiency. Catalytic reduction is achieved by a Houston Industrial Sciences DeNOx Silencer models #HISCR-55012C or #HISCR-55012CL. Total combined rating for ten engines is 14780 hp.

Section 6 - Control Equipment Evaluation

Emissions from the natural gas fired engines are controlled by lean burn design employing a prechamber combustion system fitted into the cylinder head. The leaner fuel mixture lowers combustion temperature spikes, thereby reducing thermal NOx formation. CO and unburned hydrocarbons are inherently lower due to consistently stable combustion of very lean fuel mixtures. However CO and NMHC emissions are significantly higher in the lean-burn design than the conventional design.

Section 7 - Calculations

A. ASSUMPTIONS MADE:

1. The emissions will be calculated based on operating 24 hours per day, 365 days per year. There are no operating limitations on the existing permits. The existing engine emission factors are based on AP-42, Table 3.2-1.

2. The new engine emission levels are based on the manufacturer (Waukesha) guarantee of 1.5 grams NOx/bhp-hr, 2.4 gm CO/bhp hr, and 1.7 gm NMHC/bhp-hr, while burning field production gas. PM_{10} and SOx emissions are negligible. These emission levels are deemed BACT by the District.

B. EMISSION CALCULATIONS:

1. Calculation of HAPE.

Historical Adjusted Potential Emissions (HAPE) is the potential to emit prior to modification adjusted for the proposed control efficiency. Ce exists only for the pollutants controlled over the old system. Therefore CE for CO and VOC are equal to zero.

HAPE is equal to the potential to emit of the existing i.c. engines being fired on natural gas at 91 days per quarter times the proposed control efficiency. Uncontrolled emission factors are from AP-42, Table 3.2-1.

CE_{NOx} =(11 - 1.5)(gm/hp-hr)/(11 gm/hp/hr)= 86%

CE_{CO} = 0

CE_{NMHC} = 0

HAPE = PEPM (1-CE)

$HAPE_{NOxI}$ =(300 hp)(24 lb/1000 hp-hr)(24*91 hr/qtr)(0.86)
= 13523 lb/qtr

$HAPE_{COI}$ =(300 hp)(3.1 lb/1000 hp-hr)(24*91 hr/qtr)(1-0)
= -1442 lb/qtr (15.84 lb/day)

$HAPE_{NMHCI}$ =(300hp)(0.97 lb/1000hp-hr)(24*91 hr/qtr)(1-0)
= -1818 lb/qtr

Table 2						
Historical Adjusted Potential Emissions (HAPE)						
PTO Number	ID	Loc.	HP	NOx	CO	NMHC
3040060104	1	7-F	300	13523✓	2031	636
3040060104	1A	7-F	300	13523	2031	636
3040060104	2	7-F	300	13523	2031	636
3040060104	3	7-F	300	13523	2031	636
3040060104	4	7-F	300	13523	2031	636
3040060104	5	7-F	600	27046	4062	1271
3040060104	6	7-F	600	27046	4062	1271
3040060104	7	7-F	660	29751	4468	1398
3040060104	8	7-F	660	29751	4468	1398
3040060104	9	7-F	660	29751	4468	1398
3040060104	10	7-F	500	22538	3385	1059
3040060104	11	7-F	500	22538	3385	1059
3040060101	12	7-F	880	39667	5958	1864
3040060102	13	7-F	880	39667	5958	1864
3040060103	14	7-F	880	39667	5958	1864
3040060113	1	31-B	365	16453	2471	773
3040060113	2	31-B	365	16453	2471	773
3040060106	1	18F	600	27046	4062	1271
3040060106	2	18F	600	27046	4062	1271
3040060106	3	18F	660	29751	4468	1398
3040060112	1	19F	500	22538	3385	1059
3040060112	2	19F	500	22538	3385	1059
3040060112	3	19F	600	27046	4062	1271
3040060105	1	2-7F	660	29751	4468	1398
3040060105	2	2-7F	600	27046	4062	1271
3040060105	3	2-7F	600	27046	4062	1271
3040060105	4	2-7F	365	16453	2174	773

3040060111	1	BINK	300	13523	2031	636
3040060111	2	BINK	265	11946	1794	561
3040060111	3	BINK	225	10142	1523	477
3040060111	4	BINK	225	10142	1523	477
3040060111	5	BINK	225	10142	1532	477
3040060107	1	WH	300	13523	2031	636
Total	-	-	-	733622	109893	34478

2. Calculation for PE

The Potential to Emit (PE) for each new engine will be calculated as follows:

NOx =(1.5 gm/bhp-hr)*(1478 bhp)*(24 hr/d)/(454 gm/lb)
= 117.2 lb/day * 91 d/qtr
= 10548 lb/qtr

CO = (2.4 gm/bhp-hr)*(1478 bhp)*(24 hr/d)/(454 gm/lb)
= 187.5 lb/day * 91 d/qtr
= 16875 lb/qtr

NMHC =(1.7 gm/bhp-hr)*(1478 bhp)*(24 hr/d)/(454 gm/lb)
= 132.8 lb/day * 91 d/qtr
= 11952 lb/qtr

Table 3

Potential to Emit (PE) for Each Engine

Pollutant	lbs/hr	lb/day	lbs/qtr	Combined lbs/qtr
NOx (NO_2)	4.88	117.2	10548	105480
CO	7.81	187.5	16875	168750
NMHC	5.53	132.8	11952	119520

3. Increase in Potential to Emit (IPE)

For functionally identical replacement equipment, IPE = PE (for replacement unit) - HAPE (unit being replaced). IPE is shown in Table 4:

Table 4		
Increase in Potential to Emit (IPE)		
Pollutant	lbs/qtr	lbs/day
NOx (NO_2)	-628,142	-6903
CO	58,857	646.8
NMHC	85,042	934.5

Negative values for IPE are set to zero. Therefore offsets are not required for NOx.

Offsets are required for CO and NMHC in the amounts of their IPE.

5. Historical Actual Emissions (HAE)

HAE can be calculated using fuel consumption data and emission factors from AP-42, Table 3.2-1 (attached). The quality of the field gas is the same as utility grade natural gas as it is treated at sweetening plants prior to compression into the pipeline or as fuel. The fuel consumption data is for 33 existing engines combined. The data is tabulated this way because all of these engine have identical emission factors.

Table 5				
Fuel Consumption (scf/qtr)				
Qtr	1990	1991	1992	Average
1	-	267985	322536	295261
2	-	304250	283457	293854
3	-	316335	291591	303963
4	235190	344094	-	289642
Total	-	-	-	1182720

Sample calculation:

NOx_{Q1} = (3400 lb/10^6scf)*(295267 scf/qtr) = 1004 lb/qtr

CO_{Q1} = (430 lb/10^6scf)*(295267 scf/qtr) = 127 lb/qtr

$NMHC_{QI}$ =(1400 lb/10^6scf)*(295267 scf/qtr)*(0.1)= 41.3 lb/qtr

SOx_{QI} = (0.6 lb/10^6scf)*(295267 scf/qtr) = 0.2 lb/qtr
Negligible.

PM_{10} = not available. Negligible.

Table 6			
Historical Actual Emissions (HAE) lbs			
Qtr	NOx	CO	NMHC
1	1004	127	41.3
2	999	126	41.1
3	1033	131	42.6
4	985	125	40.5
Total	4021	509	166

4. Community Bank Allowance (CB)

The CB allowance is equal to 10% of the HAE and is shown in Table 7.

Table 7			
Community Bank Allowance (CB) lbs			
Qtr	NOx	CO	NMHC
1	100	12.7	4.1
2	100	12.6	4.1
3	103	13.1	4.3
4	98.5	12.5	4.1
Total	401.5	50.9	16.6

Should not apply NSR changes

5. Actual Emission Reductions (AER)

The AER is equal to the HAE less the CB allowance and is shown in Table 8. The AER may be subtracted from the offset requirement or banked for future use. Since offsets are required for CO and VOC they will be subtracted from the offset requirement. The NOx AER amount is bankable.

Table 8			
Actual Emission Reductions (AER) lbs			
Qtr	NOx	CO	NMHC
1	904	114.3	37.2
2	899	113.4	37.0
3	930	117.9	38.3
4	886.5	112.5	36.4
Total	3618.5	785.1	149.4

6. NSR Balance

The NSR Balance for this stationary source includes all increases in the daily emission limitations of CO, PM_{10}, and SOx since the 1977 baseline date for Fresno County. The offset trigger level for SOx is 150 lb/day, PM is 80 lb/day, and CO is 550 lb/day. Since there is no increase in SOx and PM_{10}, no offsets are required for those pollutants. The IPE for CO exceeds 550 lbs/day and offsets are required.

Section 8 - Compliance

The proposed project complies with the following District Rules as stated below:

Rule 2020 Exemptions

The engines as proposed requires District permit per Section III.A.3.

Rule 2201 New and Modified Stationary Source Review Rule

Compliance with this rule is expected based for the following:

* **BACT Requirement:**

Emissions from the i.c. engines are controlled by natural gas fired with lean burn combustion design. This has been determined to be BACT by the District.

* **Offset Requirement**

Per Rule 2201, Section 4.2.2, offsets are required in the amounts of 58,661 lbs CO/qtr and 85,005 lbs NMHC/qtr.

- **Administrative Requirements**

  Since offsets are required, it is necessary to public notice this project.

Rule 4001 Visible Emissions

No visible emissions exceeding No 1 on Ringelmann Chart are expected.

Rule 4002 Nuisance

Nuisance conditions are not expected.

Section 9 - Recommendation

Based on the above compliance summary in Section 8, I recommend denial of the Authority to Construct permit for ten engines.

Section 10 - Billing Information

One filing fee was paid with the application. Nine other filing fees have been billed for and have been paid (ie. 9 * $60.00 = $540.00). No additional fees are currently due.

A rating fee will be required for each Authority to Construct implemented. Assuming that the applicant will proceed with installing all engines requested, a rating fee of $665.00 will be required for each engine.

Attachments

AP-42, Table 3.2-1.
Draft ATC #C-1659-38-0