REVIEW OF MINERAL ESTATE
of the
UNITED STATES
at
NAVAL PETROLEUM RESERVE NO. 2

*BUENA VISTA HILLS FIELD
KERN COUNTY, CALIFORNIA*

August 9, 1996

for

MASTER

U.S. DEPARTMENT OF ENERGY

GUSTAVSON ASSOCIATES
GEOLOGISTS • ENGINEERS

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REVIEW OF MINERAL ESTATE
OF THE
UNITED STATES OF AMERICA

NAVAL PETROLEUM RESERVE NO. 2

BUENA VISTA HILLS FIELD

KERN COUNTY, CALIFORNIA

for the

U.S. DEPARTMENT OF ENERGY

Contract No. DE-AC01-96FE64202

August 8, 1996

Respectfully submitted by:

John B. Gustavson
John B. Gustavson, President
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MASTER

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EXECUTIVE SUMMARY

The U.S. Department of Energy has asked Gustavson Associates, Inc. to serve as an Independent Petroleum Consultant under contract DE-AC01-96FE64202. Among other tasks this contract also authorizes a study and recommendations regarding future development of Naval Petroleum Reserve No. 2 (NPR-2) in Kern County, California. According to Governmental survey, the United States owns 100 percent of the mineral rights in 10,447.06 acres of the 30,181.68 acres contained within NPR-2. Oil and gas companies have leased 9,227.06 acres in 17 separate oil and gas leases (see Figure 1.1). Of these leases, ten are currently producing, five are held by payment of rentals in a nonproductive status, and two leases are in a delayed process of relinquishment.

Apart from insignificant rental payments the income from NPR-2 is in the form of royalties from production of oil and gas. The determination of DOE royalty share of production from the existing leases within NPR-2 is a highly complex calculation. Some of the complicating factors include varying royalty rates for (a) different portions of a lease, (b) on different products, and (c) sliding scale royalties with the scale tied to rates of production from combinations of portions of a lease.

Due to human resource limitations no clear records were available at the DOE office at Tupman, California. An additional effort was therefore required to review the NPR-2 lease and unit files for the purpose of constructing a detailed royalty calculation methodology. That effort was approved by the DOE as an amendment to Gustavson's original contract.

The Report that follows describes the findings regarding the mineral estate of the United States at NPR-2, including discrepancies between the royalty calculation methods currently utilized at NPR-2 and those required under the contracts and regulations examined. The Report also contains recommendations for operators to increase production from the nonproductive and underdeveloped properties at NPR-2 in order to maximize the royalties payable to the United States of America.

D.O.E. LEASES IN NPR NO. 2

FIGURE 1.1—Lease map of the study area.

Gustavson has identified instances of improper royalty calculations, lack of affirmative response by DOE to terminate leases, potential implied covenant violations by operators, and a potential broader interpretation of operating regulations which may increase revenues to the United States of America.

Briefly, Gustavson recommends the following:

- Review the potential for additional exploration under implied covenants;
- Explore avenues to separate wells drilled in the 1990s from wells drilled in the 1930s when calculating sliding scale royalties;
- Review the gas aggregation method used to maximize future royalties;
- Attempt to lease all open acreage;
- Review the possible elimination of low production wells from the average production used to calculate sliding scale royalties;
- Regularly review the plant costs of lease operators to ensure the highest royalty rate is received; and
- Take the affirmative steps necessary to 1) close relinquished lease accounts so these lands may be leased to other interested parties; and 2) make records complete by requesting required assignments.

The data reviewed and compiled in connection with this report will be incorporated as part of Phase II - Final Report, Study of Alternatives for Future Operations of the Naval Petroleum and Oil Shale Reserves, NPR-2, California.

DISCLAIMER

The enclosed Report has been prepared by Gustavson Associates, Inc., a consulting firm familiar with the technical, scientific, land and economic aspects of the oil industry.

No legal opinions are intended herein. Likewise, no title opinions are presented. Such specialized advice must be sought from members of the legal profession.

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LIST OF ADDENDAE

ADDENDUM

- A DOE Files Examined by Gustavson Associates, Inc.

LIST OF EXHIBITS

EXHIBIT

- 1 Map of Agreement for the 27-B Pool of the Buena Vista Hills Oil and Gas Field, Kern County, California
- 2 Map of Unit Agreement for the Antelope Shale Zone of the Buena Vista Hills Oil and Gas Field, Kern County, California
- 3 Map of Unit Agreement for the Sub Scalez Zone of the 11D Area, Buena Vista Hills Oil and Gas Field, Kern County, California
- 4 Map of Unit Agreement Area for 555 Stevens Zone of the Buena Vista Hills Oil and Gas Field, Kern County, California
- 5 Map of Unit Agreement for the Sub Scalez 8 Above Zones of the 2-D Area, Buena Vista Hills Oil and Gas Field, Kern County, California

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2. INTRODUCTION

2.1 PURPOSE

The purpose of this report is to present this Consultant's findings regarding the nature and extent of the mineral estate of the United States at National Petroleum Reserve No. 2 (NPR-2), Buena Vista Hills Field, Kern County, California. Determination of the mineral estate of the United States at NPR-2 was authorized by the Department of Energy (DOE) under Contract No. DE-AC01-96FE64202 as a necessary prerequisite to this Consultant's calculation of estimated future cash flows attributable to said estate, which calculations are presented in the accompanying report entitled "Phase II Final Report, Study of Alternatives for Future Operations of the Naval Petroleum and Oil Shale Reserves, NPR-2, California".

This Report contains a discussion of the leases in effect at NPR-2 and subsequent contracts affecting such leases. This Report also summarizes discrepancies found between the current royalty calculation procedures utilized at NPR-2 and those procedures required under applicable agreements and regulations. Recommendations for maximizing the Government's income stream at NPR-2 are discussed in the concluding section of this Report.

2.2 METHODOLOGY

The findings herein regarding the mineral estate of the United States are based on Gustavson's review of the DOE files applicable to NPR-2 which were obtained from the land records department at NPR-2 in Kern County, California, which files are listed on Addendum "A"; the examination of the most current monthly revenue reports (Mar. 1996) prepared by the accounting department at NPR-2, the review of the 1991-92 bi-annual audit of NPR-2 revenues prepared by the State of California Auditor's Office (the 1993-94 State of California NPR-2 audit results were not available as of the date of this Report), and interviews with personnel in the land records, accounting, and legal departments at NPR-2.

Much of the information contained herein, as verified and updated by the above research, is derived from previous summaries of royalty accounting procedures for NPR-2 leases, including a memorandum dated May 22, 1991, from the Director, Contracts and Financial Management Division, Naval Petroleum Reserves in California, which adopted new "Royalty Accounting Instructions for NPR-2 Leases" in compliance with a recommendation by the Office of the Inspector General in its Report UR-B-91-4, issued January 9, 1991.

2.3 BACKGROUND

The following brief history will assist in understanding NPR-2 royalty accounting applicable under the leases and other contractual agreements discussed herein (see Figure 2.1).

Honolulu Consolidated Oil Company (now Texaco) is credited with discovering oil in Section 25, Township 32 South, Range 24 East, Kern County, California, in February 1910. This preceded the Secretary of the Navy's request for a reservation of oil-bearing public lands in California to insure a supply of 500 million barrels of crude. The U.S. Geological Survey (USGS) in late 1912 recommended the formation of NPR-2 since the precise amount of oil in nearby NPR-1 was not known to be sufficient.

NPR-2 was created by Executive Order dated December 13, 1912. The order set aside approximately 30,181 acres -- 10,447 acres in Government ownership and 19,734 acres patented to private owners -- in the Buena Vista Hills, Kern County, California. On May 31, 1921, President Harding signed an Executive Order transferring the Reserves to the Department of Interior (DOI).

During this period the "Teapot Dome Scandal" broke, and on March 17, 1927, President Coolidge, who succeeded President Harding, issued an Executive Order revoking the Harding Order of May 31, 1921.

FIGURE 2.1

CHRONOLOGY OF MAJOR EVENTS AT NPR-2

The Navy and DOI concluded that utilization of DOI's existing supervisory organization and facilities in California and Wyoming would be expedient and sensible. Accordingly, a memorandum administrative agreement between the two departments was entered into on July 9, 1927. This agreement was revised February 1, 1934. The amended agreement was superseded by another agreement dated July 1, 1945.

Paragraph 4 of the administrative agreement dated July 9, 1927 provides that "the Operating Regulations revised and approved by the Secretary July 1, 1926, shall continue to be applicable to operating leases on Naval Petroleum Reserves..." The phrase "shall continue to be applicable" implies that the 1926 regulations were applicable to leases within NPR-2 immediately prior to the time of transfer to the Navy. All leases within NPR-2 are still subject to the 1926 regulations unless the terms of a unit agreement covering lands within NPR-2 specify that other regulations shall apply. In such instances, the regulations specified in such unit agreement shall apply only to lands or zones included in said unit.

The oil and gas leases committed to NPR-2 (see Figure 1.1) were issued by the Sacramento Land Office during the years 1921, 1922, and 1923, and are identified by the following serial numbers -- 019336, 019343, 019352(b), 019383(c), 019384(c), 019385(b), 019386(b), 019396(b), 019424(a), 019424(b), 019571, 019571(a), 019577, 019594, 019630, 019752, and 022065(b). Of the 17 leases in NPR-2, five are carried in a nonproductive status; these are 019336, 019384(c), 019424(a), 019424(b), 019571(a). Another two leases, 019630 and 019752 are in the process of relinquishment. Although there are 15 active leases, the DOI has split lease 019343 into three accounts (to be explained later), resulting in a total of 17 accounts for NPR-2.

Each of the leases in NPR-2 was issued for "a period of twenty (20) years, with preferential right in the lessee to renew for successive periods of ten (10) years". However, the leases within NPR-2, together with certain leases outside NPR-2, were committed to a Plan Agreement for Cooperative Development of Buena Vista Hills Oil and Gas Field, Kern County, California, dated October 1, 1935 (Plan Agreement), which amended the term of the NPR-2 leases, and incorporated the provisions of the Plan for Cooperative Development of Buena Vista Hills Oil

and Gas Field, Kern County, California, dated October 1, 1935 (Plan for Cooperative Development).

In an effort to promote prudent development of NPR-2, Section 9 of the Plan Agreement amended the duration of the leases in NPR-2, as follows:

"Each of the existing leases of Second Parties hereto, ..., shall, from the effective date hereof and concurrently herewith, continue in force and effect for the existing term thereof and thereafter for and during the term of this Plan Agreement, ..."

Section 3(e) of the Plan Agreement states, in part:

"... the "Operating Regulations to Govern the Production of Oil and Gas," revised and approved July 1, 1926, as amended, prior to July 1, 1935, shall be effective for lands of the United States in lieu of all other Operating Regulations".

As discussed in this Report, the overall effect of the 1935 Plan Agreement has been to significantly restrict the rate of development and exploration at NPR-2. Possible approaches to obtaining additional production from the NPR-2 lands in spite of the restrictions in the Plan Agreement are discussed in this Report.

2.4 ORGANIZATION OF REPORT

All of the currently producing unit agreements within NPR-2 became effective on various dates after the Plan Agreement was formed (see Figure 2.2). Each unit as well as the Plan Agreement and Plan for Cooperative Development will be discussed in chronological order, but the royalty terms for the base leases will be reviewed first. The term "base lease" means the NPR-2 leases as they were prior to the Plan Agreement.

FIGURE 2.2

NAVAL PETROLEUM RESERVE NO. 2 LEASES

** Government Percentage Interest

In addition, the current ownership of record title and operating rights in and to the NPR-2 leases will be summarized, possible approaches to obtaining production on the nonproductive leases within NPR-2 will be discussed, and unleased lands within NPR-2 will be identified. Finally, recommendations will be made for maximizing royalties payable to the United States at NPR-2.

3. ROYALTY TERMS AND RATES OF BASE LEASES

3.1 GENERAL

The royalty provisions contained in the base leases remain applicable to that portion of the NPR-2 leases referred to as the "Old Pool" in the Plan Agreement (see Section 3.2 below). Each of the base leases, in general, provides for royalties on lease products as set forth below.

3.2 OIL ROYALTY

Although four of the leases have higher royalties for upper tier production (see Table 3.1.), generally, for oil of 30° Baume (gravity) or over, a sliding scale rate applies as follows:

- 12-1/2% - on that portion of the average production not exceeding 20 barrels/day;
- 16-2/3% - on the next 30 barrels/day;
- 20% - on the next 50 barrels/day;
- 25% - on that portion exceeding 100 barrels/day.

For oil of less than 30° Baume, the barrel intervals remain the same as above, but the royalty percentages are 12-1/2, 14-2/7, 16-2/3, and 20, respectively. The upper tier royalty can get as high as 70 percent above 30° Baume, and 65 percent below.

3.3 GAS ROYALTY

The base leases provide that royalty on gas is 12.5 percent when the average daily production from the land leased is less than 3,000 mcf; and 16-2/3 percent when the average daily production is 3,000 mcf or over.

TABLE 3.1
BASE LEASE OR "OLD POOL" ROYALTY AT NPR-2

Lease No.	Date	Legal	Oil (barrels per day per well over 30° Baume)					Oil (barrels / day / well under 30° Baume)						Gas (mcf/day/lease)		Gasoline Fixed
			< 20	20 < 50	50 < 100	> 100	> 500	< 20	20 < 50	50 < 100	> 100	> 250	> 500	< 3,000	> 3,000	
Sac. 019336	1/31/22	S½S½ § 32-31S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019343	2/11/22	Contains multiple accounting units:														
		- A SE¼ § 2-32S-24E	12.500%	16.667%	20.000%	25.000%	35.000%	12.500%	14.286%	16.667%	20.000%		35.000%	12.500%	16.667%	5.556%
		NW¼ § 4-32S-24E	12.500%	16.667%	20.000%	25.000%	35.000%	12.500%	14.286%	16.667%	20.000%		35.000%	12.500%	16.667%	5.556%
		All § 6-32S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		- AA NE¼, S½ § 4-32S-24E	12.500%	fixed				12.500%	fixed					12.500%	12.500%	4.762%
		All § 8-32S-24E	12.500%	fixed				12.500%	fixed					12.500%	12.500%	4.762%
		W½ § 12-32S-24E	12.500%	fixed				12.500%	fixed					12.500%	12.500%	4.762%
		All § 14-32S-24E	12.500%	fixed				12.500%	fixed					12.500%	12.500%	4.762%
Sac. 019352(b)	12/5/21	S½N¼, N½S½ § 34-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019383(c)	1/1/22	S½N¼NE¼, S½N¼, N½SW¼ § 28-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019384(c)	11/30/21	S½SW¼ § 28-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019385(b)	2/6/22	E½SE¼ § 28-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019386(b)	2/6/22	N½N¼NE¼ § 28-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019396(b)	4/20/23	W½SE¼ § 28-31S-23E	12.500%	16.667%	20.000%	70.000%		12.500%	14.286%	16.667%	65.000%			12.500%	16.667%	5.556%
		W½ § 30-31S-24E	12.500%	16.667%	20.000%	70.000%		12.500%	14.286%	16.667%	65.000%			12.500%	16.667%	5.556%
		N¼ § 32-31S-24E	12.500%	16.667%	20.000%	70.000%		12.500%	14.286%	16.667%	65.000%			12.500%	16.667%	5.556%
		N¼ § 2-32S-24E	12.500%	16.667%	20.000%	70.000%		12.500%	14.286%	16.667%	65.000%			12.500%	16.667%	5.556%
		E½ § 12-32S-24E	12.500%	16.667%	20.000%	70.000%		12.500%	14.286%	16.667%	65.000%			12.500%	16.667%	5.556%
Sac. 019424(a)	12/5/21	NW½SE¼ § 32-31S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019424(b)	12/5/21	NE½SE¼ § 32-31S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019571	12/1/21	N½N¼, S½S½ § 20-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		S½S½ § 22-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		N½N¼, S½SE¼ § 26-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		N½N¼, S½S½ § 34-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019571(a)	4/4/23	N½N¼ § 22-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019577	1/10/22	S½N¼, N½S½ § 22-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		S½N¼, N½SE¼ § 26-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		N½NW¼ § 28-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		NE¼, NE¼NW¼, N½NW¼NW¼ § 12-32S-23	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
		N¼ § 18-32S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019594	2/17/22	S½N¼, N½S½ § 20-31S-23E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%
Sac. 019630	7/24/22	E½ § 30-31S-24E	12.500%	16.667%	20.000%	25.000%	35.000%	12.500%	14.286%	16.667%	20.000%		35.000%	12.500%	16.667%	5.556%
Sac. 019752	11/26/23	All § 18-31S-23E	12.500%	16.667%	20.000%	56.000%		12.500%	14.286%	16.667%	47.500%	56.000%		12.500%	16.667%	5.556%
Sac. 022065(b)	12/20/21	N½SW¼ § 32-31S-24E	12.500%	16.667%	20.000%	25.000%		12.500%	14.286%	16.667%	20.000%			12.500%	16.667%	5.556%

According to a June 26, 1962 Decision of Special Hearing Examiner on behalf of the Secretary of the Navy, on appeal by the lessees under two of the NPR-2 leases (serial nos. 019343 and 019577), the applicable royalty rate on gas produced from lands subject to the above sliding scale is determined by aggregating all gas production from all of the lands and formations covered by the subject lease, including the allocable share of gas production attributable to the lease under any unitization agreement to which the lease is subject (see Section 5.2.3 below).

In its report entitled "Royalty Accounting for NPR-2 Leases", received on May 24, 1971 by the Naval Petroleum Reserves in Tupman, California, the U.S. Geological Survey (USGS) stated its opinion that Pool production should be considered separately in the determination of royalty on Pool production. The USGS does not think Section 6 gas from the Antelope Shale Zone Unit should be aggregated with Old Pool production in determining the daily production rate applicable to Old Pool production under the sliding-scale royalty schedule in the base lease. However, DOE sets policy for all matters relating to NPR-2 and the USGS has been overruled on this particular point.

3.4 ROYALTY ON GASOLINE AND OTHER LIQUID HYDROCARBONS

The royalty rate under the base lease for gasoline, propane (LPG) and other liquid hydrocarbons is $16\frac{2}{3}$ percent of $\frac{1}{3}$ of the liquids recovered from the extraction plant when processed in a gas plant owned and operated by others. When processed in a gas plant owned and operated by the lessee, the Net Realization method is used (described below), but in no event shall the royalty rate be less than 5.5556 percent, which is $16\frac{2}{3}$ percent of $\frac{1}{3}$.

3.5 THE 1926 OPERATING REGULATIONS

The terms of each lease set definite rates for oil and gas, but the gasoline royalty rate is to be computed "on the basis provided in the Operating Regulations". As mentioned previously, the applicable Operating Regulations for the base leases are those "revised and approved by the Secretary of the Interior July 1, 1926, as amended prior to July 1, 1935." These regulations,

although issued after the date of the leases, have been accepted by all concerned through the years as being applicable to NPR-2 leases. The above lease provisions relating to liquid royalty rates have been further interpreted in the regulations as permitting two methods of computations:

- (a) Single Product (Net Realization) Method. Under this method, royalty is computed on the basis of the value of a single product (wet gas) less actual extraction costs. The gas royalty rate is used.
- (b) Two Product Method. Under this method, royalty is based on two separate products (dry gas and liquid constituents) and the lease royalty rate applicable to each product is used. Further, the regulations provide that a two-third manufacturing allowance is to be permitted as a processing fee; hence gasoline royalty is based upon 16-2/3 percent of one-third of the liquids recovered from the extraction plant. The gas royalty rate is applied to the dry gas recovered.

Of the above two methods of calculating royalty, the one which is most advantageous to the United States is used. As an example, since the royalty rate for liquids is sometimes higher than the rate for dry gas, the "two product" method may be more beneficial in some instances. Based on our review the most current production accounting records, it appears that both the net realization method and the two product method of determining the royalty rate applicable to natural gas liquids are employed at NPR-2. However, it cannot be determined whether a determination of which method would generate more royalty for the United States is being conducted by DOE. A comparison of the royalty calculation methods to determine which is more beneficial to the United States should be conducted on a regular basis to ensure that the most favorable method is being applied.

3.6 ROYALTY RELIEF

Under the terms of the base leases, the sliding scale rate for oil is subject to reduction whenever the average production of any oil well shall not exceed ten barrels per day, if in the judgment of the lessor the wells cannot be successfully operated under the sliding scale royalty rate.

Effective February 1, 1959, the Director, Naval Petroleum and Oil Shale Reserves, granted royalty relief to all lessees within NPR-2 producing from the Old Pool. On February 4, 1977, the Secretary of the Navy instructed the Director to "notify the appropriate stripper well producers on NPR-2 that the relief program will terminate within 30 days of the date of the notice." Based on the materials examined, no further oil royalty relief has been granted by the Director at NPR-2 under the above royalty relief provision.

4. PLAN AGREEMENT FOR COOPERATIVE DEVELOPMENT

4.1 OVERVIEW

The Plan Agreement, in conjunction with the Plan for Cooperative Development, became effective July 6, 1936 and includes all leases within NPR-2. It splits leaseholds within this field stratigraphically into intervals designated as the "Old Pool" and the "Pool" (see Figure 4.1).

The Plan Agreement defines the "Old Pool" to extend stratigraphically to a depth of approximately 700 feet below the "Giant Barnacle" marker horizon, and the portion of the leases lying below this depth is referred to as the "Pool". The Pool is split into three stratigraphic zones (called Group Zones) to which sliding scale oil royalty schedules apply separately.

4.2 ROYALTY MODIFICATIONS

Leases committed to the Plan Agreement are modified to the extent provided in said agreement but otherwise continue in full force and effect (see Table 4.1). The royalty provisions of the lease are modified by Section 7 and Exhibit "2" of the agreement. Section 7 reads:

"Each of the existing leases of Second Parties hereto is hereby modified and amended to the end that the royalties payable thereunder to the United States with respect to the production from Pool, but not with respect to the production from the Old Pool, shall be designated in the schedule of Royalties attached hereto and marked Exhibit "2"...

Exhibit "2" of the Plan Agreement includes a separate schedule of royalties for four different classes of leases, or parts thereof, designated Groups A, B, C and D. The royalty modification described in Exhibit "2" of the Plan Agreement are summarized as follows:

GROUP A - None of the NPR-2 leases are included in this group.

BUENA VISTA OIL FIELD

				EPOCH	FORMATION	Thick- ness (Feet)
"OLD POOL"				PLEIS- TOCENE	Tulare	1100 to 2600
				PLIOCENE	San Joaquin Mya Gas Sands	700 to 3000
					Top Oil	SS1 SS2
					Mulinia & Sub-Mulinia	
					Wilhelm	
					Gusher	
					Calitroleum C1,C2,C3,C4	
					99-9D	
					Basal Etchegoin E-1,E-2-3,E-4	
				Delmontian	Reef Ridge	300 to 700
"NEW POOL"				Upper	Antelope	Stevens
					Antelope shale zone	2800 to 3300
				Mohnian	McDonald	1800 to 2600
				Middle	Luisian	Devilwater Equivalent
					Relizian	Gould & Media(?)
				Lower	Zemorrian-Saucesian	Santos

CONTOURS ON TOP OF ETCHEGOIN

PRODUCTIVE AREA

FIGURE 4.1

TABLE 4.1
"POOL" ROYALTY PER 1935 PLAN AGREEMENT AT NPR-2

Lease No.	Date	Legal	Royalty Group	Oil (barrels / day / well / each zone*)								Gas (mcf/day/lease)		Gasoline Fixed
				< 100	100 < 300	> 300	> 600	> 700	> 1,000	> 1,200	> 5,000	< 3,000	> 3,000	
Sac. 019336	1/31/22	S½S½ § 32-31S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019343 - A - AA	2/11/22	Contains three (3) aggregation units:												
		SE¼ § 2-32S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
		NW¼ § 4-32S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
		All § 6-32S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		NE¼, S½ § 4-32S-24E	"B"	14.286%	fixed							14.286%	fixed	4.762%
		All § 8-32S-24E	"B"	14.286%	fixed							14.286%	fixed	4.762%
		W¼ § 12-32S-24E	"B"	14.286%	fixed							14.286%	fixed	4.762%
		All § 14-32S-24E	"B"	14.286%	fixed							14.286%	fixed	4.762%
Sac. 019352(b)	12/5/21	S½N¼, N½S½ § 34-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019383(c)	1/1/22	S½N¼NE¼, S½N¼, N½SW¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019384(c)	11/30/21	S½SW¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019385(b)	2/6/22	E½SE¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019386(b)	2/6/22	N½N¼NE¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019396(b)	4/20/23	W½SE¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		W¼ § 30-31S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
		N¼ § 32-31S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
		N¼ § 2-32S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
		E½ § 12-32S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
Sac. 019424(a)	12/5/21	NW¼SE¼ § 32-31S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019424(b)	12/5/21	NE¼SE¼ § 32-31S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019571	12/1/21	N½N¼, S½S½ § 20-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		S½S½ § 22-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		N½N¼, S½SE¼ § 26-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		N½N¼, S½S½ § 34-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019571(a)	4/4/23	N½N¼ § 22-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019577	1/10/22	S½N¼, N½S½ § 22-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		S½N¼, N½SE¼ § 26-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		N½NW¼ § 28-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		NE¼, NE½NW¼, N½NW¼NW¼ § 12-32S-23	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
		N¼ § 18-32S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019594	2/17/22	S½N¼, N½S½ § 20-31S-23E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%
Sac. 019630	7/24/22	E¼ § 30-31S-24E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
Sac. 019752	11/26/23	All § 18-31S-23E	"D"	12.500%	16.667%	20.000%	25.000%		33.333%		50.000%	12.500%	16.667%	5.556%
Sac. 022065(b)	12/20/21	N½SW¼ § 32-31S-24E	"C"	12.500%	16.667%	20.000%		25.000%		33.333%	45.000%	12.500%	16.667%	5.556%

* Production aggregated in three (3) stratigraphic zones defined in unit.

GROUP B - Lease Sac. 019343, insofar as it covers the NE1/4 and the S1/2 of Section 4, all of Sections 8 and 14, and the W1/2 of Section 12. 32S-24E. The royalty on oil is 14-2/7 percent; the royalty on gas, whether dry or residue, is 14-2/7 percent; and the royalty on gasoline and other hydrocarbon substances is:

14-2/7 percent of the value, as fixed by the Secretary of the Department having jurisdiction, of 1/3 thereof, or (if said casinghead gasoline and other hydrocarbon substances shall be extracted from the natural gas under an approved sales contract or other method on the basis of a reserved royalty to the lessee), the lessee's portion thereof, if greater than 1/3.

GROUP C - The NPR-2 leases included in this group are Sac. 019336, 019343 (insofar as it covers Sec. 6), 019352(b), 019383(c), 019384(c), 019385(b), 019386(b), 019424(a), 019424(b), 019571, 019571(a), 019577, 019594, and 022065(b). The royalty on oil is on a sliding scale basis, determined as follows: 12-1/2 percent on the first 100 barrels per well per day; 16-2/3 percent on the next 200 barrels per well per day; 20 percent on the next 400 barrels per well per day; 25 percent on the next 500 barrels per well per day; 33-1/3 percent on the next 3800 barrels per well per day; and 45 percent on the production which exceeds 5,000 barrels per well per day.

The royalty on gas, dry or residue, is 12-1/2 percent when the daily average production from each lease is less than 3,000 mcf, and 16-2/3 percent when the daily average production from each lease is 3,000 mcf or more.

The royalty on gasoline and other hydrocarbon substances extracted and sold is 16-2/3 percent of the value of 1/3 thereof, or on the lessee's portion thereof, if greater than 1/3, when extracted under an approved sales contract or another method which reserves a royalty to the lessee.

The only leases in Group C which presently have Pool production are 019343, 019383(c), 019571, 019577, and 019594. This production is from the unitized and non-unitized Antelope Shale and Stevens formations.

GROUP D - The NPR-2 leases included in this group are Sac. 019343 (insofar as it covers the SE1/4 of Section 2 and the NW1/4 of Section 4), 019396(b), 019630, and 019752.

The royalty on oil is on a sliding scale basis, on production per well per day, and the rates are as follows:

12-1/2%	first 100 barrels
16-2/3%	next 200 barrels
20%	next 300 barrels
25%	next 400 barrels
33-1/3%	next 4,000 barrels
50%	over 5,000 barrels

This royalty on gas, dry or residue, is 12-1/2 percent when the average daily production from each lease is less than 3,000 mcf, and 16-2/3 percent when the average daily production from each lease is 3,000 mcf or more.

The royalty on gasoline and other hydrocarbon substances extracted is 16-2/3 percent of the value of 1/3 thereof, or the lessee's portion if greater than 1/3, when extracted under an approved sales contract or another method which reserves a royalty to the lessee. As of the date of this Report, there is no Pool production from the leases in Group D.

5. UNIT AGREEMENTS

5.1 27-B POOL UNIT

5.1.1 Background

This Unit Agreement, dated January 1, 1949, became effective May 1, 1949, Contract Number Nod-8481. The June 1942 Oil and Gas Operating Regulations govern, except in cases of conflict with the unit agreement, in which case the Unit agreement will govern.

The NPR-2 leases which have been committed to this unit are: Sac. 0193439(a), 019352(b), 019383(c), 019385(b), 019386(b), 019396(b), 019571, and 019577. A map showing the unit boundary and participating area is attached as Exhibit 1.

5.1.2 Unit Royalty Rates

The royalty rate for oil is 12.9 percent.

The royalty rate for gas shall be as specified in the leases, except that the gas produced and SOLD from all zones or pools other than the 27-B Pool and the gas allocated to each lease from the 27-B Pool and SOLD shall be aggregated to determine that average production of gas per day.

For gasoline and LPG the royalty rate is $16\frac{2}{3}$ percent of $\frac{1}{3}$ of the value. The remaining $\frac{2}{3}$ is an allowance for the cost of manufacture upon which royalty is not charged. New Realization does not apply.

Section 14(c) of the agreement provides:

"A minimum royalty of \$1.00 per acre of each Government lease, any part of which is subject to this agreement, shall be payable to the United States, in lieu of rental, at the expiration of each lease year beginning on or after the effective date of this agreement."

With regard to this minimum royalty clause, the USGS changed all leases committed to the 27-B Pool Unit from Annual Rental status to Minimum Royalty status in 1965. At the same time, to simplify royalty accounting USGS changed the lease anniversary dates to the first of the month for those leases which did not have an anniversary date on the first of the month. Authority for these changes came from the Director, Naval Petroleum and Oil Shale Reserves - See Serial: 205.

5.2 ANTELOPE SHALE ZONE UNIT

5.2.1 Background

The Antelope Shale Zone Unit, date July 1, 1954, amended October 6, 1954, became effective December 3, 1954, Contract Nod-8950. The Operating Regulations, revised and approved July 1, 1926, as amended prior to July 1, 1935, are applicable, provided that if any part of the unit agreement is inconsistent with or in conflict with any such regulation, then such provision of the Agreement shall prevail.

Fee lands of Standard Oil Company were unitized with fee lands and Government lands of Texaco. The final (current) participation percentages are:

Chevron	Fee	60.1882%
Texaco	Fee	2.2257%
Texaco	Gov't	37.5861%

The Government lands include portions of Sections 6 and 8, the S1/2 of Sec. 4 and the W1/2 of Sec. 14, 32S-24E, and are a part of lease Sac. 019343. A map showing the boundary of the final unit participating area is attached as Exhibit 2.

5.2.2 Unit Royalty Rates

Government royalties on all products are computed at a 14 percent rate; however, 2/3 of the value of gasoline and LPG is an allowance for manufacturing costs. Accordingly, the applicable royalty rate for these liquids is 14 percent of 1/3 of the value.

5.3 11-D UNIT

5.3.1 Effective Date

The Unit Agreement for the Sub-Scales Zone of the Section 11-D Area, dated January 1, 1961, became effective December 1, 1963, Contract Nod-9533. The Oil and Gas Operating Regulations approved to take effect June 1, 1942 are applicable with respect to lands of the United States subject to the 11-D Unit Agreement; provided, however, that if there is conflict or inconsistency, the terms of the Agreement shall prevail.

NPR-2 leases committed to this Unit are Sac. 019343 and 019396(b).

The unit automatically contracted to the boundary of the participating area on June 1, 1972, thereby eliminating all portion of the unit lying outside the participating area from the unit and returning such eliminated lands and formations to be governed by the terms of the Plan Agreement. A map showing the participating area is attached as Exhibit 3.

5.3.2 Unit Royalty Rate

The Oil royalty rate is 13-1/2 percent.

The royalty on gas shall be as follows:

- (1) Allocated to and sold from Tracts 7 and 10 (Sac. 019343 - "AA"), 12-1/2 percent.

- (2) Allocated to and sold from Tract No. 5 (Sac. 019343 - "A"):
 - (a) 12-1/2 percent - when the daily average production for the month from, or allocated to (1) all zones or pools (other than the Unit Zone of Tract Nos. 5, 7, & 10) of the following lands subject to lease Sac. 019343, to wit: SE1/4 of Sec. 2, NW1/4 of Sec. 4, and Sec. 6, 32S-24E, plus (2) the Unit Zone of Tract No. 5, is less than 3,000 mcf; and
 - (b) 16-2/3 percent - when such average daily production is 3,000 mcf or more.

- (3) Allocated to and sold from Tract No. 11 (Sac. 019396(b)):
 - (a) 12-1/2 percent - when the daily average production for the month from or allocated to (1) all zones or pools (other than the Unit Zone of Tract 11) of all lands subject to lease Sac. 019396(b) plus (2) the Unit Zone of Tract 11, is less than 3,000 mcf; and
 - (b) 16-2/3 percent - when such daily average production is 3,000 mcf or more.

The royalty on gasoline and LPG shall be as follows:

- (1) On liquids extracted from gas allocated to Tracts 7 and 10 -- 12-1/2 percent of either-
 - (a) the combined value of such production as measured by the lessee's gross field realization less actual extraction costs (i.e., net field realization value), or
 - (b) of the value of 1/3 of such products, or
 - (c) of the quantity or value received by the lessee pursuant to an approved sales contract whichever may result in the higher royalty.

- (2) The liquids extracted from gas allocated to Tracts 5 and 11 - 16-2/3 percent of either-
 - (a) the combined value of such products as measured by the lessee's gross field realization less actual extraction costs (i.e., net field realization value), or
 - (b) of the value of such products, or

- (c) of the quantity or value received by the lessee pursuant to an approved sales contract, whichever may result in the higher royalty.

Currently no gas is being produced from this Unit.

5.4 555 STEVENS ZONE UNIT

5.4.1 Background

This agreement, dated March 1, 1961, became effective September 1, 1961, Contract Nod-9532. The Oil and Gas Operating Regulations approved to take effect June 1, 1942, are applicable, provided, however, that if there is conflict or inconsistency, the terms of the agreement shall prevail.

Tracts 1 and 2, 0.00912 percent and 27.00112 percent, respectively, are covered by Government lease 019571. Tract 3, 50.18 percent, is covered by Government lease 019594. Tract 4 through 11 cover Fee lands.

On March 1, 1972, the unit automatically contracted to the boundary of the participating area. A map showing the participating area is attached as Exhibit 4.

5.4.2 Unit Royalty

Oil royalty on oil allocated to each Government lease:

12-1/2%	0 - 100 barrels per day per well
16-2/3%	101 - 300 barrels per day per well
20%	301 - 425 barrels per day per well
16-2/3%	426 and up barrels per day per well

To determine the average production per day per well for royalty purposes on each Government lease, the total oil allocated in each calendar month to each Government lease shall be divided by the total sum obtained by adding together (1) the sum of the days of each producing well, on each such lease, for the month, and (2) the sum of the days each Unit Well is injecting gas, water, or other substance for conservation purposes on each such lease, for the month. Each 'line well' shall be credited only for 1/2 of the days it either produces or injects insofar as each such lease is concerned.

Gas: On that portion of unitized gas allocated to each lease, and not used in Unit operations or injected into the Unit Zone, that is, gas sold or removed from the area, whether the same shall be gas from which natural gasoline and other substances have been extracted or otherwise, royalty shall be computed at the following rates:

- (a) 12-1/2 percent - when the average production per day for the calendar month from or allocated to, (1) all zones or pools (other than the Unit Zone) of the pertinent lease, plus (2) the Unit Zone of the pertinent lease, is less than 3,000 mcf; and
- (b) 16-2/3 percent - when such average production per day is 3,000 mcf or more.

Gasoline:

- (a) If extracted pursuant to an approved sales contract, 16-2/3 percent of either -
 - (1) of the quantity or value received by the lessee pursuant to such contract,
 - or
 - (2) of the value of all such products extracted and sold, whichever may result in the higher royalty, or
- (b) if the allocated gas is processed in a plant operated by the Unit, lessee, or under an arrangement which has not been approved by the United States, 16-2/3 percent of either -

- (3) the combined value of such products as measured by the lessee's gross field realizations less actual extraction costs (i.e., net field realization value), or
- (4) of the value of such products, whichever may result in the greater royalty.

One part of the Unit Agreement which has an important bearing on the computation of Government royalties is Section 4 - "Allocation of Unitized Substances". The important part is Section 4(a) - "Exclusions from Allocations"; which states:

"All Unitized Substances produced and saved from the Unit Zone pursuant to the provision of this agreement shall be allocated to the various Tracts within the Participating Area as herein provided, except that such Unitized Substances as are unavoidably lost or are used by operator as fuel, gas lift, control of pressures, recycling, or other Unit Operations shall be excluded from allocation and shall be royalty free, and such Unitized Substances as are used by Participants as fuel or lost by shrinkage or otherwise in the processing or removal of liquid products from Wet Gas delivered in kind to Participants under this agreement or Residue Gas consumed in compressing gas for injection into the Unit Zone or gas or natural gasoline or liquid petroleum gas withdrawn from said zone royalty free pursuant to the provisions of Section 7 and 8 of Article IX hereof, shall be royalty free".

Currently gasoline is run with crude oil. Therefore, there is no royalty taken on gasoline as a separate product. The royalty is taken on crude oil which includes the gasoline. Crude oil royalty rates apply. This gasoline is actually condensate, i.e., there is no gasoline plant; it falls out of gas through scrubbers, etc. (drips).

5.5 2-D UNIT

5.5.1 Background

This Unit, dated July 1, 1966 was approved effective November 1, 1969, Contract Nod-9905. The Operating Regulations approved to take effect on June 1, 1942 (30 C.F.R. Part 221) shall be applicable to the lands of the United States.

Tract 2 covers the N1/2 of Sec. 2-32S-24 which is part of Lease Sac. 019396(b). This tract has 19.294 percent interest in the Unit. Tract 4 covers the SE1/4 of Sec. 2-32S-24E which is a part of Lease Sac. 019343 - "A", and has 13.377 percent interest in the Unit.

The unit contracted on November 1, 1984 to the boundary of the participating area. A map showing the participating area is attached as Exhibit 5.

5.5.2 Unit Royalty Rate

Oil royalty is a flat rate of 13-1/2 percent.

Gas - For Lease Sac. 019343 - "A": 12-1/2 percent when the average production of gas per day from, or allocated to, all zones or pools of the following lands subject to 019343 - SE1/4 of Sec. 2, NW1/4 of Sec. 4, and all of Sec. 6 plus the Unit Zone of Tract 4, is less than 3,000 mcf; 16-2/3 percent when such average production per day is 3,000 mcf or more.

For Lease 019396(b): 12-1/2 percent when the average production per day from, or allocated to, all zones or pools (other than the Unit Zone of Tract 2) of all lands subject to said lease, plus the Unit Zone of Tract 2, is less than 3,000 mcf; and

16-2/3 percent when such average production per day is 3,000 mcf or more.

At the present time there is no gas or gasoline production from the 2-D Unit.

Gasoline and LPG - 16-2/3 percent of either -

- (1) gross value of the extracted products less actual costs;
- (2) of the value of such products; or
- (3) the lessee's share pursuant to an approved sales contract, whichever results in the greater royalty.

5.6 CALIDON GAS SANDS UNIT

5.6.1 Termination

This unit has been abandoned, effective July 1, 1987.

5.7 UNIT RECAP

As a brief recap of the various Units covering NPR-2 leases, the following is a list of whether the units are within the "Pool" or "Old Pool".

27-B Pool Unit	"Old Pool"
A.S.Z.U.	"Pool"
11-D Unit	"Old Pool"
555 Stevens Unit	"Pool"
Calidon Gas Sands Unit	"Old Pool"
2-D Unit	"Old Pool"

The major items in the several unit agreements which relate to royalties having been enumerated, this Consultant can now discuss each individual lease which is currently in a producing status.

6. LEASE SUMMARY

The following is a summary of each individual federal lease in NPR-2. The specific royalty rate and sliding scale breakpoint are represented on Table 3.1.

6.1 Sac. 019336

6.1.1 Ownership

The current record title owner is Mobil Oil Corporation. Mobil also owns all of the operating rights.

In 1995, Engine Oil and Gas Corporation submitted a Record Title Assignment from Mobil, but upon learning they needed to post a bond for this non-producing lease, Engine withdrew the assignment and the interest was retained by Mobil.

6.1.2 Status

Based on a review of the annual production records from 1981 through 1995, there has been no production reported for this lease (14 years). Furthermore, the 1971 USGS report on royalty accounting indicated that this lease was also nonproductive at that time (24 years).

6.2 Sac. 019343

6.2.1 Ownership

Record title is held by Texaco Exploration and Production Inc. In 1995, Vintage Petroleum, Inc. acquired the operating rights for the portion of these leases covered by the "Unit Zone" under the 2-D area and 11-D Area Units, and the "27-B Pool" under the 27-B Pool Unit. Texaco retained the operating rights to all other lands and formations.

6.2.2 Status

This lease produces from multiple zones. In the official records this is one lease covering 3,057.27 acres, but for simplification of royalty accounting this lease has been divided into three lease accounts. Each lease account will be individually discussed.

6.2.2.1 Sac. 019343 - "A"

This portion of lease Sac. 019343 has production from four separate areas, but all four are in the Old Pool. These producing areas are identified as Old Zone (non-unitized Old Pool), 27-B Pool Unit, 11-D Unit, and 2-D Unit.

At the present time, production from the 2-D and 11-D Units is limited to crude oil only. The 27-B Pool Unit products are crude oil, gas, gasoline, LPG, and CO₂. The royalty rates for products from these units are indicated in the section devoted to Units.

Royalties on Old Zone production are obtained from crude oil, gas, gasoline, and LPG. Crude oil is subject to the sliding scale rate. "Lease Production" in this instance must also include the production and the wells which are included in that portion of the lease identified as Sac. 019343 - "AA".

The royalty for gas is at a step-scale rate in that if the calendar month's lease production is below 3,000 mcf per day, the rate is 12-1/2 percent; if the lease production is 3,000 mcf per day or over, the rate is 16-2/3 percent.

It should be noted that the royalty rate for oil is determined by the average production per well per day, whereas the royalty rate for gas is determined by the average production per day. In other words, the oil royalty rate is on a "well" basis and the gas royalty rate is on a "lease" basis.

Wet gas produced from the lands covered by Sac. 019343 - "A" is processed in Texaco's Buena Vista Hills Plant. Texaco being the Plant Owner as well as the lessee, actual plant costs are allowed in lieu of the 66-2/3 percent costs, then the two-thirds costs are used in determining royalties on the extracted liquids.

In determining the royalty rate for gas, we must aggregate all gas produced on the lease (in this instance we are referring to Sac. 019343) or allocated to the lease under unit agreements. Therefore, each month the gas produced from wells on Sac. 019343 - "A" is aggregated with the following: gas produced from well on Sac. 019343 - "AA"; gas produced from Section 6 wells committed to the Antelope Shale Zone Unit; and gas allocated to Sac. 019343 - "A", under the terms of the 27-B Pool Unit. The total of this aggregated gas determines whether the average monthly production is at the 12-1/2 percent or the 16-2/3 percent rate.

6.2.2.2 Sac. 019343 - "AA"

This lease account is separate from the "A" and "AAA" portions because production from all lands in this parcel is subject to a flat royalty rate of 12-1/2 percent. This portion of Sac. 019343 produces from the Old Zone and the 11-D Area Unit.

Wet gas produced from wells on Sac. 019343 - "AA" is processed in Texaco Buena Vista Hills Plant and plant costs are determined in the same manner as for Sac. 019343 - "AA".

6.2.2.3 Sac. 019343 - "AAA"

This lease account covers that portion of Sac. 019343 which has been committed to the Antelope Shale Zone Unit. Royalty rates and other information relating to this account is given in the section devoted to Units.

6.2.3 Aggregation Example

This Consultant will now closely examine the royalty calculations associated with Sac. 019343. As discussed previously this lease has been divided into three (3) accounting subgroups designated "-A" covering land having a sliding scale royalty, "-AA" covering land with a fixed 1/8 royalty, and "-AAA" covering the ASZU (which has a fixed 14 percent royalty).

This lease clearly states in part that to compute the gas royalty break point (3,000 mcf per day) associated with the "-A" lands, gas should be aggregated "from the land leased". This would include all lands regardless of specifically applied royalty rate. The Plan Agreement does not alter the method of determining Old Pool royalties.

However, in a letter dated April 21, 1961, from the Director of the Navy to the U.S.G.S. Regional Oil and Gas Supervisor, the Director stated:

"Our [Navy's] position is that gas produced from the portions of this lease under a flat rate should not be aggregated with the gas produced from the sliding scale areas in making this average gas production determination. Hence, insofar as gas aggregation is concerned the flat rate royalty areas of this lease can be considered as if they were covered by a separate lease."

The Navy further determined that gas produced from "-AAA" should be aggregated with gas from "-A" to determine the royalty rate applicable to Old Pool "-A" lands. It was this position that on appeal resulted in a Decision of Special Hearing Examiner, dated June 16, 1962. Said Decision sustained Navy's position in this regard.

Although it was not the focus of this appeal, the Examiner included statements which contradict the position of Navy taken in the April 21, 1961 letter:

"The rate applicable to production from this zone is that established by the original lease without modification. Section 2(c)(3) of the lease requires aggregation of gas produced from all the land covered by the lease to compute the 3,000,000 cubic feet per day per month average on which the 16 2/3 percent rate rather than the lesser 12 1/2 percent rate depends. The original lease refers to production from "the land leased" in conjunction with this 3,000,000 cubic feet per day average. As used in the original lease, this can mean nothing other than the land identified by the boundaries of that lease."

This Decision further states that the royalty rate applicable to the production from the 27-B Pool Unit attributed to Sac. 019343 (being part of the "-A" lands) should also be calculated by the aggregation of gas from the entire lease.

Currently, royalties are calculated under the guidelines set forth in "Royalty Accounting for NPR-2 Leases" as approved and made effective May 22, 1991, by the Director. These state in part:

"In determining the royalty rate for gas [for 019343-"A"], we must aggregate all gas produced on the lease (in this instance we are referring to the official lease 019343, excluding lease account 019343-"AA") or allocated to the lease under unit agreements. Therefore, each month the gas produced from wells on Sac. 019343-"A" is aggregated with the gas produced from Sac. 019343-"AAA".

Thus, the current methodology supports the April 21, 1961 letter, contradicts the Examiner position and also supersedes a 1971 royalty accounting procedure which had been in effect until this time.

Using gas production figures for March 1996 to illustrate, the following will demonstrate the impact of this decision. The royalty rate which applies to Old Zone "-A" lands (including the 27-B Pool Unit production attributed thereto), according to the Examiner, should aggregate the following:

1. "-A" Old Zone production	57,011	mcf
2. 27-B Pool Unit allocation	489	mcf
3. "-AA" Old Zone production	26,660	mcf
4. ASZU allocation ("-AAA" lands)	46,441 ¹	mcf
5. 2-D Unit allocation	- 0 -	mcf
6. 11-D Unit allocation	<u>- 0 -</u>	mcf
	130,601	

Average daily March production for the lease is 4,213 mcf per day. Thus the 16 2/3 percent royalty rate should apply to items 1, 2, 5, and 6 listed above. Although no gas is reported for the 2-D Unit and the 11-D Unit, the language contained in those agreements is express as to allocated production and is included herein to provide a complete representation.

In accordance with the May 22, 1991 directive, DOE used the following figures to calculate Old Zone royalty for the month of March 1996:

1. "-A" non-unit production	57,011	mcf
2. 27-B Pool Unit allocation	489	mcf
3. ASZU allocation ("-AAA" lands)	<u>49,191²</u>	mcf
	106,691	

Average daily production via this calculation is 3,442 mcf. Although the current royalty rate is not affected, the aggregation of all of the "land leased" will extend the length of time the 16 2/3 percent royalty rate will apply to Old Zone "-A" and 27-B Pool Unit production.

¹ Sac. 019343 covers 37.5861% of the gas produced from the ASZU.

² It should be noted that Navy used all of the gas from the ASZU attributed to Texaco (39.8118%) rather than the amount allocated to Sac. 019343 (37.5861%), due to Texaco reporting the greater figure to Navy.

6.2.4 Invoicing Errors

6.2.4.1 Under-billing 27-B Royalty

Navy prepared invoices for March 1996 using the proper royalty and sales figures in calculating the Old Zone "-A" gas account. However, when computing the Governmental share of the 27-B Pool Unit gas attributed to 019343, Navy used royalty of 12-1/2 percent rather than 16-2/3 percent (as demonstrated in Section 5.2.3 above) resulting in an under payment of \$20.57 as follows:

	<u>Royalty</u>	<u>Gross Receipt</u>	<u>Navy's Net</u>
Navy's Billing	12-1/2%	\$ 503.72	\$ 62.96
Correct Billing	16-2/3%	\$ 503.72	<u>\$ 83.53</u>
Variance			(\$ 20.57)

6.2.4.2 Over-billing ASZU

It appears that Texaco submitted a production summary for March 1996 reflecting 5,552.16 gross barrels of oil production for the ASZU and represented that the Governmental participation in such unit was 39.8118 percent (Texaco's total participation factor in the unit) rather than 37.5861 percent. This resulted in an over payment by Texaco of \$321.13 described below:

	<u>Participation</u>	<u>Gross Receipts</u>	<u>Royalty</u>	<u>Navy's Net</u>
Texaco's Billing	39.8118%	\$103,063.03	14.0%	\$5,744.36
Correct Billing	37.5861%	\$103,063.03	14.0%	<u>\$5,423.23</u>
Variance		\$ 321.13		

Texaco's invoice also overstated the royalty on the gas from the ASZU by \$253.39 using similar calculations.

6.3 Sac. 019352(b)

6.3.1 Ownership

Union Oil Company of California is record title owner and owns all operating rights, except for the 27B Pool formation which was transferred to Chevron, by evidence of a letter in the lessee file.

6.3.2 Status

Production for this lease are derived from Old Zone, which was shut-in for March 1996, and the 27-B Pool Unit.

Crude oil from Old Zone wells is subject to the sliding-scale rate.

Wet gas is processed in Chevron's 1-C Plant and Chevron retains 60 percent of the extracted liquids as a processing cost. Currently, more gas is returned to the lease for lease use than is produced (either as wet gas or as residue gas), so there are no gas sales.

Although the lessee receives 40 percent of the extracted liquids as its royalty, royalty paid by the lessee to the Navy if to 1/6, which the plant operator retains. This is not an error, but the proper application of the 1926 oil and gas regulations which govern the NPR-2 leases.

Royalties from the 27-B Pool Unit are detailed in the section devoted to Units.

6.4 Sac. 019383(c)

6.4.1 Ownership

Oakland Petroleum Operating Company, Inc. is record title owner. Operating rights under the 27-B Pool formation committed to the 27-B Pool Unit was transferred to the remaining working

interest owner. Currently this formation is owned by Vintage (17.56867 percent), Chevron (82.43123 percent). The balance of the operating rights are owned by Oakland.

6.4.2 Status

This lease has production from the Old Zone, although no production was reported for in March 1996, the 257-D Pool Unit and the Stevens Zone Pool. The lessee reports and pays royalty for the Old Zone and Stevens Zone production. Chevron reports and pays royalty for the 27-B Pool production allocated to the lease.

It should be noted that the March 1996 invoice for the 27-B Pool Unit production allocated to this lease was sent to Oakland rather than Chevron.

Old Zone crude oil is subject to the Sliding Scale rate.

The royalty rate for Old Zone gas is either 12-1/2 percent or 16-2/3 percent, determined by the average daily production from all zones or pools within the lease. This means that Old Zone gas (the mcf produced) is aggregated with all lease gas produced from the Stevens Zone and with the gas allocated to the lease from the 27-B Pool Unit.

Wet Gas is processed in Chevron's 1-C Plant and Chevron retains 25 percent of the Hi pressure residue gas and 50 percent of the extracted liquids as a processing cost. However, as provided by the 1926 regulations, the royalty on liquids is based on the two-thirds allowance as plant costs.

Royalties from the 27-B Pool Unit are detailed in the section devoted to Units.

Lease production from the Stevens Zone covers three separate parcels which, for computer purposes, are identified by Codes 551, 552, and 553. Code 551 has been given to that parcel in which all wells are 100 percent owned and operated by Oakland. Code 552 designates the parcel covering the Joint Venture between Oakland (75 percent) and Texaco (25 percent), but for which

Oakland reports and pays royalty on both company's portions. Lastly, Code 553 designates the Joint Venture in which Oakland and Chevron each have 50 percent. Oakland reports for its 50 percent under this lease.

Inasmuch as the Stevens Zone is in the Pool, royalties on all products are set forth in the Plan Agreement. As far as lease 019383(c) is concerned, crude oil production is currently subject to a 12-1/2 percent royalty rate.

Gas production determines the applicable gas royalty rate -- whether 12-1/2 percent or 16-2/3 percent. However, gas produced from the Old Pool (old Zone and 27-B Pool Unit, in this instance) cannot be aggregated with Stevens Zone gas in determine the applicable royalty rate. The rate is determined on only the Stevens Zone production.

Wet gas produced from the Stevens Zone (Codes 551, 552, and 553) is processed in Chevron's 1-C Plant. As in the case of Old Zone gas, Oakland retains 25 percent of the Hi pressure residue gas and 50 percent of the extracted liquids as a processing cost. The similarity to the processing of the Old Zone gas, however, ends at this point.

The royalty rate for liquids extracted in a processing plant from Stevens Zone (Pool) wet gas is set by the Plan Agreement. This agreement provides that royalty on extracted liquids (gasoline and LPT's) shall be 16-2/3 percent of 1/3 of the liquids; or of the lessee's share of the liquids if greater than 1/3.

As pointed out, the lessee's share is 50 percent. Therefore, the computer is programmed to make a comparison of the royalties as calculated under the 2/3rds allowance method and under the method given in the Plan Agreement. Whichever method returns the greater royalty to the Navy, the computer will make the appropriate calculations and compute the correct royalty.

Under these methods royalty is computed on 100 percent of the gas and of the liquids or on 75 percent of the gas and 50 percent of the liquids.

6.5 Sac. 019384(c)

6.5.1 Ownership

The current owner of record title and all operating rights is Atlantic Richfield Company.

6.5.2 Status

Based on a review of the annual production records from 1981 through 1995, there has been no production reported for this lease (14 years). Furthermore, the 1971 USGS report on royalty accounting indicated this lease was also nonproductive at that time (24 years).

6.6 Sac. 019385(b) - Sac. 019386(b)

6.6.1 Ownership

Texaco is the record title owner of these leases. Operating right in the 27-B Pool formation under the 27-B Pool Unit are owned by Vintage. Texaco owns the balance of the operating rights.

6.6.2 Status

Current production is generated only from the 27-B Pool Unit and royalties are discussed in the section devoted to Units.

It is noted that the March 1996 invoice for royalties was addressed to Texaco rather than Vintage.

6.7 Sac. 019396(b)

6.7.1 Ownership

Oakland holds the record title on the un-release or active portion of this lease. On July 29, 1992, Phillips Petroleum Company (Oakland's predecessor) filed a Partial Release of Oil and Gas Lease covering the W1/2 of Section 30, Township 31 South, Range 24 East. Pending the Director's approval of this release, Phillips remains the record title owner of said W1/2 as it was excluded from subsequent assignments.

Chevron (82.43133 percent) and Vintage (17.56867 percent) own the operating rights in the 27-B Pool under the 27-B Pool Unit.

Holmes Western Oil Corporation (HWOC) is owner of operating rights as to the S1/2NE1/4 of Section 32, Township 31 South, Range 24 East, limited in depth from the surface down to the stratigraphic equivalent of 4,625 feet as found in the Holmes 32-4 well.

Oakland owns all remaining operating rights.

6.7.1.1 Holmes Farm-Out

By Agreement dated November 15, 1991 between Phillips and Fred S. Holmes (predecessor to HWOC), Holmes was given the opportunity to earn an interest in said S1/2NE1/4 by performing the following:

1. Commencing the drilling of the initial test well by January 2, 1992, which will be to a depth sufficient to test the Top Oil formation or to a depth of 4,600 feet. This entitles Holmes to earn 40 acres.

2. Upon completion of the first well, Holmes had the option to commence drilling of a second well of similar parameters which entitles Holmes to the remaining 40 acres.
3. Holmes would earn 100 percent to the depth drilled subject to Phillips retaining a 10 percent overriding royalty which is convertible, at Phillips' option, to a 15 percent working interest in the event the controlling Governmental agency (IR, DOE, DOI) should require the reduction of such overriding royalty due to economic conditions.

6.7.2 Status

This lease has production from the Old Zone, 27-B Pool Unit, 11-D Unit, and 2-D Unit. All of the lease production is from the Old Pool.

Royalties for each of the Units are detailed in the section devoted to Units.

Old Zone crude oil royalty is determined in the same manner as for other leases having production from the Old Zone.

Wet gas is processed in Chevron's 1-C Plant under the same contract as for Sac. 019383(c), and the same rules apply as to royalties on gas and liquids.

The royalty rate for gas is determined by aggregating the Old Zone production and the allocated share of 27-B Pool Unit production.

Oakland reports and pays royalty for the Old Zone and 11-D Unit; Chevron reports and pays royalty for the 27-B and 2-D Units.

6.7.3 Production Averaging

At issue is whether the oil production from four (4) Old Pool wells recently drilled by HWOC (since 1992) on the S/2 NE/4 of Section 32, 31S-24E should be averaged with production from

up to nine (9) Old Pool wells located on the balance of the N/2 which were drilled in the late 1920s and early 1930s.

The Operating Regulations dated July 1, 1926 state in part:

"Special cases not subject to definition, such as those arising from averaging the production from two distinct sands or horizons when the production of one sand or horizon is relatively insignificant as compared to that of the other, shall be submitted to the supervisor [director]."

Production for the four HWOC wells for March 1996 was as follows:

<u>Well #</u>	<u>Total Production</u>	<u>Days</u>	<u>Daily Production</u>
1	1,165.2	61	37.58
2	1,456.5	31	46.98
3	323.7	31	10.44
4	<u>64.7</u>	<u>31</u>	<u>2.08</u>
	3,010.1	124	24.28

The average daily production for these wells is above the 20 barrels per day break point for increased royalty. Thus, if it could be established that the HWOC wells produce from a different formation than, and should therefore not be averaged with the Oakland wells, additional royalty would be earned on the production above 20 barrels.

Oakland reported production for only three of nine wells capable of production during March 1996, as follows:

<u>Well #</u>	<u>Total Production</u>	<u>Days</u>	<u>Daily Production</u>
1	45	31	1.45
2	99	31	3.19
3	<u>585</u>	<u>1</u>	<u>18.87</u>
	729	93	7.84

When all seven wells are averaged for royalty purposes, the production is below 20 barrels per day (17.23) and the royalty rate is 12-1/2 percent.

According to a member of the DOI, another possibility lies in the method used in determining counting wells for royalty purposes. If the two worst wells (#4 and #12) are eliminated as counting wells, the average production is 23.83 barrels per day. Thus, a high royalty could be collected on 3.83 barrels per day (23.83 to 20.00).

6.8 Sac. 019424(a)

6.8.1 Ownership

Union Oil Company of California is record title owner and owns all operating rights.

6.8.2 Status

Based on a review of the annual production records from 1981 through 1995, there has been no production reported for this lease (14 years). Furthermore, the 1971 USGS report on royalty accounting indicated this lease was also nonproductive at that time (24 years).

6.9 Sac. 019424(b)

6.9.1 Ownership

The current owner of record title and all operating rights is Mobil.

6.9.2 Status

Based on a review of the annual production records from 1981 through 1995, there has been no production reported for this lease (14 years). Furthermore, the 1971 USGS report on royalty accounting indicated this lease was also nonproductive at that time (24 years).

6.10 Sac. 019571

6.10.1 Ownership

Texaco owns the record title in this lease. Vintage owns operating rights in the 27-B Pool under 27-B Pool Unit; all interests pertaining to Chevron well numbers 512, 522, 532, 542, 552, 545 and 565, in the N1/2N1/2, S1/2 SE of Section 26, Township 31 South, Range 23, as such wells produce from the Pool (currently Stevens Zone); and in the 555 Stevens Zone under the 555 Stevens Zone Unit.

Texaco owns all remaining operating rights.

6.10.2 Status

This lease has production from five separate producing zones or areas: Old Zone and 27-B Pool Unit are both in the Old Pool; Antelope Shale Zone (Codes 331 and 332), the Stevens Zone, and the 555 Stevens Zone Unit are in the Pool.

Old Zone oil is subject to the Sliding-Scale rate. The 27-B Pool oil and the 555 Stevens Unit oil have royalty rates as set forth in the section devoted to Units. The Antelope Shale Zone oil (Codes 331 and 332) royalty rate is determined by well count and production.

The determination of the gas royalty rate for each separate zone or area is somewhat complicated:

1. Production from all zones or units (allocated share of units) is aggregated to determine the royalty rate on sales from Old Zone and 555 Stevens Zone Unit. The same total (mcf) is used for both of these. If the daily average is under 3,000 mcf, the rate is 12-1/2 percent; if 3,000 mcf or over, the rate is 16-2/3 percent.

2. Production from the Antelope Shale Zone (Codes 331 and 332) and the allocated share of production from the 555 Stevens Unit are aggregated to determine the royalty rate for the allocated sales from Codes 331 and 332.
3. Sales from all zones or units (allocated sales) is aggregated to determine the royalty rate for the allocated sales from the 27-B Pool Unit.

The wet gas from the lease (Old Zone and Antelope Shale - Codes 331 and 332) is processed in Chevron's 1-C Plant. Chevron retains 60 percent of the extracted liquids as a processing cost. Unless aggregated wet gas production is greater than 3,000 mcf per month, the royalties on Old Zone gas and liquids would be greater by the Separate Product method than by the Net Realization method. However, the gasoline and propane royalties on the Antelope Shale production are determined by the aforementioned Plan Agreement. Accordingly, the royalty rate for these two products shall be 16-2/3 percent of 40 percent (.066667) rather than 16-2/3 percent of 1/2 (.055556).

Royalties on gasoline and LPG's for the 27-B Pool Unit and 555 Stevens Zone Unit are explained in the Section devoted to Units. "Gasoline" from the latter two units is actually 'condensate'.

6.11 Sac. 019571(a)

6.11.1 Ownership

Texaco owns all record title and operating rights in this lease.

6.11.2 Status

The last production reported on this lease was in July of 1992. This is a non-producing lease.

6.12 Sac. 019577

6.12.1 Ownership

Chevron owns all of the record title and operating rights in this lease.

6.12.2 Status

This lease has production from the Old Zone and 27-B Pool Unit in the Old Pool and from the Antelope Shale and Stevens Zones in the Pool.

The royalty for Old Zone oil is based on the Sliding-Scale. The 27-B Pool Unit oil royalty rate is explained in the Section devoted to Units.

The oil royalty rate for production from the Antelope Shale and Stevens Zones is determined by aggregating the production and well-count. In this case, there are four separate areas involved, identified as Codes 331 and 332 for the Antelope Shale Zone and Codes 551 and 553 for the Stevens Zone.

Code 331 represents 100 percent Antelope Shale production; whereas Code 332 represents 50 percent of the production from the Chevron/Texaco Joint Venture. Code 551 represents 100 percent Stevens Zone production, whereas Code 553 represents 50 percent of the production from the Chevron/Oakland Joint Venture.

Gas produced from the Old Zone, Antelope Shale Zone (Codes 331 and 332), Stevens Zone (Codes 551 and 553), and the allocated share of production from the 27-B Pool Unit are aggregated to determine the royalty rate for Old Zone gas sales.

Gas produced from the Antelope Shale and Stevens Zones (all 4 codes) is aggregated to determine the royalty rate on gas sales from these two zones.

Wet gas from the Old Zone, Antelope Shale Zone, and the Stevens Zone is processed in Chevron's 1-C Plant. Since Standard is also the lessee of this lease, actual plant costs are used rather than the 2/3rds cost allowed under the regulations. However, actual costs may not exceed the 2/3rds costs.

The Old Zone royalties on gasoline, LPG and CO₂ are calculated separately from the royalties on these products from the Antelope Shale and Stevens Zones. The method in each case is the same, however. Calculate the total gross value of all three products then subtract the actual costs. This result (the net value) is divided by the total gross value to determine the percentage subject to royalty. As long as this percentage is less than 66-2/3 percent, the plant costs shall be the applicable costs.

6.13 Sac. 019594

6.13.1 Ownership

Vintage is record title owner and owns all operating rights "from the surface to the base of the 555 Stevens Zone Unit" (SIC). Atlantic Richfield Company owns operating rights below this depth.

6.13.2 Status

This lease has production from the Old Zone (oil only), and from the 555 Stevens Zone Unit. The Old Zone oil is subject to the Sliding-Scale royalty rate. Dry gas production is low enough that only the minimum 12-1/2 percent royalty applies.

Royalty rates on production from the unit is discussed in the section devoted to Units. However, under the terms of each of these two unit agreements, the allocated percentage of gas production from both units are aggregated to determine the gas royalty rate on allocated sales from each Unit.

6.14 Sac. 019630

6.14.1 Ownership

This lease was released by Phillips on July 8, 1992. Until such time as said release is accepted by the Director, as prescribed in Section 4 of the lease, Phillips remains the record title and operating rights owner. DOE has placed a copy in the lease file and takes the position that their inactivity is acceptance of same.

6.14.2 Status

This lease is non-producing.

6.15 Sac. 019752

6.15.1 Ownership

Phillips attempted to relinquish this lease in 1993. Due to clerical error, Phillips sent the release to the State of California, who, in turn sent it to DOI. The DOI returned the document to Phillips stating their records (DOI's) showed this lease land terminated in the 1960s. Phillips did not pay rentals for 1994 nor 1995. Although DOE did not receive a request, a copy of the release is in the lease file.

Pending termination of this lease by the Director, Phillips remains the owner of record title and operating rights, albeit in default.

6.15.2 Status

There is no production on this lease. The last well was abandoned February 26, 1993.

6.16 Sac. 022065(b)

6.16.1 Ownership

Oakland owns all of the record title and operating rights in this lease

6.16.2 Status

Production on this lease is from the Old Zone only.

Oil is subject to the Sliding-Scale royalty rate.

Gas is processed in Chevron's 1-C Plant. Chevron retains 25 percent of the residue gas and 50 percent of the extracted gasoline and LPG as a processing fee. Chevron also retains 57-1/2 percent of the CO₂.

Royalties on gas, gasoline, LPG, and CO₂ are computed on 100 percent of the gas, of the liquids, and 42-1/2 percent of the CO₂ or on 75 percent of the gas, 50 percent of the liquids, and 42-1/2 percent of the CO₂ whichever returns the greater amount of royalty.

7. RESTRICTION ON LEASING OF FEDERAL LANDS
WITHIN ONE-MILE BUFFER ZONE SURROUNDING NPR-2

According to the materials examined, it has been the policy of the Bureau of Land Management, USGS, to refrain from leasing public lands within a one-mile buffer zone around the Naval Petroleum Reserves. This policy dates back to at least March 21, 1938. See 43 CFR 192.2 (1940 edition).

The USGS regulation contains the following wording: "No oil and gas lease will be issued for land within one mile of the exterior boundaries of a naval petroleum or helium reserve, unless the land is being drained of its oil or gas deposits or helium content by wells on privately-owned land or unless it is determined by the authorizing officer, after consultation with the agency exercising jurisdiction over NPR-2, that operations under such a lease will not adversely affect NPR-2 through drainage from known productive horizons." The buffer zone embraces all 40-acre legal subdivisions of which any part physically lies within one mile of NPR-2 boundary. Stated in another way, if all or any part of a 40-acre legal subdivision lies within an arc with its radius being one mile and stemming from a point on the boundary of a Naval Petroleum Reserve, all of such 40-acre subdivision is considered to be within the one-mile limit and subject to the restrictions set forth in 43 CFR 3101.1-1(a)(6).

Pursuant to a memorandum dated June 29, 1979, containing a proposed letter from the Director, Naval Petroleum and Oil Shale Reserves, due to the implication of the above regulation that the Director must make a finding that no drainage will occur, the Director recommended that leasing of the buffer zone be postponed until after Congress has given authorization and appropriation for an exploratory program sufficient to make an affirmative determination that no drainage would result as a result of leasing parcels to private operators within the buffer zone.

It is unclear how the above regulation would impact leasing activity within the buffer zone in the event of the transfer by the Navy of ownership of NPR-2 to another federal agency or to private interests. It is likely, however, that transfer of the Navy's mineral interest at NPR-2 would

eliminate the need to protect that interest from drainage, thereby eliminating the need for continued application of the buffer zone regulation.

8. NON-PRODUCING LEASES AT NPR-2

Regarding the five leases at NPR-2 which are in nonproductive status (serial nos. 019336, 019384(c), 019424(a), 019424(b), and 019571(a)), a memorandum dated August 31, 1977, to the Director, Naval and Oil Shale Reserves [sic], from the Assistant Counsel for Natural Resources, discussed several possible approaches to obtaining production (and royalty monies to the United States) from those leases. Because NPR-2 will be continuously produced until exhaustion due to the interspersal of Federal and fee lands, the memorandum concluded that the best interest of the United States would most probably be served by maximizing production. The memorandum presented the following analysis of how production can be accomplished by either the current lessee or by a new lessee.

8.1 PRODUCTION BY THE CURRENT LESSEE

The desired development could be performed by the current lessees. This development could be performed by voluntarily or attempts could be made to force development under provisions of the Plan Agreement, Plan for Cooperative Development or the lease itself.

8.1.1 The Plan Agreement

The Plan Agreement does not specifically require development. Lessees agree by paragraph 3 to operate and develop in accordance with the Plan for Cooperative Development and to prevent disproportionate drainage of U.S. lands. Maximum economic recovery is to result from the operator's orderly development. The Plan Agreement states that production is to be "prolonged by the orderly and controlled drilling and producing..." Uniform drainage of U.S. lands is required by paragraph 3(c). By paragraph 4(a), operators are required to use "good oil field engineering practices" in the development and operation of the operating units. Operating units are to be "developed and produced in such a manner as will avoid disruption or material disturbance of the market for petroleum or the products thereof." Paragraph 4(b) requires lessees to produce with minimum migration of oil and to avoid waste. The lessees agree to protect the

United States against loss of royalty through drainage, paragraph 12. The amount of compensation due the United States under paragraph 12 must be fixed monthly by the supervisor of oil and gas operations of USGS. If these deficiencies in the amount of royalty due are not pointed out in a timely manner, the rights of the United States against the lessees is apparently limited. There are no other penalties fixed by the Plan Agreement.

8.1.2 Plan for Cooperative Development

The Plan for Cooperative Development is primarily a well spacing agreement without teeth. The U.S. is not a party to the Plan for Cooperative Development. The only interest the U.S. has in this plan stems from paragraph 1 of the Plan Agreement which incorporates the Plan for Cooperative Development by reference. Under this plan, all wells must be drilled in conformance with a well spacing plat, paragraph 2(a). Each quarter section (160 acres) has one Primary Location, for Secondary Locations and four Tertiary Locations. (Spacing in the "Old Pool" is denser but follows the same format as the "Pool".)

The plan calls for drilling the Primary Location prior to drilling any Secondary Locations prior to the drilling of any Tertiary Locations. Paragraph 2(d) states that the operator may drill on any Secondary Location after drilling the Primary Location. Paragraph 2(g) of the Plan for Cooperative Development provides that if the primary well (or any secondary well) is unproductive in any zone now productive of the "pool", it may be abandoned and the operator may drill another Secondary or Tertiary Location. Paragraph 2(j) provides that "nothing, however, contained in this Plan shall obligate any operator to drill any well or wells upon the respective operating units within said pool." Under paragraph 8, nonproductive leases may be excluded from the Plan for Cooperative Development by the approval of the operators of 80 percent of the Area subject to the Plan.

8.1.3 The Lease

The NPR-2 leases are of early vintage and may be the last Department of the Interior leases of this era still in effect in the United States.

8.1.3.1 Express Covenants

The leases have a primary term of 20 years with the preferential right of the lessee to renew the lease for successive periods of ten years. There is no habendum clause (production clause, typically "so long thereafter as hydrocarbons are produced in commercial quantities"). The drilling clause required two wells to be commenced within 30 days after the effective date and one well thereafter to be commenced within 45 days after completion of the last well until the lease was fully developed on ten-acre spacing. However, the Plan Agreement between the lessor, United States, and the lessees modified these express lease covenants. Paragraph 9 of the Plan Agreement extended the term of all of the leases for the life of the Plan Agreement. Paragraph 13 holds the Plan Agreement in effect until paying quantities can no longer be produced from the Area. Under paragraph 8 the Plan Agreement, the drilling and producing requirements of the leases were modified and amended to conform to be satisfied by the requirements of the Plan for Cooperative Development and the Plan Agreement.

8.1.3.2 Implied Covenants

The courts have recognized certain obligations due the lessor by the lessee which are not stated in the lease. Williams and Meyers, Oil and Gas Law, (Matthew-Bender, 1996) lists six such implied covenants:

- (a) The covenant to drill an initial exploratory well.
- (b) The covenant to protect the leasehold from drainage.
- (c) The covenant to reasonably develop the premises.
- (d) The covenant to explore further.
- (e) The covenant to market the product.
- (f) The covenant to conduct with reasonable care and due diligence all operations on the leasehold that affect the lessor's royalty interest.

Of these six implied covenants, only two, the covenant to reasonably develop the premises and the covenant to explore further, merit discussion.

8.1.3.2.1 The Covenant to Reasonably Develop

This covenant addresses the failure of the lessee to fully develop a known producing formation. Under the current situation, this becomes a factual question requiring the gathering of evidence through a study of existing conditions in NPR-2 and neighboring fields. The test is what the ordinary reasonably prudent operator would do. Lessor, United States, must show permanent loss of recoverable hydrocarbons and delay in recovering the hydrocarbons in place (this second requirement may not be valid for the United States' position as this test was developed to protect the typical rancher-farmer lessee with a finite life span and not the United States which theoretically is of indefinite duration).

This implied covenant of further development could possibly have application against all NPR-2 leases and not just the five unproductive leases in question. The existence of plugged and abandoned wells on the leasehold would be in lessees' favor as would the language of the Plan Agreement and the Plan for Cooperative Development which does not require the lessee to drill additional wells. Paragraph 8 of the Plan Agreement specifically abrogates the drilling and production requirements of the lease in favor of the language of the Plan for Cooperative Development.

The goals of the Plan Agreement and the Plan for Cooperative Development to reduce waste could also work to the lessees' advantage. Paragraph 2(j) of the Plan for Cooperative Development does not obligate the operator to drill any wells in the "Pool". The success of the implied covenant for reasonable development hinges primarily on the marshalling of facts. As sufficient facts could be assembled demonstrating lessees' negligence in failing to develop the leasehold further, the U.S. could prevail in litigation. The typical remedy is money damages against the lessee.

8.1.3.2.2 The Covenant to Explore Further

The alternative to forcing the current lessee to develop these leases is cancellation and subsequent leasing to new lessees under terms more favorable to the United States. Cancellation could be accomplished either voluntarily through the issuance of a release by the lessee or by forced cancellation of the lease in accordance with provisions of the Plan Agreement, Plan for Cooperative Development or the lease. Voluntary relinquishment of the lease requires no discussion. The Plan Agreement, Plan for Cooperative Development, and the lease must be examined for forced cancellation provisions:

- (a) The Plan Agreement. This agreement lacks provisions for enforcement (other than paragraph 6, which outlines the authority of the secretary of the department having jurisdiction over the lands of the United States included in the Agreement, to alter or modify the rate of prospecting and development and the quantity and rate of production from the area. Paragraph 14 requires the United States to lease or operate lands within the area subject to the terms of this agreement. If cancellation could be effected, this paragraph would not free these lands from the Plan Agreement, as any new lease or operation would come under the scope of paragraph 14 and thus be subject to the Plan Agreement.
- (b) The Plan for Cooperative Development. Since the United States is not a party to the Plan for Cooperative Development the usefulness of this document as a vehicle for cancellation is negligible. There are no penalties and no procedures for enforcement of the well spacing provisions in this agreement. Paragraph 8 permits non-producing leases to be excluded from the Plan for Cooperative Development by the agreement of operators of 80 percent of the Area. Non-producing leases so excluded revert to the status of the lands within the Old Pool, covered by paragraph 5 of the Plan Agreement.
- (c) The Lease.
 - (1) Express covenants. Section 4 of these leases permits surrender and termination by the lessee with the consent of the Secretary of the Interior. Paragraph 6 of the leases

provides for forfeiture and cancellation of the lease should the lessee default in the performance of lease terms, covenants or stipulations. Three leases permit default with 30-days written notice. Two leases require judicial proceedings. As discussed in paragraph 5(c)(1), of this Memorandum, provisions of the Plan Agreement supersede express covenants for drilling, production, and term. All other covenants remain in effect.

If it can be demonstrated that lessees have violated other specific lease requirements, that is, proper and timely payments of royalty due under the lease, improper reporting practices, failures to pay taxes, failure to prevent water encroachment, damage to the structure, disregard for health and safety of workers, etc., paragraph 6 could be used to cancel these leases. More factual information must be obtained before this approach could be employed.

(2) Implied covenants. The covenant to explore further is concerned with additional drilling in potentially productive strata that are yet unproven. As with the implied covenant for reasonable development, implementation of the implied covenant for further exploration requires much factual data and necessitates litigation.

Again, this covenant could be applied to all of the NPR-2 leases, not just the five unproductive leases in question. Recital (c) indicates that the Plan Agreement will be applicable to all new productive zones discovered in the Pool, hence the limited producing and drilling provisions of the Plan Agreement and the Plan for Cooperative Development must be overcome. The existence of plugged and abandoned deep tests, and their location are all relevant factors which *Williams and Meyers* says bear on the lessees diligence in promoting further exploration. Economic data on expected rates of payment would also be relevant.

Nevertheless, the implied duty to test for deeper production has been recognized by some courts. *Williams and Meyers* states that California has not litigated this question, Section 845. As to overcoming the precedent of the Plan Agreement and the Plan for

Cooperative Development, *Williams and Meyers* offers encouragement, "it is believed that the specification of a detailed development program after securing initial production is not inconsistent with a duty to explore further where deeper, potentially productive formations are present and other circumstances show a breach of the covenant to explore". Typically, the remedy for breach of the implied covenant for future development is cancellation of the lease with respect to the areas (or strata) not explored.

8.2 CONCLUSIONS

The Plan Agreement and Plan for Cooperative Development resulted in stagnation of the field and have destroyed all incentives to further develop. According to the Assistant Counsel's memorandum, there is little hope of successfully utilizing the Plan Agreement, Plan for Cooperative Development, and the various leases to force current lessees to conduct further development in known structures.

Cancellation of the nonproductive leases via the lease provisions is, therefore, not legally possible because of the Plan Agreement. Cancellation of any NPR-2 leases via other methods discussed above remains a possibility, the details of which involve policy and are beyond the scope of this Report.

9. UNLEASED NPR-2 LANDS

In addition to the lands in the process of relinquishment described in Section 5 hereof (Sac. 019630, Sac. 019752, and part of Sac. 019396(b)), the following lands are unleased:

S½ of Section 8, Township 31 South, Range 23 East;

S½NW¼NW¼, S½NW¼, S½ of Section 12, Township 32 South, Range 23 East; and

E½, E½W½ of Section 18, Township 32 South, Range 25 East.

With respect to that portion of the lands in Section 12 above lying within Ford Townsite (Figure 9.1), the United States has retained ownership of all of the minerals thereunder and the surface of eight vacant one-half block drill sites. Although the United States has reserved all of the minerals underlying the townsite, zoning and health and safety issues will present a significant impediment to the development of said minerals. Sale of the mineral rights within Ford Townsite, or transfer of these minerals to another agency, such as GSA, should be considered to reduce the administrative requirements and limit potential NPR-2 liability for maintenance of the reserved drillsite locations.

FIGURE 9.1
Ford City Drill Site

10. RECOMMENDATIONS

Based upon this Consultant's review of the materials examined pertaining to the mineral estate of the United States at NPR-2, this Consultant recommends that the following steps be undertaken in order to maximize production and to ensure that the United States is receiving the maximum royalty payments to which it is entitled under the applicable agreements:

10.1 NONPRODUCTIVE AND UNDER-DEVELOPED OR UNEXPLORED LEASES AT NPR-2

With regard to the nonproductive leases at NPR-2, as well as any other leases at NPR-2 which may be inadequately developed or explored, a study of existing conditions at NPR-2 and neighboring fields should be conducted to gather evidence regarding the possible violation by the current lease of the implied covenant to reasonably develop known producing formations and the implied covenant to further explore potentially productive strata that are yet unproven. Based on the results of this factual inquiry, the current lessees should be notified of the Government's intent to cancel their leases if further development or exploration of the leases is not undertaken.

In the alternative, the Government should seek voluntary surrender of existing nonproductive leases so that new leases can be issued under other terms. If voluntary surrender of the leases is not agreed to by lessees, based on the results of the above factual inquiry, consideration should be given to initiating litigation to cancel the leases for violation of either the express or implied covenants applicable to the leases.

10.2 PRODUCTION AVERAGING FOR OIL ROYALTY CALCULATIONS

With regard to that portion of the lease number Sac. 019396(b) which was farmed out by Phillips Petroleum Corp. to Holmes Western Oil Corporation, Inc., consideration should be given to aggregating only those wells drilled under the farmout agreement for purposes of determining the applicable royalty rate under the sliding-scale royalty schedule applicable under the lease and the

Plan Agreement. The basis for this approach is found in the special circumstances language contained in the 1926 Operating Regulations discussed above in this Report.

In the alternative, those wells which are determined to be non-economic may be excluded from the calculation of the average daily production per well. Either of the above aggregation approaches should increase the average production per well and may increase the royalty rate under the applicable sliding-scale royalty schedule.

10.3 GAS AGGREGATION FOR ROYALTY CALCULATION

Discussed in Section 6.2.3 hereof is an example of the aggregation method used in calculating the applicable royalty for Old Pool gas produced from Sac. 019343.

The currently approved procedure has the potential of giving away royalty revenue at some future point, the present value of which is beyond the scope of our examination.

As stated previously, the June 16, 1962 decision is clear with respect to the method which should be employed.

Therefore, an investigation should be conducted to determine if any formal decision, not included in the material examined, exists which would serve to rescind the June 16, 1962 decision. If no pertinent information is identified, the method used to compute the gas royalty rate should be changed to be consistent with the June 16, 1962 decision.

10.4 UNLEASED PROPERTIES AT NPR-2

The unleased mineral acreage of the United States at NPR-2 should be leased on the most favorable terms available in the absence of a decision to transfer the NPR-2 lands to another agency or to private entities.

10.5 STATE OF CALIFORNIA AUDITS

In connection with its bi-annual audit of revenue produced NPR-2, the State of California Auditor's Office should examine the costs and revenues attributable to individual wells in order to exclude non-economic wells from the determination of applicable royalty rates under any sliding scale royalty schedules which may apply at NPR-2. This will help ensure that the United States is receiving the highest royalty rate to which it is entitled under the sliding scale royalty schedules.

10.6 REVIEW OF BILLING PROCEDURES

Cited in Section 6.2 is a situation where DOE is not correctly billing royalty. A general internal audit should be conducted to confirm that billing procedures are sound and that the correct operator(s) are being invoiced.

10.7 AUDIT THE LPG AND LIQUID HYDROCARBON CALCULATION METHOD

DOE should review on a regular basis the actual production cost of operator to determine if greater royalty is generated via the single product or two product method.

10.8 AFFIRMATIVE ACTION IN LEASE RELINQUISHMENTS

DOE should take the affirmative steps necessary in accordance with lease terms, to terminate and close out the files of Sac. 019630, Sac. 019752, and the portion of Sac. 019396(b), which have been relinquished by the record title owner.

10.9 REQUEST ASSIGNMENTS TO CONFIRM TRANSFER

Union Oil Company of California intended to transfer its operating rights in Sac. 019352(b), Sac. 019383(c) and Sac. 019396(b), as to the 27 B Pool Unit production to Chevron USA. DOE's

acknowledgement of this transfer was handled by correspondence without benefit of the required Transfer of Operating Rights (sublease) in a Lease for Oil and Gas or Geothermal Resources. It is recommended that these forms be requested from Union Oil.

ADDENDUM "A"

DOE FILES EXAMINED BY GUSTAVSON ASSOCIATES, INC.

7-8-96 NPR-2

- Box #1** Lease No. 019336: 2 files (lease file & general correspondence file)
Energy Research Associates (E.R.A.) title research report #21
Lease No. 019343: 4 lease files
1 file regarding gasoline content tests (1948)
1 brief of Honolulu Oil Corp. and Standard Oil Co. regarding
royalty computation dispute
4 reply briefs in above dispute
- Box #2** Lease No. 019343: 1 general correspondence file (1943-1960)
(cont) 6 title research reports by E.R.A. (#'s 25,26,28,30,32)
Lease No. 019352(b) 1 lease file
1 E.R.A. title research report #16
1 Union Oil Co. - cleaning cost file
- Box #3** Lease No. 019383(c) 2 lease files
1 correspondence file
1 North American Oil Co. - treating costs file
1 general correspondence file
1 North American Oil Co. - shipping & cleaning charges file
1 E.R.A. title research report #14
Lease No. 019384(c) 1 lease file
1 E.R.A. title research report #11
1 general correspondence file
Lease No. 019385(b) 1 lease file
- Box #4** Lease No. 019385(b) 1 general correspondence file
(cont) 1 E.R.A. title research report #9
Lease No. 019386(b) 1 lease file
1 general correspondence file #12
Lease No. 019396(b) 2 lease files
1 North American Oil Co. - consolidated file (1922-1956)
- Box #5** Lease No. 019396(b) 1 general correspondence file
(cont) 5 E.R.A. title research reports (#'s 10,17,19,27,31)
Lease No. 019424(a) 1 lease file
3 (old) Union Oil Company files
1 E.R.A. title research report #23
Lease No. 019424(b) 1 lease file
1 (old) General Petrol. Corp. file
1 E.R.A. title research report #22

Box #6 Lease No. 019571 1 lease file
1 general correspondence file
3 Tidewater files (old)
1 Getty Lease correspondence file
1 Broad Creek Operating Agreement file
Lease No. 019571(a) 1 lease file
1 general correspondence file
5 E.R.A. title research reports (#'s 3,4,6,7,15)

Box #7 Lease No. 019577 2 lease files
1 Murvale Oil Co. - Ford Townsite file
1 Murvale Oil Co. - cleaning costs file
1 general correspondence file
5 E.R.A. title research reports (#'s 5,8,13,24,33)
Lease No. 019594 1 lease file
1 E.R.A. title research report #2

Box #8 Lease No. 019630 1 lease file
1 E.R.A. title research report #18
Lease No. 019752 1 lease file
1 (old) North American Oil Co. lease file
1 E.R.A. title research report #1
Lease No. 022065(b) 1 lease file
1 (old) General Petrol. Corp. lease file
1 E.R.A. title research report #20

Box #9 City of Taft lease file
NPR 1 & 2: list of leases
Buffer Zone files
Public laws, etc.
8/18/34 draft of 10/1/35 Plan Agreement
27-B Pool Unit Agreement file (1)

Box #10 Unit Agreement files:
27-B Pool
Calidon Gas Sands
Sub-Scaley, etc. - zones of 2-D Area

Box #11 Unit Agreement files:
Section 2-D Unit
Section 11-D Unit
Broadcreek Operating Agreement
555 Stevens Zone Unit (2 files)

Box #12 Unit Agreement files:
555 Stevens Zone Unit (1 file)
Antelope Shale Zone (1961-65)
Antelope Shale Unit (3 files)

- Box #13** Navy Annual Reports 1920 - 1972 (except 1960-1968)
- Box #14** 12 Kv Overhead Powerline Easement file
California Aqueduct Row file
- Box #15** Misc. (old) files regarding regs, correspondence, USGS correspondence & royalty determination file
- Box #16** Summary of private lands in NPR-2
E.R.A. title report on private lands in NPR-2 (#34)
2 Ford Townsite files
Misc. production reports from top drawer of products file cabinet
- Box #17** Misc. production reports and royalty calculations from top drawer of production file cabinet

EXHIBIT 1

Agreement for the 27-B Pool of the Buena Vista Hills Oil and Gas Field,

Kern County, California

EXHIBIT 2

MAP OF
UNIT AGREEMENT AREA FOR 555 STEVENS ZONE
OF THE BUENA VISTA HILLS OIL AND GAS FIELD, KERN CO., CALIFORNIA

	<u>Acres</u>	<u>%</u>	<u>LEGEND</u>
U.S. Lands	640.08	52.31	Boundary of the Area
Fee Lands	583.43	47.69	Boundary of Participating Area
	<u>1223.51</u>	<u>100.00</u>	Boundary of the Tracts listed in Exhibit "B"
			Means Tract number as listed in Exhibit "B"

Note: Wells shown are unit wells only.

[illegible]

EXHIBIT 5
UNIT AGREEMENT
FOR THE
SUB-SCALEZ & ABOVE SCALEZ
ZONES OF THE 2-D AREA
BUENA VISTA HILLS OIL AND GAS FIELD
KERN COUNTY, CALIFORNIA

0 1000 2000
SCALE IN FEET

T. 31 S., R. 24 E.

T. 32 S., R. 24 E.

Quif Corp. H-

UNIT AREA BOUNDARY

Gulf O. Corp
"C. M."

STANDARD OIL CO.
OF CALIF.
(B.V.A. #3)

TRACT V

TRACT ~~VI~~

U.S. NAVAL PETROLEUM
RESERVE NO. 2

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