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**HEAVY OIL RESERVOIRS RECOVERABLE
BY THERMAL TECHNOLOGY, VOLUME 3**

Annual Report

By
Patrick Kujawa

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February 1981
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Work Performed Under Contract No. AC03-78ET12380

Science Applications, Inc.
McLean, Virginia

U. S. DEPARTMENT OF ENERGY

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HEAVY OIL RESERVOIRS RECOVERABLE
BY THERMAL TECHNOLOGY
VOLUME III

ANNUAL REPORT

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1. INTRODUCTION

This volume contains reservoir, production, and project data for target reservoirs thermally recoverable by steam drive which are equal to or greater than 2500 feet deep.

Data were collected from three source types: hands-on [A], once-removed [B], and twice-removed [C]. In all cases, data were sought depicting and characterizing individual reservoirs as opposed to data covering an entire field with more than one producing interval or reservoir. The degree of data reliability is a function of two factors. The first is whether the specific reservoir was identified in such a way as to allow ready and clear recognition during review of data from different sources. Vague and otherwise unclear reservoir identification was a disqualifying factor in the use of a source for a particular reservoir. The second factor is the amount of data obtained in source A and the extent to which it agreed with data from sources B and C, for example:

- When more than one category A source contained information pertaining to the same parameter of the same reservoir, the values were scrutinized for consistency and averaged using weighting factors.
- In cases where there was found only one category A source and several category B and C sources, the category A valuations took precedence when those values pertained to a substantial areal extent of the entire reservoir.
- If a wide discrepancy existed between a category A source for a parameter and category B and C sources and the category A source contained data pertinent to only a small portion of the reservoir in question, then the category B and C sources would be compared for consistency and weighted more heavily than the more restricted first category data.
- Estimates of parameter values from county or basin-wide composite averages were used when no specific reservoir data were available and the estimated data were labeled as such in the individual reservoir data presentations.

The data sources are listed at the end of each case. The data sheets were left blank where information was not available so that it could be inserted when determined. The following abbreviations are used in the listing to denote degrees of success for projects:

- ME - Moderately Effective
- NE - Not Effective
- UD - Undetermined
- VE - Very Effective

The abbreviations used for fluid injected in projects are:

● A - Air	● P - Polymer
● CO ₂ - Carbon Dioxide	● S - Steam
● FG - Flue Gas	● SW - Salt
● G - Natural Gas	● W - Water
● HW - Hot Water	

Asterisks are used to denote calculated or estimated data.

2. DATA LISTING: CANDIDATE RESERVOIRS CONTAINING A MINIMUM OF 10
MILLION BARRELS OF 8° TO 25° API GRAVITY OIL-IN
PLACE EQUAL TO OR GREATER THAN 2500 FEET DEEP
POTENTIALLY RECOVERABLE BY STEAM-DRIVE TECHNOLOGY

The data for reservoirs recoverable by steam-drive that are at least 2500 feet deep are presented in this section.

All of the pages for a particular reservoir are denoted by the same case number.

Source numbers correspond to the references listed in Section 2 of the Appendix.

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: ARKANSAS
COUNTY: OUACHITA & UNION
DISTRICT:
FIELD NAME: SMACKOVER (OLD)
NO. OF RESERVOIRS: 8

RESERVOIR INFORMATION

RESERVOIR: BLOSSOM	
NO. OF ZONES:	DISCOVERY YEAR: 1925
AREA, ACRES: 43970 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 2986
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: BLOSSOM	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: ARKLA BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE FAULT
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; MOD	DIP, DEG.:
HETEROGENEITY; MOD	CLAY CONTENT, %: 20.0
FAULTING; NONE	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2530	NET PAY, FT: 40
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 27.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 121	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 75.0	WTR SAT., %;
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.060	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.5	RANGE: TO
VISCOSITY @ BHT, CP: 12.6;	@ 130F, CP: 12.1
SAYBOLT VISC (100F), SEC: 300	
SULFUR CONTENT, %: 2.11	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 6.4	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	BBL/AC-FT: 1482
ORIGINAL GAS IN PLACE, MCF:	
CUM PROD : OIL, BBL;	513,494,904
(DEC 31, 1977) GAS, MCF;	
WATER, BBL;	
1977 ANNUAL PROD: OIL, BBL;	3,724,313
GAS, MCF;	
WATER, BBL;	
OIL REMAINING IN PLACE, STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES(DEC 31, 1977)	16,506,000
PRIMARY PRODUCTION:	
MECHANISM:	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD

(-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

REMARKS: AREA, PRODUCTION, WELLS, RESERVES INCLUDE
NACATOC, MEAKIN, GRAVES, BLOSSOM, AND
TOKIO FORMATIONS.

SOURCES: 5,12,13,14,21,24; 11,293

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: COASTAL REGION, SAN FERNANDO VALLEY DIST
FIELD NAME: ALISO CANYON
NO. OF RESERVOIRS: 8

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA ALISO	
NO. OF ZONES:	DISCOVERY YEAR: 1950
AREA, ACRES: 200 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 17
SHUT-IN WELLS: 8	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PICO	
GEOLOGICAL AGE: PLIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 20.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4379	NET PAY, FT: 100
GROSS PAY, FT: 200	RANGE: TO
POROSITY, %: 27.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 159 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 46.0 *
INITIAL: OIL SAT., %; 62.0 *	WTR SAT., %; 54.0
WTR SAT., %; 38.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1011
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 16.5	RANGE: 12.0 TO 17.0
VISCOSITY @ BHT, CP:	; @ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 17000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	24,700,000	BBL/AC-FT: 1237
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	5,323,675	
(DEC 31, 1977) GAS, MCF;	2,658,000	
WATER, BBL;	35,754,000	
1977 ANNUAL PROD: OIL, BBL;	64,637	
GAS, MCF;	59,000	
WATER, BBL;	1,495,000	
OIL REMAINING IN PLACE, STB:	19,400,000	BBL/AC-FT: 971
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,12,14,37,38,58,113,129,132; 93

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: COASTAL REGION, SAN FERNANDO VALLEY DIST
 FIELD NAME: ALISO CANYON
 NO. OF RESERVOIRS: 8

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA PORTER - DEL ALISO - A-36
 NO. OF ZONES: DISCOVERY YEAR: 1938
 AREA, ACRES: 400 * SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 37
 SHUT-IN WELLS: 10 INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: PICO
 GEOLOGICAL AGE: PLIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED NOSE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 21.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5506	NET PAY, FT: 150
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 26.0	RANGE: TO
PERMEABILITY, MD: 485	SAT. PRESSURE, PSI:
BHT, DEF F: 183 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 41.0 *
INITIAL: OIL SAT., %; 62.0 *	WTR SAT., %; 59.0
WTR SAT., %; 38.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1008
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

RESERVES AND PRODUCTION DATA

PRIMARY PRODUCTION:
MECHANISM: SOLUTION GAS
RECOVERY FACTOR, %: BBL/AC-FT:
ANNUAL DECLINE RATE, %:

S.1 WATERFLOOD (1976-)

REMARKS: COMBINED WITH MAIN AREA DEL ALISO

SOURCES: 5,12,14,37,38,58,113,129,132; 93

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: COASTAL REGION, SAN FERNANDO VALLEY DIST
FIELD NAME: ALISO CANYON
NO. OF RESERVOIRS: 8

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA SESNON	
NO. OF ZONES:	DISCOVERY YEAR: 1940
AREA, ACRES: 600 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 39
SHUT-IN WELLS: 30	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MODELO	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED NOSE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 20.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 8456	NET PAY, FT: 110
GROSS PAY, FT: 300	RANGE: TO
POROSITY, %: 23.0	RANGE: TO
PERMEABILITY, MD: 197	SAT. PRESSURE, PSI:
BHT, DEF F: 245 *	GAS CAP, ACRES: 460
GAS CAP: YES	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 39.0 *
INITIAL: OIL SAT., %; 62.0	WTR SAT., %; 61.0
WTR SAT., %; 38.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 14087
GOR, SCF/BBL; 430	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.3	RANGE: 14.0 TO 28.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 250	
SULFUR CONTENT, %: .92	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 6.1	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 12000	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	69,500,000	BBL/AC-FT: 1054
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	23,734,692	
(DEC 31, 1977) GAS,MCF;	85,318,000	
WATER,BBL;	5,704,000	
1977 ANNUAL PROD: OIL,BBL;	287,206	
GAS,MCF;		
WATER,BBL;	60,000	
OIL REMAINING IN PLACE,STB:	45,800,000	BBL/AC-FT: 694
(DEC 31,)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,12,14,37,38,58,113,129,132; 93

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: COASTAL REGION, SAN FERNANDO VALLEY DIST
FIELD NAME: CASCADE
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: PLIOCENE (CASCADE)	
NO. OF ZONES:	DISCOVERY YEAR: 1954
AREA, ACRES: 50	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 8
SHUT-IN WELLS:	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: SAUGUS	
GEOLOGICAL AGE: PLIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED PLUNGING ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 15.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2905	NET PAY, FT: 350
GROSS PAY, FT: 500	RANGE: 12.0 TO 35.0
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 537	SAT. PRESSURE, PSI:
BHT, DEF F: 128 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 66.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 34.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.040 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.7 RANGE: 15.0 TO 22.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 85
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	26,200,000	BBL/AC-FT: 1500
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	1,232,029	
(DEC 31, 1977) GAS,MCF;	57,000	
WATER,BBL;	352,000	
1977 ANNUAL PROD: OIL,BBL;	50,528	
GAS,MCF;		
WATER,BBL;	34,000	
OIL REMAINING IN PLACE,STB:	25,000,000	BBL/AC-FT: 1429
(DEC 31,)		
RESERVES(DEC 31, 1977)	310,000	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1970-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 1
 VOLUME INJECTED: (EQUIV)WATER, BBL; 123,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): MCCULLOCH OIL & GAS CORP

SOURCES: 5,12,14,37,38,58,113,129,132; 97

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES & VENTURA
DISTRICT: COASTAL REGION, SANTA CLARA VALLEY DISTR
FIELD NAME: RAMONA
NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: KERN-DEL VALLEY	
NO. OF ZONES:	DISCOVERY YEAR: 1943
AREA, ACRES: 430 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 95
SHUT-IN WELLS: 20	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MIOCENE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES - VENTURA BASINS	
TRAP TYPE: STRUCTURAL - FAULTED HOMOCLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 30.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4265	NET PAY, FT: 350
GROSS PAY, FT: 600	RANGE: TO
POROSITY, %: 27.0	RANGE: TO
PERMEABILITY, MD: 200	SAT. PRESSURE, PSI:
BHT, DEF F: 156 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 56.0 *
INITIAL: OIL SAT., %; 64.0 *	WTR SAT., %; 44.0
WTR SAT., %; 36.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.020 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 2496
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.0 RANGE: 14.0 TO 29.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: .45 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: .3 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 9700
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 192,200,000 BBL/AC-FT: 1277
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 18,809,630
 (DEC 31, 1977) GAS,MCF; 35,925,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 163,683
 GAS,MCF; 316,000
 WATER,BBL; 71,000
 OIL REMAINING IN PLACE,STB: 173,300,000 BBL/AC-FT: 1152
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SOURCES: 5,12,14,37,38,58,113,129,132; 74

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: CAT CANYON EAST
 NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: OLD AREA	
NO. OF ZONES:	DISCOVERY YEAR: 1908
AREA, ACRES: 1680	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 194
SHUT-IN WELLS: 47	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MONTEREY	
GEOLOGICAL AGE: MIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; MOD	DIP, DEG.:
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE; MOD	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3001	NET PAY, FT: 400
GROSS PAY, FT: 700	RANGE: TO
POROSITY, %: 29.0	RANGE: 1000 TO 2200
PERMEABILITY, MD: 1900	SAT. PRESSURE, PSI:
BHT, DEF F: 130	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 70.0	WTR SAT., %;
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 11.2	RANGE: 6.0 TO 17.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 7000	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	BBL/AC-FT: 1499
ORIGINAL GAS IN PLACE,MCF:	
CUM PROD : OIL,BBL;	18,021,130
(DEC 31, 1977) GAS,MCF;	1,214,000
WATER,BBL;	
1977 ANNUAL PROD: OIL,BBL;	1,669,913
GAS,MCF;	190,000
WATER,BBL;	3,781,000
OIL REMAINING IN PLACE,STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES(DEC 31,)	
PRIMARY PRODUCTION:	
MECHANISM: WATER & GAS DISPOSAL	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %: 10.0	

SOURCES: 5,12,14,37,38,58,113,129,132; 16,87,88,91,295

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: CAT CANYON EAST
 NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: SISQUOC AREA, OTHERS
 NO. OF ZONES: 2 DISCOVERY YEAR: 1958
 AREA, ACRES: 1120 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 368
 SHUT-IN WELLS: 83 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: LOWER PLIOCENE
 GEOLOGICAL AGE: PLIOCENE
 BASIN: SANTA MARIA BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3200	NET PAY, FT: 126
GROSS PAY, FT: 150	RANGE: TO
POROSITY, %: 32.0	RANGE: TO
PERMEABILITY, MD: 1410	SAT. PRESSURE, PSI:
BHT, DEF F: 139	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 37.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 100
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 12.5	RANGE: 9.0 TO 15.0
VISCOSITY @ BHT, CP: 350.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %:	
OIL TYPE:	
WATER SALINITY, PPM;	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 250,200,000 BBL/AC-FT: 1773
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 32,397,736
 (DEC 31, 1977) GAS,MCF; 4,523,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 3,739,229
 GAS,MCF; 908,000
 WATER,BBL; 5,422,000
 OIL REMAINING IN PLACE,STB: 217,800,000 BBL/AC-FT: 1544
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1963-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

T.1 STEAM (1971-)

AREA, ACRES: FLUID INJECTED: S
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: PILOT
 OPERATOR(S):

REMARKS: INCLUDES BRADLEY CANYON, 1972

SOURCES: 5,12,14,37,38,58,113,129,132; 16,17,18,87,88,91

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: CAT CANYON WEST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: ALEXANDER	
NO. OF ZONES:	DISCOVERY YEAR: 1953
AREA, ACRES: 100 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 4
SHUT-IN WELLS: 18	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: SISQUOC	
GEOLOGICAL AGE: PLIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3844	NET PAY, FT: 200
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 28.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 148 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 60.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 40.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 158
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.6	RANGE: 20.0 TO 24.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 20000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	29,000,000	BBL/AC-FT: 1448
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	3,277,128	
(DEC 31, 1977) GAS, MCF;	1,665,000	
WATER, BBL;	11,793,000	
1977 ANNUAL PROD: OIL, BBL;	4,395	
GAS, MCF;	12,000	
WATER, BBL;	145,000	
OIL REMAINING IN PLACE, STB:	25,700,000	BBL/AC-FT: 1284
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,12,14,37,38,58,113,129,132; 16,87,88,91

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: CAT CANYON WEST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: LOS FLORES	
NO. OF ZONES: 1	DISCOVERY YEAR: 1938
AREA, ACRES: 2780	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 81
SHUT-IN WELLS: 112	INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: MONTEREY SHALE	
GEOLOGICAL AGE: MIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SILTY/SHALY SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS:
FRACTURE; HIGH	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 6052	NET PAY, FT: 114
GROSS PAY, FT: 1575	RANGE: TO
POROSITY, %: 25.0	RANGE: TO
PERMEABILITY, MD: 300	SAT. PRESSURE, PSI:
BHT, DEF F: 196	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 46.0 *
INITIAL: OIL SAT., %; 63.0	WTR SAT., %; 54.0
WTR SAT., %; 37.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 2193
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 14.9	RANGE: 11.0 TO 22.0
VISCOSITY @ BHT, CP: 60.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 3000	
SULFUR CONTENT, %: 5.07	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 3.1	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 7000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	368,800,000	BBL/AC-FT: 1164
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	85,488,457	
(DEC 31, 1977) GAS, MCF;	81,996,000	
WATER, BBL;	146,452	
1977 ANNUAL PROD: OIL, BBL;	411,499	
GAS, MCF;	2,282,000	
WATER, BBL;	3,684,000	
OIL REMAINING IN PLACE, STB:	283,300,000	BBL/AC-FT: 894
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1947-1955)

AREA, ACRES:	FLUID INJECTED: G
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	2,955,000
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATER DISPOSAL (1954-1954)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	125,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

S.3 WATERFLOOD (1968-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 2
VOLUME INJECTED: (EQUIV)WATER, BBL;	6,919,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	SUN OIL; GETTY OIL

SOURCES: 5,12,14,37,38,58,113,129,132; 16,17,87,88,91,94

STATE: CALIFORNIA
COUNTY: SANTA BARBARA
DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
FIELD NAME: CAT CANYON WEST
NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: PLIOCENE (NEW AREA-CENTRAL)
NO. OF ZONES: DISCOVERY YEAR: 1956
AREA, ACRES: 590 SPACING, ACRES:
TOTAL WELLS: PRODUCING WELLS: 50
SHUT-IN WELLS: 29 INJECTION WELLS: 6

GEOLOGICAL INFORMATION

FORMATION: SISQUOC
GEOLOGICAL AGE: PLIOCENE
BASIN: SANTA MARIA BASIN
TRAP TYPE: STRUCTURAL - SAND PINCHOUT ON HOMOCLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; DIP, DEG.:
HETEROGENEITY; CLAY CONTENT, %:
FAULTING; INTERBEDDED STREAKS:
FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2749	NET PAY, FT: 45
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD: 1200	SAT. PRESSURE, PSI:
BHT, DEF F: 125	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 55.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 45.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 162
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 12.3 RANGE: 8.0 TO 14.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 8000
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 41,200,000 BBL/AC-FT: 1552
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 7,522,605
 (DEC 31, 1977) GAS,MCF; 1,624,000
 WATER,BBL; 12,027,000
 1977 ANNUAL PROD: OIL,BBL; 290,177
 GAS,MCF; 45,000
 WATER,BBL; 1,393,000
 OIL REMAINING IN PLACE,STB: 33,700,000 BBL/AC-FT: 1268
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1964-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 11
 VOLUME INJECTED: (EQUIV)WATER, BBL; 18,000,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): GETTY OIL, UNION OIL

SECONDARY AND TERTIARY RECOVERIES (CONT.)

T.1 CYCLIC STEAM (1963-)

AREA, ACRES: FLUID INJECTED: S
NO. PROD WELLS: NO. INJ WELLS: 15
VOLUME INJECTED: (EQUIV)WATER, BBL; 1,180,231
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): GETTY OIL, UNION OIL

T.2 IN-SITU COMBUSTION (1965-)

AREA, ACRES: FLUID INJECTED: A
NO. PROD WELLS: NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER, BBL;
GAS, MCF; 41,322
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): GETTY OIL, UNION OIL

SOURCES: 5,12,14,37,38,58,113,129,132; 16,87,88,91,94

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: SANTA BARBARA
DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
FIELD NAME: CAT CANYON WEST
NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: PLIOCENE (OLD AREA)	
NO. OF ZONES: 1	DISCOVERY YEAR: 1908
AREA, ACRES: 2930	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 52
SHUT-IN WELLS: 36	INJECTION WELLS: 44

GEOLOGICAL INFORMATION

FORMATION: SISQUOC	
GEOLOGICAL AGE: PLIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3043	NET PAY, FT: 54
GROSS PAY, FT:	RANGE: 21.0 TO 31.0
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD: 1200	SAT. PRESSURE, PSI:
BHT, DEF F: 130	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 55.0 *
INITIAL: OIL SAT., %; 70.0	WTR SAT., %; 45.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 504
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 15.2 RANGE: 14.0 TO 20.0
 VISCOSITY @ BHT, CP: 175.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: .83 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: .8 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 23000
 WATER HARDNESS: CA, PPM; MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 245,500,000 BBL/AC-FT: 1552
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 44,354,689
 (DEC 31, 1977) GAS, MCF; 19,994,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 484,380
 GAS, MCF; 2,000
 WATER, BBL; 10,346,000
 OIL REMAINING IN PLACE, STB: 201,100,000 BBL/AC-FT: 1271
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1954-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 54
 VOLUME INJECTED: (EQUIV) WATER, BBL; 168,768,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): UNION OIL CO

SECONDARY AND TERTIARY RECOVERIES (CONT.)

T.1 CYCLIC STEAM (1964-)

AREA, ACRES: FLUID INJECTED: S
NO. PROD WELLS: NO. INJ WELLS: 20
VOLUME INJECTED: (EQUIV) WATER, BBL; 247,872,000
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): UNION OIL CO

T.2 STEAM DRIVE (1971-)

AREA, ACRES: FLUID INJECTED: S
NO. PROD WELLS: NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): UNION OIL CO

SOURCES: 5,12,14,37,38,58,113,129,132; 16,17,44,87,88,91,94

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: GUADALUPE
 NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: SISQUOC-MONTEREY	
NO. OF ZONES: 2	DISCOVERY YEAR: 1948
AREA, ACRES: 1990	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 151
SHUT-IN WELLS: 35	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: SISQUOC-MONTEREY	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCT/STRAT - FACIES CHANGE ON FLTD HOMOCL	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2832	NET PAY, FT: 90 *
GROSS PAY, FT: 400	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 127 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 57.0 *
INITIAL: OIL SAT., %; 65.0 *	WTR SAT., %; 43.0
WTR SAT., %; 35.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.020 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 742
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 11.3	RANGE: 8.0 TO 14.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 4.11	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 8.1	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 22000	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	258,000,000	BBL/AC-FT: 1441
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	25,372,576	
(DEC 31, 1977) GAS,MCF;	16,822,000	
WATER,BBL;	15,524,000	
1977 ANNUAL PROD: OIL,BBL;	1,252,511	
GAS,MCF;	718,000	
WATER,BBL;	1,171,000	
OIL REMAINING IN PLACE,STB:	232,700,000	BBL/AC-FT: 1299
(DEC 31,)		
RESERVES(DEC 31, 1977)	11,600,000	

PRIMARY PRODUCTION:

MECHANISM: GRAVITY	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1955-1959)

AREA, ACRES:	FLUID INJECTED: G
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	
GAS, MCF;	1,782,000
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL CO	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATER DISPOSAL (1957-1958)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	54,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL CO	

S.3 WATER INJECTION (1963-1964)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	1,427,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL CO	

T.1 CYCLIC STEAM (1964-)

AREA, ACRES:	FLUID INJECTED: S
NO. PROD WELLS:	NO. INJ WELLS: 48
VOLUME INJECTED: (EQUIV)WATER, BBL;	9,387,747
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1973) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL CO	

SOURCES: 5,12,14,37,38,58,113,129,132; 109,141

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: SANTA BARBARA
DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
FIELD NAME: LOMPOC
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: MONTEREY	
NO. OF ZONES:	DISCOVERY YEAR: 1903
AREA, ACRES: 2110	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 111
SHUT-IN WELLS: 24	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MONTEREY	
GEOLOGICAL AGE: MIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SILT SHALE	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2799	NET PAY, FT: 500
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 126 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 65.0 *	WTR SAT., %;
WTR SAT., %; 35.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 3909
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 19.8	RANGE: 15.0 TO 26.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 500	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.66	ACID NUMBER:
CARBON RESIDUE, %: 7.6	
OIL TYPE:	
WATER SALINITY, PPM; 7000	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	BBL/AC-FT: 1441
ORIGINAL GAS IN PLACE, MCF:	
CUM PROD : OIL, BBL;	41,434,145
(DEC 31, 1977) GAS, MCF;	43,249,000
WATER, BBL;	
1977 ANNUAL PROD: OIL, BBL;	326,699
GAS, MCF;	696,000
WATER, BBL;	17,260,000
OIL REMAINING IN PLACE, STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES (DEC 31, 1977)	1,600,000
PRIMARY PRODUCTION:	
MECHANISM: SOLUTION GAS	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1929-1960)

AREA, ACRES:	FLUID INJECTED: G
NO. PROD WELLS:	NO. INJ WELLS: 9
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	5,136,000
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATER DISPOSAL (1930-1931)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	234,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

S.3 WATER DISPOSAL (1947-1953)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	14,199,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SOURCES: 5,12,14,37,38,58,113,129,132; 73

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: SANTA BARBARA
 DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
 FIELD NAME: ORCUTT
 NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA MONTEREY- PT SAL
 NO. OF ZONES: 7 DISCOVERY YEAR: 1902
 AREA, ACRES: 3670 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 183
 SHUT-IN WELLS: 122 INJECTION WELLS: 60

GEOLOGICAL INFORMATION

FORMATION: MONTEREY-POINT SAL
 GEOLOGICAL AGE: MIOCENE
 BASIN: SANTA MARIA BASIN
 TRAP TYPE: STRUCTURAL - FAULTED DOME
 LITHOLOGY: SAND/SHALE
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 14.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; MINOR INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3487	NET PAY, FT: 150
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 23.0	RANGE: TO
PERMEABILITY, MD: 52	SAT. PRESSURE, PSI:
BHT, DEF F: 145	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 38.0 *
INITIAL: OIL SAT., %; 63.0	WTR SAT., %; 62.0
WTR SAT., %; 37.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030 *
FVF, BBL/STB; 1.200	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 708
GOR, SCF/BBL;	BHP, PSI; 600
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.7	RANGE: 17.0 TO 30.0
VISCOSITY @ BHT, CP: 70.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 580	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 2.48	ACID NUMBER:
CARBON RESIDUE, %: 4.0	
OIL TYPE:	
WATER SALINITY, PPM; 14000	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 515,700,000 BBL/AC-FT: 937
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 153,398,830
 (DEC 31, 1977) GAS, MCF; 146,607,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 1,391,636
 GAS, MCF; 996,000
 WATER, BBL; 20,000,000
 OIL REMAINING IN PLACE, STB: 362,300,000 BBL/AC-FT: 658
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: GRAVITY DRAINAGE

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1950-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 77
 VOLUME INJECTED: (EQUIV) WATER, BBL; 373,037,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): RESERVE OIL; UNION OIL

T.1 CAUSTIC FLOOD (-)

AREA, ACRES: FLUID INJECTED:
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

SOURCES: 5,12,14,37,38,58,113,129,132; 17,44

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: SANTA BARBARA
DISTRICT: COASTAL REGION, SANTA MARIA DISTRICT
FIELD NAME: SANTA MARIA VALLEY
NO. OF RESERVOIRS: 11

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA	
NO. OF ZONES: 6	DISCOVERY YEAR: 1934
AREA, ACRES: 4020	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 127
SHUT-IN WELLS: 241	INJECTION WELLS: 37

GEOLOGICAL INFORMATION

FORMATION: MONTEREY SHALE	
GEOLOGICAL AGE: MIOCENE	
BASIN: SANTA MARIA BASIN	
TRAP TYPE: STRUCT/STRAT - FACIES CHANGE ON ANTICLINE	
LITHOLOGY: SILTY/SHALY SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4711	NET PAY, FT:
GROSS PAY, FT: 1030	RANGE: TO
POROSITY, %: 26.0	RANGE: TO
PERMEABILITY, MD: 300	SAT. PRESSURE, PSI:
BHT, DEF F: 169	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 64.0	WTR SAT., %;
WTR SAT., %; 36.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 2365
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 14.5	RANGE: 6.0 TO 20.0
VISCOSITY @ BHT, CP: 85.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 5.00	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 21000	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	BBL/AC-FT: 1229
ORIGINAL GAS IN PLACE,MCF:	
CUM PROD : OIL,BBL;	148,529,026
(DEC 31, 1977) GAS,MCF;	216,445,000
WATER,BBL;	
1977 ANNUAL PROD: OIL,BBL;	788,852
GAS,MCF;	1,963,000
WATER,BBL;	7,597,000
OIL REMAINING IN PLACE,STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES(DEC 31,)	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1951-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 51
VOLUME INJECTED: (EQUIV)WATER, BBL; 96,023,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

T.1 IN-SITU COMBUSTION (1964-1966)

AREA, ACRES: FLUID INJECTED: A
NO. PROD WELLS: NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER, BBL;
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): UNION OIL

T.2 STEAM INJECTION (1965-1970)

AREA, ACRES: FLUID INJECTED: S
NO. PROD WELLS: NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 488,732
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): UNION OIL

SOURCES: 5,12,14,37,38,58,113,129,132; 17,288

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: BEVERLY HILLS
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: WEST AREA PLIOCENE (WOLFSKILL)
 NO. OF ZONES: DISCOVERY YEAR: 1900
 AREA, ACRES: 120 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 5
 SHUT-IN WELLS: 3 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: REPETTO
 GEOLOGICAL AGE: PLIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 30.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2500	NET PAY, FT: 150 *
GROSS PAY, FT: 250	RANGE: TO
POROSITY, %: 38.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 120 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 58.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 42.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1538
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.8 RANGE: 15.0 TO 25.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 27000
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 35,400,000 BBL/AC-FT: 1965
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 4,793,011
 (DEC 31, 1977) GAS,MCF; 2,366,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 23,046
 GAS,MCF; 17,000
 WATER,BBL; 40,000
 OIL REMAINING IN PLACE,STB: 30,600,000 BBL/AC-FT: 1699
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SOURCES: 5,12,14,37,38,58,113,129,132

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES & ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: BREA-OLINDA
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: BREA AREA OTHERS	
NO. OF ZONES: 3	DISCOVERY YEAR: 1899
AREA, ACRES: 860 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 250
SHUT-IN WELLS: 91	INJECTION WELLS: 28

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCT/STRAT - FACIES CHANGE ON FLTD HOMOCL	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 66.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5255	NET PAY, FT: 346
GROSS PAY, FT: 550	RANGE: TO
POROSITY, %: 28.0	RANGE: TO
PERMEABILITY, MD: 70	SAT. PRESSURE, PSI:
BHT, DEF F: 175	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 70.0	WTR SAT., %; 52.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1195
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.1	RANGE: 13.0 TO 31.0
VISCOSITY @ BHT, CP: 6.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %:	
OIL TYPE:	
WATER SALINITY, PPM; 17000	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 430,900,000 BBL/AC-FT: 1448
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 130,000,000 *
 (DEC 31, 1977) GAS, MCF; 120,000,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 820,172
 GAS, MCF; 665,000
 WATER, BBL; 1,644,000
 OIL REMAINING IN PLACE, STB: 300,900,000 BBL/AC-FT: 1011
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %: 4.1

SECONDARY AND TERTIARY RECOVERIES:

S.1 GAS REPRESSURE (1957-1959)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS: 4
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF; 1,491,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): SHELL OIL

S.2 WATERFLOOD (1961-1964)

AREA, ACRES: FLUID INJECTED: SW
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL; 844,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): SHELL OIL

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.3 WATERFLOOD (1969-1975)

AREA, ACRES:	FLUID INJECTED: SW
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 1,739,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): SHELL OIL	

S.4 WATERFLOOD (1976-)

AREA, ACRES:	FLUID INJECTED: SW
NO. PROD WELLS: 28	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 7,719,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): SHELL OIL	

T.1 STEAM DRIVE (1972-1972)

AREA, ACRES: 46	FLUID INJECTED: S
NO. PROD WELLS:	NO. INJ WELLS: 9
VOLUME INJECTED: (EQUIV)WATER, BBL; 4,897,158	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): SHELL OIL	

REMARKS: TERTIARY TECHNICAL PILOT

SOURCES: 5,12,14,37,38,58,113,129,132; 17,81

STATE: CALIFORNIA
COUNTY: LOS ANGELES & ORANGE
DISTRICT: LOS ANGELES REGION
FIELD NAME: BREA-OLINDA
NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: OLINDA AREA	
NO. OF ZONES: 3	DISCOVERY YEAR: 1897
AREA, ACRES: 705 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 366
SHUT-IN WELLS: 135	INJECTION WELLS: 6

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED HOMOCLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 40.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3235	NET PAY, FT: 400 *
GROSS PAY, FT: 1100	RANGE: TO
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 842	SAT. PRESSURE, PSI:
BHT, DEF F: 135 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 50.0 *
INITIAL: OIL SAT., %; 79.0	WTR SAT., %; 50.0
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 654
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.4	RANGE: 14.0 TO 26.0
VISCOSITY @ BHT, CP: 40.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 17000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	477,300,000	BBL/AC-FT: 1693
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	160,000,000 *	
(DEC 31, 1977) GAS, MCF;	240,000,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	1,513,674	
GAS, MCF;	1,282,000	
WATER, BBL;	2,587,000	
OIL REMAINING IN PLACE, STB:	317,300,000	BBL/AC-FT: 1125
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SG/GD

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %: 5.9

SECONDARY AND TERTIARY RECOVERIES:

S.1 GAS STORAGE (1928-1930)

AREA, ACRES:	FLUID INJECTED:
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	178,000
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION, CHANSLOR-WESTERN	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATERFLOOD (1964-)

AREA, ACRES: FLUID INJECTED: W
NO. PROD WELLS: NO. INJ WELLS: 12
VOLUME INJECTED: (EQUIV)WATER, BBL; 13,341,000
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1977) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): UNION;CHANSIOR/WESTERN

T.1 CYCLIC STEAM (1964-)

AREA, ACRES: FLUID INJECTED: S
NO. PROD WELLS: NO. INJ WELLS: 112
VOLUME INJECTED: (EQUIV)WATER, BBL; 2,346,062
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1973) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S):

SOURCES: 5,12,14,37,38,58,113,129,132; 17,81

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES & ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: BREA-OLINDA
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: TONNER AREA	
NO. OF ZONES: 2	DISCOVERY YEAR: 1907
AREA, ACRES: 590 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 108
SHUT-IN WELLS: 24	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED HOMOCLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 45.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4112	
GROSS PAY, FT:	NET PAY, FT: 200
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 500	RANGE: TO
BHT, DEF F: 135	SAT. PRESSURE, PSI:
GAS CAP:	GAS CAP, ACRES:
GAS CAP/OIL ZONE RATIO:	WETTING PHASE:
INITIAL: OIL SAT., %; 71.0	CURRENT: OIL SAT., %; 49.0 *
WTR SAT., %; 29.0	WTR SAT., %; 51.0
GAS SAT., %;	GAS SAT., %;
FVF, BBL/STB; 1.000 *	FVF, BBL/STB; 1.000 *
WOR, BBL/BBL;	WOR, BBL/BBL;
GOR, SCF/BBL;	GOR, SCF/BBL;
BHP, PSI;	BHP, PSI;

FLUID CHARACTERISTICS

OIL GRAVITY, API: 25.2	RANGE: 18.0 TO 28.0
VISCOSITY @ BHT, CP: 20.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 135	
SULFUR CONTENT, %: .75	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 6.0	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 15000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 188,500,000 BBL/AC-FT: 1597
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 57,528,999
 (DEC 31, 1977) GAS, MCF; 67,708,000
 WATER, BBL; 21,320,000
 1977 ANNUAL PROD: OIL, BBL; 682,948
 GAS, MCF; 1,175,000
 WATER, BBL; 743,000
 OIL REMAINING IN PLACE, STB: 131,000,000 BBL/AC-FT: 1110
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SG & GD

RECOVERY FACTOR, %:

BBL/AC-FT: 445

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1965-1972)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 3
 VOLUME INJECTED: (EQUIV) WATER, BBL; 2,096,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: POOR
 OPERATOR(S): UNION OIL CO

T.1 IN SITU COMBUSTION (1972-)

AREA, ACRES: FLUID INJECTED: A
 NO. PROD WELLS: NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): UNION OIL CO

SOURCES: 5,12,14,37,38,58,113,129,132; 16,18,81,140,146

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: COYOTE EAST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: ANAHEIM	
NO. OF ZONES: 3	DISCOVERY YEAR: 1917
AREA, ACRES: 400 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 70
SHUT-IN WELLS: 28	INJECTION WELLS: 15

GEOLOGICAL INFORMATION

FORMATION: REPETTO	
GEOLOGICAL AGE: PLIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3100	NET PAY, FT: 300
GROSS PAY, FT: 1500	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD: 1410	SAT. PRESSURE, PSI:
BHT, DEF F: 159	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 51.0 *
INITIAL: OIL SAT., %; 79.0	WTR SAT., %; 49.0
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 924
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE: 16.2 TO 26.9
VISCOSITY @ BHT, CP: 16.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: .95	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: .1	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 11000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	210,100,000	BBL/AC-FT: 1751
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	68,845,482	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	415,525	
GAS, MCF;	130,000	
WATER, BBL;	2,828,000	
OIL REMAINING IN PLACE, STB:	141,300,000	BBL/AC-FT: 1177
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %: 9.3	

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1954-1957)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	228,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATERFLOOD (1968-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 25
VOLUME INJECTED: (EQUIV)WATER, BBL; 31,696,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL	

T.1 CYCLIC STEAM (1969-)

AREA, ACRES:	FLUID INJECTED: S
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 47,630,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1973) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL CO	

SOURCES: 5,12,14,37,38,58,113,129,132; 17,155

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: COYOTE EAST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: MIOCENE "A"	
NO. OF ZONES:	DISCOVERY YEAR: 1934
AREA, ACRES: 150 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 11
SHUT-IN WELLS: 4	INJECTION WELLS: 4

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 15.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4600	NET PAY, FT: 100
GROSS PAY, FT: 300	RANGE: TO
POROSITY, %: 26.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 164 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 71.0 *	WTR SAT., %; 52.0
WTR SAT., %; 29.0	GAS SAT., %;
GAS SAT., %;	WOR, BBEYBBLBBL/STB; 1.000
WOR, BBEYBBLBBL/STB; 1.050 *	GOR, SCF/BBL; 889
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 23.9 RANGE: 17.0 TO 30.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %:
 CARBON RESIDUE, %:
 OIL TYPE:
 WATER SALINITY, PPM; 17000
 WATER HARDNESS: CA,PPM; MG,PPM;

CARBON/HYDROGEN RATIO:
ACID NUMBER:

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	20,500,000	BBL/AC-FT: 1364
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	6,007,848	
(DEC 31, 1977) GAS,MCF;		
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	32,116	
GAS,MCF;	14,000	
WATER,BBL;	263,000	
OIL REMAINING IN PLACE,STB:	14,500,000	BBL/AC-FT: 963
(DEC 31,)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1969-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 6
VOLUME INJECTED: (EQUIV)WATER, BBL; 10,642,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): UNION OIL	

SOURCES: 5,12,14,37,38,58,113,129,132; 155

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: COYOTE EAST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: STERN		
NO. OF ZONES: 4	DISCOVERY YEAR: 1928	
AREA, ACRES: 350 *	SPACING, ACRES: 5	
TOTAL WELLS:	PRODUCING WELLS: 67	
SHUT-IN WELLS: 14	INJECTION WELLS: 4	

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 14.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5500	NET PAY, FT: 220
GROSS PAY, FT: 400	RANGE: TO
POROSITY, %: 23.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 183 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 52.0 *
INITIAL: OIL SAT., %; 71.0 *	WTR SAT., %; 48.0
WTR SAT., %; 29.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1248
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

RESERVES AND PRODUCTION DATA

PRIMARY PRODUCTION:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1966-)

SOURCES: 5,12,14,37,38,58,113,129,132; 155

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: EL SEGUNDO
NO. OF RESERVOIRS:

RESERVOIR INFORMATION

RESERVOIR: MAIN AND WEST AREAS	
NO. OF ZONES:	DISCOVERY YEAR: 1935
AREA, ACRES: 80	SPACING, ACRES: 12
TOTAL WELLS:	PRODUCING WELLS: 5
SHUT-IN WELLS: 6	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: PUENTE & SCHIST	
GEOLOGICAL AGE: MIOCENE-CRETACEOUS	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 6000	NET PAY, FT: 325
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 22.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 193 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 41.0 *
INITIAL: OIL SAT., %; 75.0 *	WTR SAT., %; 59.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 2573
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.5 RANGE: 17.0 TO 27.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: .33 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: .8 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 17000
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	31,700,000	BBL/AC-FT: 1219
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	13,708,285	
(DEC 31, 1977) GAS,MCF;	1,933,000	
WATER,BBL;	5,034,000	
1977 ANNUAL PROD: OIL,BBL;	38,151	
GAS,MCF;	13,000	
WATER,BBL;	489,000	
OIL REMAINING IN PLACE,STB:	18,000,000	BBL/AC-FT: 692
(DEC 31,)		
RESERVES(DEC 31, 1977)	280,000	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1977-)

AREA, ACRES:		FLUID INJECTED: W
NO. PROD WELLS: 1		NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;		12,000
GAS, MCF;		
CUMULATIVE PROD: OIL, BBL;		
(THRU) GAS, MCF;		
WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:
DEGREE OF SUCCESS: PILOT		
OPERATOR(S): OXY PETROLEUM INC		

SOURCES: 5,12,14,37,38,58,113,129,132; 64

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: HUNTINGTON BEACH
 NO. OF RESERVOIRS: 16

RESERVOIR INFORMATION

RESERVOIR: HUNTINGTON AVENUE AREA JONES
 NO. OF ZONES: DISCOVERY YEAR: 1955
 AREA, ACRES: 2345 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 60
 SHUT-IN WELLS: 12 INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: PUENTE
 GEOLOGICAL AGE: MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; HIGH INTERBEDDED STREAKS: YES
 FRACTURE; HIGH BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3912	NET PAY, FT: 200
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 149 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 79.0	WTR SAT., %;
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 121
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.2	RANGE: TO
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %:	
OIL TYPE:	
WATER SALINITY, PPM; 14400	
WATER HARDNESS: CA, PPM; 200	MG, PPM; 234

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: BBL/AC-FT: 1751
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 8,780,028
 (DEC 31, 1977) GAS,MCF; 5,244,000
 WATER,BBL; 14,064,000
 1977 ANNUAL PROD: OIL,BBL; 104,221
 GAS,MCF; 16,000
 WATER,BBL; 753,000
 OIL REMAINING IN PLACE,STB: BBL/AC-FT:
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1966-1975)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL; 4,582,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

S.2 WATERFLOOD (1977-)

AREA, ACRES: FLUID INJECTED:
 NO. PROD WELLS: NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV)WATER, BBL; 63,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

REMARKS: ACREAGE TOTAL FOR FIELD

SOURCES: 5,12,14,37,38,58,113,129,132; 60,62,153,156

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: HUNTINGTON BEACH
 NO. OF RESERVOIRS: 16

RESERVOIR INFORMATION

RESERVOIR: NORTH AREA TAR BOLSA
 NO. OF ZONES: 3 DISCOVERY YEAR: 1920
 AREA, ACRES: 1200 * SPACING, ACRES: 10 *
 TOTAL WELLS: PRODUCING WELLS: 72
 SHUT-IN WELLS: 48 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PICO & REPETTO
 GEOLOGICAL AGE: PLIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2867	NET PAY, FT: 250
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 26.0	RANGE: TO
PERMEABILITY, MD: 1100	SAT. PRESSURE, PSI:
BHT, DEF F: 132	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 47.0 *
INITIAL: OIL SAT., %; 61.0	WTR SAT., %; 53.0
WTR SAT., %; 39.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 681
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.0	RANGE: 12.0 TO 22.0
VISCOSITY @ BHT, CP: 41.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %: .8	
OIL TYPE:	
WATER SALINITY, PPM; 14400	
WATER HARDNESS: CA, PPM; 200	MG, PPM; 234

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 351,500,000 BBL/AC-FT: 1172
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 67,000,000 *
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 257,803
 GAS,MCF; 123,000
 WATER,BBL; 3,467,000
 OIL REMAINING IN PLACE,STB: 284,500,000 BBL/AC-FT: 948
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %: 13.1

SECONDARY AND TERTIARY RECOVERIES:

T.1 CYCLIC STEAM (1964-)

AREA, ACRES: FLUID INJECTED: S
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL;346,820,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1976) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

T.2 STEAM DRIVE (1961-)

AREA, ACRES: 200 FLUID INJECTED: S
 NO. PROD WELLS: NO. INJ WELLS: 300
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: PILOT
 OPERATOR(S):

REMARKS: TERTIARY ECONOMIC PILOT 1973 NOT INCLUDED

SOURCES: 5,12,14,37,38,58,113,129,132; 17,60,62,153,156

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: HUNTINGTON BEACH
 NO. OF RESERVOIRS: 16

RESERVOIR INFORMATION

RESERVOIR: SOUTH AREA ONSHORE MAIN
 NO. OF ZONES: DISCOVERY YEAR: 1926
 AREA, ACRES: 790 * SPACING, ACRES: 10 *
 TOTAL WELLS: PRODUCING WELLS: 39
 SHUT-IN WELLS: 33 INJECTION WELLS: 7

GEOLOGICAL INFORMATION

FORMATION: PUENTE
 GEOLOGICAL AGE: MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; HIGH INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4055	NET PAY, FT: 277
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 25.0	RANGE: TO
PERMEABILITY, MD: 1500	SAT. PRESSURE, PSI:
BHT, DEF F: 152 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 45.0 *
INITIAL: OIL SAT., %; 61.0	WTR SAT., %; 55.0
WTR SAT., %; 39.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1205
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.9	RANGE: 11.0 TO 26.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 210	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 1.57	ACID NUMBER:
CARBON RESIDUE, %: 3.0	
OIL TYPE:	
WATER SALINITY, PPM; 14400	
WATER HARDNESS: CA, PPM; 200	MG, PPM; 234

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 246,600,000 BBL/AC-FT: 1127
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 56,436,797
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 313,595
 GAS, MCF; 56,000
 WATER, BBL; 6,929,000
 OIL REMAINING IN PLACE, STB: 190,100,000 BBL/AC-FT: 869
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: GRAVITY DRAINAGE

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD

(1965-1968)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 7
 VOLUME INJECTED: (EQUIV) WATER, BBL; 7,811,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

S.2 WATERFLOOD

(1971-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 11
 VOLUME INJECTED: (EQUIV) WATER, BBL; 24,834,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

SOURCES: 5,12,14,37,38,58,113,129,132; 60,62,153,156

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: LONG BEACH
 NO. OF RESERVOIRS: 7

RESERVOIR INFORMATION

RESERVOIR: NORTHWEST EXTENSION AREA - BROWN
 NO. OF ZONES: 2 DISCOVERY YEAR: 1937
 AREA, ACRES: 45 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 11
 SHUT-IN WELLS: 6 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5230	NET PAY, FT: 700
GROSS PAY, FT: 1600	RANGE: TO
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 375	SAT. PRESSURE, PSI:
BHT, DEF F: 177 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 58.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 42.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1267
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.1	RANGE: 21.0 TO 26.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 31000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	47,200,000	BBL/AC-FT: 1500
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	6,728,559	
(DEC 31, 1977) GAS, MCF;	1,180,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	47,770	
GAS, MCF;	41,000	
WATER, BBL;	231,000	
OIL REMAINING IN PLACE, STB:	40,500,000	BBL/AC-FT: 1286
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE	
RECOVERY FACTOR, %: 25.0	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SOURCES: 5,12,14,37,38,58,113,129,132; 17,99

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: MONTEBELLO
NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA - BALDWIN 1-2-3
NO. OF ZONES: 3 DISCOVERY YEAR: 1917
AREA, ACRES: 650 * SPACING, ACRES:
TOTAL WELLS: PRODUCING WELLS: 144
SHUT-IN WELLS: 71 INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: REPETTO
GEOLOGICAL AGE: PLIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; DIP, DEG.: 5.0
HETEROGENEITY; CLAY CONTENT, %:
FAULTING; NONE INTERBEDDED STREAKS: YES
FRACTURE; BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3513	NET PAY, FT: 700 *
GROSS PAY, FT: 1500	RANGE: TO
POROSITY, %: 33.0	RANGE: TO
PERMEABILITY, MD: 1410	SAT. PRESSURE, PSI:
BHT, DEF F: 145	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 79.0	WTR SAT., %; 37.0
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 948
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.0	RANGE: 16.0 TO 29.0
VISCOSITY @ BHT, CP: 15.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 115	
SULFUR CONTENT, %: .68	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 3.5	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 14000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	876,400,000	BBL/AC-FT: 1926
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	152,850,258	
(DEC 31, 1977) GAS, MCF;	172,253,000	
	WATER, BBL;	
1977 ANNUAL PROD: OIL, BBL;	546,862	
	GAS, MCF;	463,000
	WATER, BBL;	8,142,000
OIL REMAINING IN PLACE, STB:	723,600,000	BBL/AC-FT: 1590
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: GRAVITY DRAINAGE

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %: 7.4

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1953-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 7
VOLUME INJECTED: (EQUIV) WATER, BBL; 61,428,000	
	GAS, MCF;
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
	WATER, BBL;
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): CHEVRON	

SOURCES: 5,12,14,37,38,58,113,129,132; 17

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: PLAYA DEL REY
NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: DEL REY HILLS AREA	
NO. OF ZONES: 1	DISCOVERY YEAR: 1934
AREA, ACRES: 248	SPACING, ACRES: 3
TOTAL WELLS:	PRODUCING WELLS: 24
SHUT-IN WELLS: 31	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCT/STRAT - SAND LENSES ON ANTICLINE	
LITHOLOGY: SCHIST CONGLOMERATE	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 17.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 6200	NET PAY, FT: 200
GROSS PAY, FT: 300	RANGE: TO
POROSITY, %: 24.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 198 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 57.0 *
INITIAL: OIL SAT., %; 75.0 *	WTR SAT., %; 43.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.3	RANGE: 17.0 TO 24.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: .60	ACID NUMBER:
CARBON RESIDUE, %: .6	
OIL TYPE:	
WATER SALINITY, PPM; 20500	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	66,000,000	BBL/AC-FT: 1330
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	13,278,729	
(DEC 31, 1977) GAS, MCF;	23,611,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	49,204	
GAS, MCF;		
WATER, BBL;	555,000	
OIL REMAINING IN PLACE, STB:	52,700,000	BBL/AC-FT: 1062
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,12,14,37,38,58,113,129,132

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: PLAYA DEL REY
NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: VENICE AREA	
NO. OF ZONES: 1	DISCOVERY YEAR: 1929
AREA, ACRES: 342	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 5
SHUT-IN WELLS: 3	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCT/STRAT - SAND LENSES ON ANTICLINE	
LITHOLOGY: SCHIST SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4926	NET PAY, FT: 300
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 28.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 171 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 49.0 *
INITIAL: OIL SAT., %; 75.0 *	WTR SAT., %; 51.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 508
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.1	RANGE: 13.0 TO 23.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: .70	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: .8	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 20500	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	159,200,000	BBL/AC-FT: 1552
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	50,360,612	
(DEC 31, 1977) GAS,MCF;	44,391,000	
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	22,129	
GAS,MCF;	10,000	
WATER,BBL;	542,000	
OIL REMAINING IN PLACE,STB:	108,800,000	BBL/AC-FT: 1061
(DEC 31,)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1971-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER, BBL;	176,051
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1973) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): SOUTHERN CAL GAS CO	

SOURCES: 5,12,14,37,38,58,113,129,132

STATE: CALIFORNIA
COUNTY: ORANGE
DISTRICT: LOS ANGELES REGION
FIELD NAME: RICHFIELD
NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: EAST AREA	
NO. OF ZONES: 3	DISCOVERY YEAR: 1919
AREA, ACRES: 1160	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 194
SHUT-IN WELLS: 75	INJECTION WELLS: 53

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCT/STRAT - SAND PINCHOUT ON ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 4.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MOD	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3859	
GROSS PAY, FT:	NET PAY, FT: 290
POROSITY, %: 31.0	RANGE: TO
PERMEABILITY, MD: 900	RANGE: TO
BHT, DEF F: 148 *	SAT. PRESSURE, PSI:
GAS CAP:	GAS CAP, ACRES:
GAS CAP/OIL ZONE RATIO:	WETTING PHASE:
INITIAL: OIL SAT., %; 75.0	CURRENT: OIL SAT., %; 54.0 *
WTR SAT., %; 25.0	WTR SAT., %; 46.0
GAS SAT., %;	GAS SAT., %;
FVF, BBL/STB; 1.050	FVF, BBL/STB; 1.000 *
WOR, BBL/BBL;	WOR, BBL/BBL;
GOR, SCF/BBL;	GOR, SCF/BBL; 278
BHP, PSI;	BHP, PSI;

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.5	RANGE: 15.0 TO 25.0
VISCOSITY @ BHT, CP: 38.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: .60	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: .8	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 5000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 577,900,000 BBL/AC-FT: 1718
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 138,000,000 *
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 1,175,228 *
 GAS,MCF; 79,000
 WATER,BBL; 7,850,000
 OIL REMAINING IN PLACE,STB: 439,900,000 BBL/AC-FT: 1308
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: 6.6 BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1962-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 88
 VOLUME INJECTED: (EQUIV)WATER, BBL;111,104,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): UNION OIL, TEXACO

T.1 CYCLIC STEAM (1964-1965)

AREA, ACRES: FLUID INJECTED: S
 NO. PROD WELLS: NO. INJ WELLS: 3
 VOLUME INJECTED: (EQUIV)WATER, BBL; 29,950
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

SOURCES: 5,12,14,37,38,58,113,129,132; 17,44,101

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: ORANGE
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: RICHFIELD
 NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: WEST AREA	
NO. OF ZONES: 3	DISCOVERY YEAR: 1920
AREA, ACRES: 350 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 54
SHUT-IN WELLS: 64	INJECTION WELLS: 18

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCT/STRAT - SAND PINCHOUT ON ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4335	NET PAY, FT: 224
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 1000	SAT. PRESSURE, PSI:
BHT, DEF F: 158 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 53.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 47.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 125
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.5	RANGE: 15.0 TO 26.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 230	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 1.86	ACID NUMBER:
CARBON RESIDUE, %: 5.5	
OIL TYPE:	
WATER SALINITY, PPM; 16000	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 126,000,000 BBL/AC-FT: 1607
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 32,000,000 *
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 613,290
 GAS,MCF; 28,000
 WATER,BBL; 7,920,000
 OIL REMAINING IN PLACE,STB: 94,000,000 BBL/AC-FT: 1199
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: 6.6

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 GAS SWEEP (1943-1946)

AREA, ACRES: FLUID INJECTED:
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF; 133,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: PILOT
 OPERATOR(S):

S.2 WATERFLOOD (1944-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 33
 VOLUME INJECTED: (EQUIV)WATER, BBL;133,081,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON;UNION

SOURCES: 5,12,14,37,38,58,113,129,132; 17,101

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: TORRANCE
 NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: DEL AMO	
NO. OF ZONES: 2	DISCOVERY YEAR: 1936
AREA, ACRES: 1480	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 90
SHUT-IN WELLS: 22	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; MOD	DIP, DEG.: 3.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4350	NET PAY, FT: 100
GROSS PAY, FT: 350	RANGE: TO
POROSITY, %: 27.5	RANGE: TO
PERMEABILITY, MD: 110	SAT. PRESSURE, PSI:
BHT, DEF F: 180	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 51.0 *
INITIAL: OIL SAT., %; 65.0	WTR SAT., %; 49.0
WTR SAT., %; 35.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.140
FVF, BBL/STB; 1.200 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1074
GOR, SCF/BBL;	BHP, PSI; 1675
BHP, PSI;	

RESERVES AND PRODUCTION DATA

PRIMARY PRODUCTION:
MECHANISM: WATER DRIVE
RECOVERY FACTOR, %: BBL/AC-FT:
ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1950-)

SOURCES: 5,12,14,37,38,58,113,129,132; 17,67,110

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: TORRANCE
NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: MAIN	
NO. OF ZONES:	DISCOVERY YEAR: 1922
AREA, ACRES: 3435	SPACING, ACRES: 17
TOTAL WELLS:	PRODUCING WELLS: 289
SHUT-IN WELLS: 91	INJECTION WELLS: 32

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3600	NET PAY, FT: 100
GROSS PAY, FT: 300	RANGE: TO
POROSITY, %: 34.0	RANGE: TO
PERMEABILITY, MD: 300	SAT. PRESSURE, PSI:
BHT, DEF F: 160	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 40.0 *
INITIAL: OIL SAT., %; 63.0	WTR SAT., %; 60.0
WTR SAT., %; 37.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.080	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1970
GOR, SCF/BBL;	BHP, PSI; 1500
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.5 RANGE: 18.0 TO 24.0
 VISCOSITY @ BHT, CP: 55.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %:
 CARBON RESIDUE, %:
 OIL TYPE:
 WATER SALINITY, PPM; 32000
 WATER HARDNESS: CA, PPM; MG, PPM;

CARBON/HYDROGEN RATIO:
ACID NUMBER:

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 528,500,000 BBL/AC-FT: 1539
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 161,766,582
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 2,026,049
 GAS, MCF; 1,066,000
 WATER, BBL; 14,919,000
 OIL REMAINING IN PLACE, STB: 366,800,000 BBL/AC-FT: 1068
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1950-1965)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATERFLOOD (1967-1969)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 4,709,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

S.3 WATERFLOOD (1970-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 75
VOLUME INJECTED: (EQUIV)WATER, BBL;138,877,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SOURCES: 5,12,14,37,38,58,113,129,132; 17,67,110

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WHITTIER
 NO. OF RESERVOIRS: 8

RESERVOIR INFORMATION

RESERVOIR: MAIN (UPPER ZONES)		
NO. OF ZONES:	3	DISCOVERY YEAR: 1896
AREA, ACRES:	500 *	SPACING, ACRES:
TOTAL WELLS:		PRODUCING WELLS: 143
SHUT-IN WELLS:	182	INJECTION WELLS: 14

GEOLOGICAL INFORMATION

FORMATION: REPETTO	
GEOLOGICAL AGE: PLIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED HOMO & ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 30.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT:	2706	NET PAY, FT:	375
GROSS PAY, FT:	750	RANGE:	TO
POROSITY, %:	28.0	RANGE:	TO
PERMEABILITY, MD:	116	SAT. PRESSURE, PSI:	
BHT, DEF F: 133 *		GAS CAP, ACRES:	
GAS CAP:		WETTING PHASE:	
GAS CAP/OIL ZONE RATIO:		CURRENT: OIL SAT., %;	63.0 *
INITIAL: OIL SAT., %;	75.0 *	WTR SAT., %;	37.0
WTR SAT., %;	25.0	GAS SAT., %;	
GAS SAT., %;		FVF, BBL/STB;	1.010 *
FVF, BBL/STB;	1.050 *	WOR, BBL/BBL;	
WOR, BBL/BBL;		GOR, SCF/BBL;	441
GOR, SCF/BBL;		BHP, PSI;	
BHP, PSI;			

FLUID CHARACTERISTICS

OIL GRAVITY, API: 19.1 RANGE: 14.0 TO 33.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM;
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 290,900,000 BBL/AC-FT: 1552
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 35,000,000 *
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 349,305
 GAS,MCF; 218,000
 WATER,BBL; 5,443,000
 OIL REMAINING IN PLACE,STB: 255,900,000 BBL/AC-FT: 1365
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1961-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 25
 VOLUME INJECTED: (EQUIV)WATER, BBL; 77,004,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

SOURCES: 5,12,14,37,38,58,113,129,132; 79

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK 90-N RANGER
 NO. OF ZONES: 10 DISCOVERY YEAR: 1967
 AREA, ACRES: 1115 SPACING, ACRES: 15
 TOTAL WELLS: PRODUCING WELLS: 73
 SHUT-IN WELLS: 1 INJECTION WELLS: 23

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: ANTICLINE - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 7.5
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2740	NET PAY, FT: 500
GROSS PAY, FT: 975	RANGE: TO
POROSITY, %: 34.0	RANGE: 10 TO 6000
PERMEABILITY, MD: 1280	SAT. PRESSURE, PSI: 1250
BHT, DEF F: 122	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 69.0 *
INITIAL: OIL SAT., %; 73.0	WTR SAT., %; 31.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %; 4.0	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.060	WOR, BBL/BBL; 3
WOR, BBL/BBL;	GOR, SCF/BBL; 141
GOR, SCF/BBL; 420	BHP, PSI; 1000
BHP, PSI; 940	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.7	RANGE: 15.0 TO 21.0
VISCOSITY @ BHT, CP: 70.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.60	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.0	ACID NUMBER: 1.0
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 18500	
WATER HARDNESS: CA, PPM; 500	MG, PPM; 450

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	515,057,000	BBL/AC-FT: 1833
ORIGINAL GAS IN PLACE, MCF:	51,807,000	
CUM PROD : OIL, BBL;	29,398,930	
(DEC 31, 1977) GAS, MCF;	11,201,254	
WATER, BBL;	31,965,641	
1977 ANNUAL PROD: OIL, BBL;	4,785,041	
GAS, MCF;	604,722	
WATER, BBL;	8,097,011	
OIL REMAINING IN PLACE, STB:	485,658,000	BBL/AC-FT: 1729
(DEC 31,)		
RESERVES (DEC 31,)	105,935,000	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1967-)

AREA, ACRES: 1115	FLUID INJECTED: W
NO. PROD WELLS: 73	NO. INJ WELLS: 23
VOLUME INJECTED: (EQUIV) WATER, BBL;	244,456,010
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	35,449,066
(THRU 1979) GAS, MCF;	12,222,362
WATER, BBL;	46,833,658
RECOVERY FACTOR, %: 6.9	BBL/AC-FT: 126
DEGREE OF SUCCESS: GOOD	
OPERATOR(S): THUMS LONG BEACH CO	

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,129,132; 72,124,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK 90-N TERMINAL	
NO. OF ZONES: 9	DISCOVERY YEAR: 1969
AREA, ACRES: 125	SPACING, ACRES: 42
TOTAL WELLS:	PRODUCING WELLS: 3
SHUT-IN WELLS:	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: ANTICLINE	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 7.5
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3280	NET PAY, FT: 525
GROSS PAY, FT: 1050	RANGE: TO
POROSITY, %: 31.0	RANGE: 90 TO 3000
PERMEABILITY, MD: 1100	SAT. PRESSURE, PSI: 1590
BHT, DEF F: 151	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 75.0 *
INITIAL: OIL SAT., %; 80.0	WTR SAT., %; 25.0
WTR SAT., %; 20.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.090
FVF, BBL/STB; 1.090	WOR, BBL/BBL; 7
WOR, BBL/BBL;	GOR, SCF/BBL; 110
GOR, SCF/BBL; 2000	BHP, PSI; 1450
BHP, PSI; 1450	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.4 RANGE: 15.0 TO 22.0
 VISCOSITY @ BHT, CP: 15.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 1800
 WATER HARDNESS: CA,PPM; 500 MG,PPM; 500

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	40,665,000	BBL/AC-FT: 1747
ORIGINAL GAS IN PLACE,MCF:	9,384,000	
CUM PROD : OIL,BBL;	2,564,673	
(DEC 31, 1977) GAS,MCF;	886,414	
WATER,BBL;	1,991,959	
1977 ANNUAL PROD: OIL,BBL;	166,414	
GAS,MCF;	30,417	
WATER,BBL;	469,730	
OIL REMAINING IN PLACE,STB:	38,100,327	BBL/AC-FT: 1637
(DEC 31,)		
RESERVES(DEC 31,)	8,378,000	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1967-)

AREA, ACRES: 125	FLUID INJECTED: W
NO. PROD WELLS: 3	NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER, BBL; 24,092,357	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	2,811,321
(THRU 1979) GAS, MCF;	915,166
WATER, BBL;	2,819,814
RECOVERY FACTOR, %: 6.9	BBL/AC-FT: 121
DEGREE OF SUCCESS: ME	
OPERATOR(S): THUMS LONG BEACH CO	

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK 90-S RANGER
 NO. OF ZONES: 10 DISCOVERY YEAR: 1967
 AREA, ACRES: 520 SPACING, ACRES: 11
 TOTAL WELLS: PRODUCING WELLS: 47
 SHUT-IN WELLS: 1 INJECTION WELLS: 10

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: ANTICLINE - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 12.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2660	NET PAY, FT: 475
GROSS PAY, FT: 925	RANGE: TO
POROSITY, %: 34.0	RANGE: 30 TO 4000
PERMEABILITY, MD: 1100	SAT. PRESSURE, PSI: 1220
BHT, DEF F: 120	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 73.0	WTR SAT., %; 37.0
WTR SAT., %; 24.0	GAS SAT., %;
GAS SAT., %; 3.0	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.060	WOR, BBL/BBL; 4
WOR, BBL/BBL; 6	GOR, SCF/BBL; 239
GOR, SCF/BBL; 3000	BHP, PSI; 980
BHP, PSI; 1150	

FLUID CHARACTERISTICS

CASE 089

OIL GRAVITY, API: 17.0 RANGE: 13.0 TO 20.0
 VISCOSITY @ BHT, CP: 35.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 10.0 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 15000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 263,212,000 BBL/AC-FT: 1867
 ORIGINAL GAS IN PLACE,MCF: 24,681,000
 CUM PROD : OIL,BBL; 36,463,958
 (DEC 31, 1977) GAS,MCF; 10,221,160
 WATER,BBL; 43,152,213
 1977 ANNUAL PROD: OIL,BBL; 2,991,557
 GAS,MCF; 510,055
 WATER,BBL; 9,338,708
 OIL REMAINING IN PLACE,STB: 226,748,000 BBL/AC-FT: 1608
 (DEC 31,)
 RESERVES(DEC 31,) 30,177,000

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 LINE DRIVE (1967-)

AREA, ACRES: 520 FLUID INJECTED: W
 NO. PROD WELLS: 47 NO. INJ WELLS: 10
 VOLUME INJECTED: (EQUIV)WATER, BBL;115,345,615
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 40,033,779
 (THRU 1979) GAS, MCF; 11,061,886
 WATER, BBL; 56,972,367
 RECOVERY FACTOR, %: 15.2 BBL/AC-FT: 284
 DEGREE OF SUCCESS: ME
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK 90-S TERMINAL	
NO. OF ZONES: 9	DISCOVERY YEAR: 1967
AREA, ACRES: 270	SPACING, ACRES: 21
TOTAL WELLS:	PRODUCING WELLS: 13
SHUT-IN WELLS:	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: ANTICLINE	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 15.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3170	NET PAY, FT: 630
GROSS PAY, FT: 1050	RANGE: TO
POROSITY, %: 31.0	RANGE: 25 TO 3000
PERMEABILITY, MD: 850	SAT. PRESSURE, PSI: 1590
BHT, DEF F: 149	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 75.0 *
INITIAL: OIL SAT., %; 80.0	WTR SAT., %; 25.0
WTR SAT., %; 20.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.085
FVF, BBL/STB; 1.090	WOR, BBL/BBL; 2
WOR, BBL/BBL;	GOR, SCF/BBL; 150
GOR, SCF/BBL; 500	BHP, PSI; 1300
BHP, PSI; 1520	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.9 RANGE: 17.0 TO 21.0
 VISCOSITY @ BHT, CP: 15.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 18000
 WATER HARDNESS: CA,PPM; 500 MG,PPM; 500

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 153,013,000 BBL/AC-FT: 1747
 ORIGINAL GAS IN PLACE,MCF: 15,827,000
 CUM PROD : OIL,BBL; 9,744,125
 (DEC 31, 1977) GAS,MCF; 4,478,256
 WATER,BBL; 3,037,368
 1977 ANNUAL PROD: OIL,BBL; 818,010
 GAS,MCF; 145,368
 WATER,BBL; 989,131
 OIL REMAINING IN PLACE,STB: 143,269,000 BBL/AC-FT:
 (DEC 31,)
 RESERVES(DEC 31,) 25,497,000

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1967-)

AREA, ACRES: 270 FLUID INJECTED: W
 NO. PROD WELLS: 13 NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV)WATER, BBL; 8,374,891
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 10,857,246
 (THRU 1979) GAS, MCF; 4,651,284
 WATER, BBL; 4,815,001
 RECOVERY FACTOR, %: 7.1 BBL/AC-FT: 124
 DEGREE OF SUCCESS: FAIR
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK VI RANGER
 NO. OF ZONES: 8 DISCOVERY YEAR: 1965
 AREA, ACRES: 2376 SPACING, ACRES: 101
 TOTAL WELLS: PRODUCING WELLS: 190
 SHUT-IN WELLS: 18 INJECTION WELLS: 75

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: ANTICLINE - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 12.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2800	NET PAY, FT: 300
GROSS PAY, FT: 630	RANGE: TO
POROSITY, %: 33.0	RANGE: 10 TO 9000
PERMEABILITY, MD: 1200	SAT. PRESSURE, PSI: 1300
BHT, DEF F: 125	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 74.0	WTR SAT., %; 37.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %; 3.0	FVF, BBL/STB; 1.050
FVF, BBL/STB; 1.060	WOR, BBL/BBL; 9
WOR, BBL/BBL; 2	GOR, SCF/BBL; 166
GOR, SCF/BBL; 167	BHP, PSI; 1050
BHP, PSI; 1070	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 16.1 RANGE: 14.0 TO 20.0
 VISCOSITY @ BHT, CP: 55.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.50 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 9.8 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 16500
 WATER HARDNESS: CA,PPM; 350 MG,PPM; 350

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 1,254,108,000 BBL/AC-FT: 1795
 ORIGINAL GAS IN PLACE,MCF: 119,880,000
 CUM PROD : OIL,BBL; 171,324,256
 (DEC 31, 1977) GAS,MCF; 32,594,544
 WATER,BBL; 441,913,532
 1977 ANNUAL PROD: OIL,BBL; 9,339,920
 GAS,MCF; 1,592,123
 WATER,BBL; 71,435,414
 OIL REMAINING IN PLACE,STB: 1,082,784,000 BBL/AC-FT: 1550
 (DEC 31,)
 RESERVES(DEC 31,) 55,340,000

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1965-)

AREA, ACRES: 2376 FLUID INJECTED: W
 NO. PROD WELLS: 208 NO. INJ WELLS: 75
 VOLUME INJECTED: (EQUIV)WATER, BBL;831,270,320
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 183,636,240
 (THRU 1979) GAS, MCF; 34,711,584
 WATER, BBL; 548,944,760
 RECOVERY FACTOR, %: 14.6 BBL/AC-FT: 263
 DEGREE OF SUCCESS: VE
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: THIS POOL RENAMED IN 1971 DUE TO RECLASSIFICATION
 SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79.

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK VI UPPER TERM	
NO. OF ZONES: 8	DISCOVERY YEAR: 1965
AREA, ACRES: 1040	SPACING, ACRES: 40
TOTAL WELLS:	PRODUCING WELLS: 26
SHUT-IN WELLS: 2	INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 10.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2875	NET PAY, FT: 350
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 37.0	RANGE: TO
PERMEABILITY, MD: 1400	SAT. PRESSURE, PSI:
BHT, DEF F: 135	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 67.0 *
INITIAL: OIL SAT., %; 76.0	WTR SAT., %; 33.0
WTR SAT., %; 24.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050
FVF, BBL/STB; 1.060	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 93
GOR, SCF/BBL;	BHP, PSI; 1000
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.6 RANGE: 17.0 TO 18.0
 VISCOSITY @ BHT, CP: 25.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.30 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM;
 WATER HARDNESS: CA, PPM; MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 270,716,000 BBL/AC-FT: 2172
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 31,296,448
 (DEC 31, 1977) GAS, MCF; 3,880,187
 WATER, BBL; 61,190,000
 1977 ANNUAL PROD: OIL, BBL; 1,637,143
 GAS, MCF; 218,000
 WATER, BBL; 8,393,747
 OIL REMAINING IN PLACE, STB: 239,421,000 BBL/AC-FT: 1922
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1965-)

AREA, ACRES: FLUID INJECTED: W/G
 NO. PROD WELLS: 26 NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: 12.5 BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: HIGHLY DIRECTIONAL WELLS

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR:	EAST AREA FAULT BLOCK VII RANGER	
NO. OF ZONES:	8	DISCOVERY YEAR: 1967
AREA, ACRES:	1020	SPACING, ACRES: 10
TOTAL WELLS:		PRODUCING WELLS: 98
SHUT-IN WELLS:	6	INJECTION WELLS: 36

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
GEOLOGICAL AGE: PLIOCENE-MIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 15.0
HETEROGENEITY; MOD CLAY CONTENT, %:
FAULTING; MOD INTERBEDDED STREAKS: YES
FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT:	2900	NET PAY, FT:	300
GROSS PAY, FT:	700	RANGE:	TO
POROSITY, %:	33.0	RANGE:	50 TO 3000
PERMEABILITY, MD:	900	SAT. PRESSURE, PSI:	1300
BHT, DEF F:	133	GAS CAP, ACRES:	
GAS CAP:	NO	WETTING PHASE:	
GAS CAP/OIL ZONE RATIO:		CURRENT: OIL SAT., %:	68.0 *
INITIAL: OIL SAT., %:	73.0	WTR SAT., %:	32.0
WTR SAT., %:	24.0	GAS SAT., %:	
GAS SAT., %:	3.0	FVF, BBL/STB:	1.055
FVF, BBL/STB:	1.065	WOR, BBL/BBL:	7
WOR, BBL/BBL:		GOR, SCF/BBL:	232
GOR, SCF/BBL:	2000	BHP, PSI:	1065
BHP, PSI:	1050		

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.2 RANGE: 14.0 TO 26.0
 VISCOSITY @ BHT, CP: 40.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 10.0 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 12000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 505,019,000 BBL/AC-FT: 1773
 ORIGINAL GAS IN PLACE,MCF: 42,128,000
 CUM PROD : OIL,BBL; 78,880,498
 (DEC 31, 1977) GAS,MCF; 22,209,673
 WATER,BBL; 162,842,140
 1977 ANNUAL PROD: OIL,BBL; 5,649,069
 GAS,MCF; 1,085,619
 WATER,BBL; 31,002,237
 OIL REMAINING IN PLACE,STB: 474,017,000 BBL/AC-FT: 1664
 (DEC 31,)
 RESERVES(DEC 31,) 44,569,000

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WF & PM

(1967-)

AREA, ACRES: 1020 FLUID INJECTED: W
 NO. PROD WELLS: 98 NO. INJ WELLS: 36
 VOLUME INJECTED: (EQUIV)WATER, BBL;407,356,716
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 85,865,635
 (THRU 1979) GAS, MCF; 23,747,557
 WATER, BBL; 209,384,164
 RECOVERY FACTOR, %: 17.0 BBL/AC-FT: 301
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,129,132; 52,72,124,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK VIII-A RANGER
NO. OF ZONES: 10 DISCOVERY YEAR: 1967
AREA, ACRES: 449 SPACING, ACRES: 14
TOTAL WELLS: PRODUCING WELLS: 31
SHUT-IN WELLS: INJECTION WELLS: 8

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
GEOLOGICAL AGE: PLIOCENE-MIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
HETEROGENEITY; MOD CLAY CONTENT, %:
FAULTING; MOD INTERBEDDED STREAKS: YES
FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2520	NET PAY, FT: 525
GROSS PAY, FT: 980	RANGE: TO
POROSITY, %: 33.0	RANGE: 100 TO 2000
PERMEABILITY, MD: 700	SAT. PRESSURE, PSI: 1200
BHT, DEF F: 120	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 71.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 29.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %; 2.0	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.060	WOR, BBL/BBL; 3
WOR, BBL/BBL;	GOR, SCF/BBL; 200
GOR, SCF/BBL; 5700	BHP, PSI; 960
BHP, PSI; 1070	

FLUID CHARACTERISTICS

CASE 095

OIL GRAVITY, API: 16.3 RANGE: 13.0 TO 19.0
 VISCOSITY @ BHT, CP: 40.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 10.0 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 15000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 237,626,000 BBL/AC-FT: 1832
 ORIGINAL GAS IN PLACE, MCF: 23,241,000
 CUM PROD : OIL, BBL; 12,068,409
 (DEC 31, 1977) GAS, MCF; 5,695,347
 WATER, BBL; 18,196,343
 1977 ANNUAL PROD: OIL, BBL; 1,511,328
 GAS, MCF; 313,793
 WATER, BBL; 3,121,138
 OIL REMAINING IN PLACE, STB: 225,558,000 BBL/AC-FT: 1739
 (DEC 31,)
 RESERVES (DEC 31,) 43,493,000

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WF & PM

(1967-)

AREA, ACRES: 449 FLUID INJECTED: W
 NO. PROD WELLS: 31 NO. INJ WELLS: 8
 VOLUME INJECTED: (EQUIV) WATER, BBL; 93,494,324
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 14,547,608
 (THRU 1979) GAS, MCF; 6,197,602
 WATER, BBL; 24,985,736
 RECOVERY FACTOR, %: 6.1 BBL/AC-FT: 112
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): THUMS LONG BEACH CO

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK VIII-A TERM	
NO. OF ZONES: 9	DISCOVERY YEAR: 1967
AREA, ACRES: 159	SPACING, ACRES: 20
TOTAL WELLS:	PRODUCING WELLS: 8
SHUT-IN WELLS:	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3240	NET PAY, FT: 500
GROSS PAY, FT: 1060	RANGE: TO
POROSITY, %: 29.0	RANGE: 150 TO 1700
PERMEABILITY, MD: 700	SAT. PRESSURE, PSI: 1590
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 76.0 *
INITIAL: OIL SAT., %; 78.0	WTR SAT., %; 24.0
WTR SAT., %; 22.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.090
FVF, BBL/STB; 1.090	WOR, BBL/BBL; 1
WOR, BBL/BBL;	GOR, SCF/BBL; 307
GOR, SCF/BBL; 300	BHP, PSI; 1420
BHP, PSI; 1450	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.0 RANGE: 15.0 TO 21.0
 VISCOSITY @ BHT, CP: 13.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %:
 CARBON RESIDUE, %:
 OIL TYPE: ASPHALTIC CARBON/HYDROGEN RATIO:
 WATER SALINITY, PPM; 18000 ACID NUMBER:
 WATER HARDNESS: CA,PPM; 500 MG,PPM; 500

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	67,724,000	BBL/AC-FT: 1629
ORIGINAL GAS IN PLACE,MCF:	9,860,000	
CUM PROD : OIL,BBL;	2,167,826	
(DEC 31, 1977) GAS,MCF;	1,115,153	
WATER,BBL;	358,577	
1977 ANNUAL PROD: OIL,BBL;	185,021	
GAS,MCF;	24,862	
WATER,BBL;	68,783	
OIL REMAINING IN PLACE,STB:	65,556,000	BBL/AC-FT: 1577
(DEC 31,)		
RESERVES(DEC 31,)	15,484,000	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PWF & PM

(1967-)

AREA, ACRES: 159	FLUID INJECTED: W
NO. PROD WELLS: 8	NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER, BBL; 16,824,234	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	2,629,078
(THRU 1979) GAS, MCF;	1,188,835
WATER, BBL;	567,089
RECOVERY FACTOR, %: 3.9	BBL/AC-FT: 63
DEGREE OF SUCCESS: FAIR	
OPERATOR(S): THUMS LONG BEACH CO	

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/78

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: EAST AREA FAULT BLOCK VIII-B RANGER		
NO. OF ZONES:	8	DISCOVERY YEAR: 1967
AREA, ACRES:	128	SPACING, ACRES: 43
TOTAL WELLS:		PRODUCING WELLS: 3
SHUT-IN WELLS:		INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2630	NET PAY, FT: 320
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 33.0	RANGE: 100 TO 2000
PERMEABILITY, MD: 1000	SAT. PRESSURE, PSI: 1200
BHT, DEF F: 120	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 71.0 *
INITIAL: OIL SAT., %; 72.0	WTR SAT., %; 29.0
WTR SAT., %; 24.0	GAS SAT., %;
GAS SAT., %; 4.0	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.070	WOR, BBL/BBL; 1
WOR, BBL/BBL;	GOR, SCF/BBL; 263
GOR, SCF/BBL; 3000	BHP, PSI; 920
BHP, PSI; 1000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.1	RANGE: 17.0 TO 18.0
VISCOSITY @ BHT, CP: 30.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.60	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.0	ACID NUMBER: 1.0
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 15000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	62,738,000	BBL/AC-FT: 1749
ORIGINAL GAS IN PLACE, MCF:	7,236,000	
CUM PROD : OIL, BBL;	300,525	
(DEC 31, 1977) GAS, MCF;	473,149	
WATER, BBL;	316,987	
1977 ANNUAL PROD: OIL, BBL;	57,575	
GAS, MCF;	44,899	
WATER, BBL;	25,271	
OIL REMAINING IN PLACE, STB:	62,437,000	BBL/AC-FT: 1740
(DEC 31,)		
RESERVES (DEC 31,)	15,935,000	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PWF & PM (1967-)

AREA, ACRES: 128	FLUID INJECTED: W
NO. PROD WELLS: 3	NO. INJ WELLS: 2
VOLUME INJECTED: (EQUIV) WATER, BBL; 22,666,109	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL; 363,848	
(THRU 1979) GAS, MCF; 503,405	
WATER, BBL; 358,579	
RECOVERY FACTOR, %: .5	BBL/AC-FT: 10
DEGREE OF SUCCESS: FAIR	
OPERATOR(S): THUMS LONG BEACH CO	

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 6/79

SOURCES: 5,12,14,37,38,58,113,124,129,132,145,300

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK IV RANGER
 NO. OF ZONES: 5 DISCOVERY YEAR: 1937
 AREA, ACRES: 856 * SPACING, ACRES: 8
 TOTAL WELLS: PRODUCING WELLS: 107
 SHUT-IN WELLS: 43 INJECTION WELLS: 34

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 15.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2650	NET PAY, FT: 177
GROSS PAY, FT: 600	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1210
BHT, DEF F: 142	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 47.0 *
INITIAL: OIL SAT., %; 70.9	WTR SAT., %; 53.0
WTR SAT., %; 29.1	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.020 *
FVF, BBL/STB; 1.094	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 80
GOR, SCF/BBL; 152	BHP, PSI;
BHP, PSI; 1210	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.5 RANGE: 13.0 TO 25.0
 VISCOSITY @ BHT, CP: 31.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 12.0 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 236,100,000 BBL/AC-FT: 1559
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 68,490,814
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 1,047,714
 GAS,MCF; 178,000
 WATER,BBL; 15,121,000
 OIL REMAINING IN PLACE,STB: 167,700,000 BBL/AC-FT: 1107
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 14.0 BBL/AC-FT: 212
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1961-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 107 NO. INJ WELLS: 35
 VOLUME INJECTED: (EQUIV)WATER, BBL;277,329,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBOD CO, SUN OIL, MOBIL

SOURCES: 5,12,14,37,38,58,113,129,132; 72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK IV UPPER TE	
NO. OF ZONES:	DISCOVERY YEAR: 1939
AREA, ACRES: 708 *	SPACING, ACRES: 12
TOTAL WELLS:	PRODUCING WELLS: 59
SHUT-IN WELLS: 51	INJECTION WELLS: 6

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3528	NET PAY, FT: 356
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 28.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 500	SAT. PRESSURE, PSI: 1452
BHT, DEF F: 159	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 40.0 *
INITIAL: OIL SAT., %; 67.0	WTR SAT., %; 60.0
WTR SAT., %; 33.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.096	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 31
GOR, SCF/BBL; 300	BHP, PSI; 1100
BHP, PSI; 1452	

FLUID CHARACTERISTICS

CASE 100

OIL GRAVITY, API: 19.3 RANGE: 13.0 TO 25.0
 VISCOSITY @ BHT, CP: 20.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.30 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 10.0 ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 28000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 334,700,000 BBL/AC-FT: 1328
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 130,000,000 *
 (DEC 31, 1977) GAS, MCF; 85,000,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 1,383,729
 GAS, MCF; 106,000
 WATER, BBL; 19,347,000
 OIL REMAINING IN PLACE, STB: 204,700,000 BBL/AC-FT: 812
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1958-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 59 NO. INJ WELLS: 6
 VOLUME INJECTED: (EQUIV) WATER, BBL; 417,371,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBOD CO, MOBIL OIL

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK V RANGER
 NO. OF ZONES: 7 DISCOVERY YEAR: 1939
 AREA, ACRES: 2000 SPACING, ACRES: 8
 TOTAL WELLS: PRODUCING WELLS: 251
 SHUT-IN WELLS: 106 INJECTION WELLS: 61

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 15.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2750	NET PAY, FT: 177
GROSS PAY, FT: 600	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1210
BHT, DEF F: 143	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 49.0 *
INITIAL: OIL SAT., %; 70.9	WTR SAT., %; 51.0
WTR SAT., %; 29.1	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.040
FVF, BBL/STB; 1.094	WOR, BBL/BBL; 15
WOR, BBL/BBL;	GOR, SCF/BBL; 123
GOR, SCF/BBL; 152	BHP, PSI; 1100
BHP, PSI; 1210	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.0	RANGE: 12.0 TO 23.0
VISCOSITY @ BHT, CP: 31.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 1.60	ACID NUMBER: 1.0
CARBON RESIDUE, %: 12.0	
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 33000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 551,800,000 BBL/AC-FT: 1559
 ORIGINAL GAS IN PLACE, MCF: 84,070,000
 CUM PROD : OIL, BBL; 151,227,532 *
 (DEC 31, 1977) GAS, MCF; 62,000,000
 WATER, BBL; 439,000,000
 1977 ANNUAL PROD: OIL, BBL; 3,728,120
 GAS, MCF; 331,000
 WATER, BBL; 31,709,000
 OIL REMAINING IN PLACE, STB: 400,500,000 BBL/AC-FT: 1131
 (DEC 31,)
 RESERVES (DEC 31,) 34,007,000

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 13.6 BBL/AC-FT: 212
 ANNUAL DECLINE RATE, %: 4.0

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1961-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 104 NO. INJ WELLS: 27
 VOLUME INJECTED: (EQUIV) WATER, BBL; 509,674,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 46,410,000
 (THRU 1979) GAS, MCF; 18,564,000
 WATER, BBL; 154,545,000
 RECOVERY FACTOR, %: 14.8 BBL/AC-FT: 231
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBOD CO, POWERINE OIL

T.1 POLYMER FLOOD (1969-1971)

AREA, ACRES: 102 FLUID INJECTED: P/W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: POOR
 OPERATOR(S): LBOD CO, POWERINE OIL

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 3/79

SOURCES: 5,12,14,37,38,58,113,129,132; 66,72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK V-A UPPER T	
NO. OF ZONES: 3	DISCOVERY YEAR: 1938
AREA, ACRES: 72 *	SPACING, ACRES: 12
TOTAL WELLS:	PRODUCING WELLS: 1
SHUT-IN WELLS: 5	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PUENTE
GEOLOGICAL AGE: MIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
HETEROGENEITY; MOD CLAY CONTENT, %:
FAULTING; MOD INTERBEDDED STREAKS: YES
FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3738	NET PAY, FT: 356
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 28.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 500	SAT. PRESSURE, PSI: 1452
BHT, DEF F: 159	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 67.0	WTR SAT., %; 52.0
WTR SAT., %; 33.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.115	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 1970
GOR, SCF/BBL; 300	BHP, PSI; 1100
BHP, PSI; 1452	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 19.8	RANGE: 17.0 TO 24.0
VISCOSITY @ BHT, CP: 20.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.30	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.0	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 28000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	33,500,000	BBL/AC-FT: 1305
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	8,000,000 *	
(DEC 31, 1977) GAS, MCF;	6,000,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	31,207	
GAS, MCF;	4,000	
WATER, BBL;	413,000	
OIL REMAINING IN PLACE, STB:	25,500,000	BBL/AC-FT: 993
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1964-1965)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	3,971,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): LBOD CO	

SOURCES: 5,12,14,37,38,58,72,113,124,129,132,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK V-B UPPER T	
NO. OF ZONES: 7	DISCOVERY YEAR: 1944
AREA, ACRES: 366	SPACING, ACRES: 26
TOTAL WELLS:	PRODUCING WELLS: 30
SHUT-IN WELLS: 93	INJECTION WELLS: 15

GEOLOGICAL INFORMATION

FORMATION: PUENTE
 GEOLOGICAL AGE: MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3300	NET PAY, FT: 356
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 28.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 500	SAT. PRESSURE, PSI: 1452
BHT, DEF F: 159	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 33.0 *
INITIAL: OIL SAT., %; 67.4	WTR SAT., %; 67.0
WTR SAT., %; 32.6	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.115	WOR, BBL/BBL; 25
WOR, BBL/BBL;	GOR, SCF/BBL; 174
GOR, SCF/BBL; 300	BHP, PSI; 1150
BHP, PSI; 1452	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.5	RANGE: 15.0 TO 25.0
VISCOSITY @ BHT, CP: 20.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 1.30	ACID NUMBER:
CARBON RESIDUE, %: 10.0	
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 28000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 134,696,000 BBL/AC-FT: 1313
 ORIGINAL GAS IN PLACE, MCF: 40,409,000
 CUM PROD : OIL, BBL; 65,085,538
 (DEC 31, 1977) GAS, MCF; 34,296,851
 WATER, BBL; 218,834,174
 1977 ANNUAL PROD: OIL, BBL; 711,122
 GAS, MCF; 111,114
 WATER, BBL; 13,002,507
 OIL REMAINING IN PLACE, STB: 69,610,000 BBL/AC-FT: 679
 (DEC 31,)
 RESERVES (DEC 31,) 763,000

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 26.7 BBL/AC-FT: 350
 ANNUAL DECLINE RATE, %: 13.0

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1953-)

AREA, ACRES: 366 FLUID INJECTED: W
 NO. PROD WELLS: 30 NO. INJ WELLS: 15
 VOLUME INJECTED: (EQUIV) WATER, BBL; 422,443,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 29,720,000
 (THRU 1979) GAS, MCF; 15,573,000
 WATER, BBL; 106,101,000
 RECOVERY FACTOR, %: 22.1 BBL/AC-FT: 290
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBOD CO, POWERINE OIL

T.1 POLYMER FLOOD (-)

AREA, ACRES: FLUID INJECTED: P/W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: PILOT
 OPERATOR(S): LBOD CO, POWERINE OIL

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 3/79

SOURCES: 5,12,14,37,38,58,113,129,132; 44,72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK VI LOWER TE	
NO. OF ZONES: 4	DISCOVERY YEAR: 1948
AREA, ACRES: 241	SPACING, ACRES: 30
TOTAL WELLS:	PRODUCING WELLS: 8
SHUT-IN WELLS: 11	INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3800	NET PAY, FT: 164
GROSS PAY, FT: 600	RANGE: TO
POROSITY, %: 27.0	RANGE: 100 TO 350
PERMEABILITY, MD: 150	SAT. PRESSURE, PSI: 1672
BHT, DEF F: 174	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 33.0 *
INITIAL: OIL SAT., %; 56.1	WTR SAT., %; 67.0
WTR SAT., %; 43.9	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.077
FVF, BBL/STB; 1.111	WOR, BBL/BBL; 6
WOR, BBL/BBL;	GOR, SCF/BBL; 110
GOR, SCF/BBL; 200	BHP, PSI; 1450
BHP, PSI; 1672	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.5 RANGE: 17.0 TO 25.0
 VISCOSITY @ BHT, CP: 20.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 30000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	41,745,000	BBL/AC-FT: 1058
ORIGINAL GAS IN PLACE, MCF:	8,349,000	
CUM PROD : OIL, BBL;	16,055,368	
(DEC 31, 1977) GAS, MCF;	7,907,681	
WATER, BBL;	29,923,948	
1977 ANNUAL PROD: OIL, BBL;	167,512	
GAS, MCF;	18,447	
WATER, BBL;	1,118,909	
OIL REMAINING IN PLACE, STB:	25,690,000	BBL/AC-FT: 650
(DEC 31,)		
RESERVES (DEC 31,)	437,000	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 30.1 BBL/AC-FT: 318
 ANNUAL DECLINE RATE, %: 10.0

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1958-)

AREA, ACRES: 241	FLUID INJECTED: W
NO. PROD WELLS: 8	NO. INJ WELLS: 2
VOLUME INJECTED: (EQUIV) WATER, BBL; 104,555,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL; 3,628,000	
(THRU 1979) GAS, MCF; 1,778,000	
WATER, BBL; 6,966,000	
RECOVERY FACTOR, %: 8.7	BBL/AC-FT: 92
DEGREE OF SUCCESS: FAIR	
OPERATOR(S): LBOD CO, POWERINE OIL	

REMARKS: PRIMARY PRODUCTION DATA AS OF 3/79.
 SECONDARY PRODUCTION/INJECTION DATA AS OF 3/79.

SOURCES: 5,12,14,37,38,58,113,129,132; 72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK VI RANGER	
NO. OF ZONES: 7	DISCOVERY YEAR: 1947
AREA, ACRES: 740 *	SPACING, ACRES: 14
TOTAL WELLS:	PRODUCING WELLS: 53
SHUT-IN WELLS: 52	INJECTION WELLS: 17

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 15.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2750	NET PAY, FT: 115
GROSS PAY, FT: 600	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1210
BHT, DEF F: 143	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 71.7	WTR SAT., %; 52.0
WTR SAT., %; 28.3	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.044
FVF, BBL/STB; 1.080	WOR, BBL/BBL; 17
WOR, BBL/BBL;	GOR, SCF/BBL; 91
GOR, SCF/BBL; 200	BHP, PSI; 1200
BHP, PSI; 1210	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 16.5 RANGE: 14.0 TO 20.0
 VISCOSITY @ BHT, CP: 31.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.63 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 10.0 ACID NUMBER: 1.0
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 135,900,000 BBL/AC-FT: 1597
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 40,958,870
 (DEC 31, 1977) GAS, MCF; 26,116,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 574,577
 GAS, MCF; 47,000
 WATER, BBL; 6,527,000
 OIL REMAINING IN PLACE, STB: 94,900,000 BBL/AC-FT: 1115
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 13.7 BBL/AC-FT: 219
 ANNUAL DECLINE RATE, %: 4.0

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1956-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 53 NO. INJ WELLS: 17
 VOLUME INJECTED: (EQUIV) WATER, BBL; 177,337,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: 16.8 BBL/AC-FT: 269
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBOD CO, POWERINE OIL

SOURCES: 5,12,14,37,38,58,113,129,132; 72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: HARBOR AREA FAULT BLOCK VI UPPER TE	
NO. OF ZONES: 7	DISCOVERY YEAR: 1948
AREA, ACRES: 199	SPACING, ACRES: 12
TOTAL WELLS:	PRODUCING WELLS: 35
SHUT-IN WELLS: 17	INJECTION WELLS: 7

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3300	NET PAY, FT: 312
GROSS PAY, FT: 650	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 500	SAT. PRESSURE, PSI: 1452
BHT, DEF F: 159	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 26.0 *
INITIAL: OIL SAT., %; 62.1	WTR SAT., %; 74.0
WTR SAT., %; 37.9	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.058
FVF, BBL/STB; 1.096	WOR, BBL/BBL; 9
WOR, BBL/BBL;	GOR, SCF/BBL; 142
GOR, SCF/BBL; 270	BHP, PSI; 1300
BHP, PSI; 1452	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 19.5	RANGE: 17.0 TO 20.0
VISCOSITY @ BHT, CP: 20.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.30	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.0	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 33000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	83,505,000	BBL/AC-FT: 1363
ORIGINAL GAS IN PLACE, MCF:	22,546,000	
CUM PROD : OIL, BBL;	47,820,219	
(DEC 31, 1977) GAS, MCF;	20,878,138	
WATER, BBL;	94,595,493	
1977 ANNUAL PROD: OIL, BBL;	1,200,714	
GAS, MCF;	141,136	
WATER, BBL;	9,153,699	
OIL REMAINING IN PLACE, STB:	35,680,000	BBL/AC-FT: 575
(DEC 31,)		
RESERVES (DEC 31,)	5,081,000	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS	
RECOVERY FACTOR, %: 32.7	BBL/AC-FT: 446
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1959-)

AREA, ACRES: 199	FLUID INJECTED: W
NO. PROD WELLS: 40	NO. INJ WELLS: 7
VOLUME INJECTED: (EQUIV) WATER, BBL;	103,708,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	21,524,000
(THRU 1979) GAS, MCF;	9,255,000
WATER, BBL;	46,276,000
RECOVERY FACTOR, %: 25.8	BBL/AC-FT: 351
DEGREE OF SUCCESS: GOOD	
OPERATOR(S): LBOD CO	

REMARKS: SECONDARY PRODUCTION/INJECTION DATA AS OF 3/79

SOURCES: 5,12,14,37,38,58,113,129,132; 72,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA F.B.I	TAR-RANGER-TERM
NO. OF ZONES:	DISCOVERY YEAR: 1936
AREA, ACRES: 600 *	SPACING, ACRES: 5
TOTAL WELLS:	PRODUCING WELLS: 124
SHUT-IN WELLS: 41	INJECTION WELLS: 44

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3100	NET PAY, FT: 460
GROSS PAY, FT: 1420	RANGE: TO
POROSITY, %: 27.0	RANGE: 250 TO 2500
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1300
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 56.0 *
INITIAL: OIL SAT., %; 71.0	WTR SAT., %; 44.0
WTR SAT., %; 29.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030
FVF, BBL/STB; 1.060	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 177
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI; 1300	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.9 RANGE: 13.0 TO 25.0
 VISCOSITY @ BHT, CP: 53.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 28000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 387,200,000 BBL/AC-FT: 1403
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 72,941,855
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 2,542,176
 GAS,MCF; 195,000
 WATER,BBL; 22,656
 OIL REMAINING IN PLACE,STB: 314,300,000 BBL/AC-FT: 1139
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1961-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 155 NO. INJ WELLS: 14
 VOLUME INJECTED: (EQUIV)WATER, BBL; 45,226,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): CHAMPLIN PETROLEUM CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA FAULT BLOCK II-A RANG	
NO. OF ZONES:	DISCOVERY YEAR: 1937
AREA, ACRES: 210	SPACING, ACRES: 5
TOTAL WELLS:	PRODUCING WELLS: 42
SHUT-IN WELLS: 14	INJECTION WELLS: 15

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
GEOLOGICAL AGE: PLIOCENE-MIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
HETEROGENEITY; MOD CLAY CONTENT, %:
FAULTING; MOD INTERBEDDED STREAKS: YES
FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2500	NET PAY, FT: 150
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1000
BHT, DEF F: 125	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 40.0 *
INITIAL: OIL SAT., %; 77.0	WTR SAT., %; 60.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.035
FVF, BBL/STB; 1.090	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 144
GOR, SCF/BBL;	BHP, PSI; 830
BHP, PSI; 1000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.1 RANGE: 13.0 TO 22.0
 VISCOSITY @ BHT, CP: 50.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 53,500,000 BBL/AC-FT: 1699
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 24,364,643
 (DEC 31, 1977) GAS,MCF; 11,352,000
 WATER,BBL; 71,627,000
 1977 ANNUAL PROD: OIL,BBL; 411,000
 GAS,MCF; 39,000
 WATER,BBL; 7,037,000
 OIL REMAINING IN PLACE,STB: 29,200,000 BBL/AC-FT: 925
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:
 MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 42 NO. INJ WELLS: 25
 VOLUME INJECTED: (EQUIV)WATER, BBL;109,992,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBDOP, CHAMPLIN PETR. CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA FAULT BLOCK II-A UPPE	
NO. OF ZONES: 3	DISCOVERY YEAR: 1937
AREA, ACRES: 488	SPACING, ACRES: 8
TOTAL WELLS:	PRODUCING WELLS: 61
SHUT-IN WELLS: 18	INJECTION WELLS: 31

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2850	NET PAY, FT: 280
GROSS PAY, FT: 570	RANGE: TO
POROSITY, %: 35.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 700	SAT. PRESSURE, PSI: 1500
BHT, DEF F: 146	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 49.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 51.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.115 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 41
GOR, SCF/BBL;	BHP, PSI; 1010
BHP, PSI; 1500	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.9 RANGE: 14.0 TO 26.0
 VISCOSITY @ BHT, CP: 26.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.30 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 249,600,000 BBL/AC-FT: 1826
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 76,978,083
 (DEC 31, 1977) GAS, MCF; 41,188,000
 WATER, BBL; 193,483,000
 1977 ANNUAL PROD: OIL, BBL; 1,384,906
 GAS, MCF; 119,000
 WATER, BBL; 24,037,000
 OIL REMAINING IN PLACE, STB: 172,600,000 BBL/AC-FT: 1263
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 61 NO. INJ WELLS: 35
 VOLUME INJECTED: (EQUIV) WATER, BBL; 309,057,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): CHAMPLIN PETROLEUM CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA FAULT BLOCK II-B RANG	
NO. OF ZONES: 5	DISCOVERY YEAR: 1937
AREA, ACRES: 80	SPACING, ACRES: 7
TOTAL WELLS:	PRODUCING WELLS: 11
SHUT-IN WELLS: 2	INJECTION WELLS: 7

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2500	NET PAY, FT: 150
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 31.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1000
BHT, DEF F: 125	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 38.0 *
INITIAL: OIL SAT., %; 77.0	WTR SAT., %; 62.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.035
FVF, BBL/STB; 1.090	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 175
GOR, SCF/BBL;	BHP, PSI; 830
BHP, PSI; 1000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 19.6	RANGE: 18.0 TO 23.0
VISCOSITY @ BHT, CP: 50.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.60	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 33000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	20,400,000	BBL/AC-FT: 1699
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	9,758,802	
(DEC 31, 1977) GAS, MCF;	7,004,000	
WATER, BBL;	33,679,000	
1977 ANNUAL PROD: OIL, BBL;	132,245	
GAS, MCF;	18,000	
WATER, BBL;	4,215,000	
OIL REMAINING IN PLACE, STB:	10,600,000	BBL/AC-FT: 886
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1960-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS: 11	NO. INJ WELLS: 7
VOLUME INJECTED: (EQUIV) WATER, BBL; 29,599,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS: GOOD	
OPERATOR(S): CHAMPLIN PETROLEUM CO	

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA FAULT BLOCK II-B UPPE	
NO. OF ZONES: 3	DISCOVERY YEAR: 1937
AREA, ACRES: 64	SPACING, ACRES: 8
TOTAL WELLS:	PRODUCING WELLS: 8
SHUT-IN WELLS: 7	INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2850	NET PAY, FT: 276
GROSS PAY, FT: 570	RANGE: TO
POROSITY, %: 35.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 700	SAT. PRESSURE, PSI: 1500
BHT, DEF F: 146	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 32.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 68.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.060
FVF, BBL/STB; 1.115 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 57
GOR, SCF/BBL;	BHP, PSI; 1010
BHP, PSI; 1500	

FLUID CHARACTERISTICS

CASE 113

OIL GRAVITY, API: 24.0 RANGE: 16.0 TO 27.0
 VISCOSITY @ BHT, CP: 26.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.30 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 32,300,000 BBL/AC-FT: 1826
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 17,779,161
 (DEC 31, 1977) GAS,MCF; 7,982,000
 WATER,BBL; 52,729,000
 1977 ANNUAL PROD: OIL,BBL; 158,364
 GAS,MCF; 20,000
 WATER,BBL; 4,144,000
 OIL REMAINING IN PLACE,STB: 14,500,000 BBL/AC-FT: 820
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 8 NO. INJ WELLS: 5
 VOLUME INJECTED: (EQUIV)WATER, BBL; 75,237,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): CHAMPLIN PETROLEUM CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TERMINAL AREA FAULT BLOCK III RANGE	
NO. OF ZONES: 5	DISCOVERY YEAR: 1937
AREA, ACRES: 500 *	SPACING, ACRES: 7 *
TOTAL WELLS:	PRODUCING WELLS: 66
SHUT-IN WELLS: 18	INJECTION WELLS: 41

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2500	NET PAY, FT: 138
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 36.0	RANGE: 250 TO 6000
PERMEABILITY, MD: 1600	SAT. PRESSURE, PSI: 1000
BHT, DEF F: 125 *	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 45.0 *
INITIAL: OIL SAT., %; 77.0	WTR SAT., %; 55.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.035 *
FVF, BBL/STB; 1.090 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 104
GOR, SCF/BBL;	BHP, PSI; 830
BHP, PSI; 1000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.3 RANGE: 14.0 TO 23.0
 VISCOSITY @ BHT, CP: 50.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 136,100,000 BBL/AC-FT: 1973
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 51,648,023
 (DEC 31, 1977) GAS,MCF; 32,714,000
 WATER,BBL; 189,527,000
 1977 ANNUAL PROD: OIL,BBL; 969,858
 GAS,MCF; 140,000
 WATER,BBL; 22,566,000
 OIL REMAINING IN PLACE,STB: 84,500,000 BBL/AC-FT: 1224
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1958-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 66 NO. INJ WELLS: 41
 VOLUME INJECTED: (EQUIV)WATER, BBL;262,438,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): LBDOP, CHAMPLIN PETR. CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TOWN LOT AREA F.B.I TAR-RANGER-TERM
 NO. OF ZONES: DISCOVERY YEAR: 1934
 AREA, ACRES: 2095 * SPACING, ACRES: 5
 TOTAL WELLS: PRODUCING WELLS: 419
 SHUT-IN WELLS: 91 INJECTION WELLS: 66

GEOLOGICAL INFORMATION

FORMATION: REPETTO
 GEOLOGICAL AGE: PLIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3100	NET PAY, FT: 250
GROSS PAY, FT: 1050	RANGE: TO
POROSITY, %: 33.0	RANGE: 250 TO 2500
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI:
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 56.0 *
INITIAL: OIL SAT., %; 67.0	WTR SAT., %; 44.0
WTR SAT., %; 33.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.040
FVF, BBL/STB; 1.060 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 66
GOR, SCF/BBL;	BHP, PSI; 800
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 15.3 RANGE: 12.0 TO 20.0
 VISCOSITY @ BHT, CP: 84.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 28000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 847,500,000 BBL/AC-FT: 1618
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 121,354,427
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 3,708,655
 GAS, MCF; 247,000
 WATER, BBL; 19,966,000
 OIL REMAINING IN PLACE, STB: 726,200,000 BBL/AC-FT: 1386
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 4.0 BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 413 NO. INJ WELLS: 67
 VOLUME INJECTED: (EQUIV) WATER, BBL; 102,581,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): ARGO, EXXON, CHAMPLIN

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: LOS ANGELES
 DISTRICT: LOS ANGELES REGION
 FIELD NAME: WILMINGTON
 NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TOWN LOT AREA FAULT BLOCK II-A RANG
 NO. OF ZONES: 5 DISCOVERY YEAR: 1937
 AREA, ACRES: 235 * SPACING, ACRES: 5
 TOTAL WELLS: PRODUCING WELLS: 47
 SHUT-IN WELLS: 8 INJECTION WELLS: 17

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: LOS ANGELES BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2500	NET PAY, FT: 150
GROSS PAY, FT: 500	RANGE: TO
POROSITY, %: 35.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 400	SAT. PRESSURE, PSI: 1000
BHT, DEF F: 125	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 61.0 *
INITIAL: OIL SAT., %; 77.0	WTR SAT., %; 39.0
WTR SAT., %; 23.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.035
FVF, BBL/STB; 1.090	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 83
GOR, SCF/BBL;	BHP, PSI; 830
BHP, PSI; 1000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 14.5 RANGE: 12.0 TO 27.0
 VISCOSITY @ BHT, CP: 50.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA, PPM; 300 MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 67,600,000 BBL/AC-FT: 1918
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 10,780,856
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 697,026
 GAS, MCF; 58,000
 WATER, BBL; 1,888,000
 OIL REMAINING IN PLACE, STB: 56,800,000 BBL/AC-FT: 1612
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 17
 VOLUME INJECTED: (EQUIV) WATER, BBL; 20,153,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): SUN OIL CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR: TOWN LOT AREA FAULT BLOCK II-A UPPE	
NO. OF ZONES: 3	DISCOVERY YEAR: 1937
AREA, ACRES: 104	SPACING, ACRES: 8
TOTAL WELLS:	PRODUCING WELLS: 13
SHUT-IN WELLS: 1	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: PUENTE	
GEOLOGICAL AGE: MIOCENE	
BASIN: LOS ANGELES BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 8.0
HETEROGENEITY; MOD	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3575	NET PAY, FT: 300
GROSS PAY, FT: 570	RANGE: TO
POROSITY, %: 32.0	RANGE: 250 TO 2000
PERMEABILITY, MD: 700	SAT. PRESSURE, PSI: 1500
BHT, DEF F: 146	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 71.0 *
INITIAL: OIL SAT., %; 75.0	WTR SAT., %; 29.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 23
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI; 1500	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 13.3	RANGE: 12.0 TO 15.0
VISCOSITY @ BHT, CP: 450.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 1.60	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 33000	
WATER HARDNESS: CA, PPM; 300	MG, PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	55,300,000	BBL/AC-FT: 1773
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	1,956,142	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	82,366	
GAS, MCF;	6,000	
WATER, BBL;	831,000	
OIL REMAINING IN PLACE, STB:	53,400,000	BBL/AC-FT: 1711
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1959-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS: 13	NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS: GOOD	
OPERATOR(S): CHAMPLIN, SUN OIL	

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: LOS ANGELES
DISTRICT: LOS ANGELES REGION
FIELD NAME: WILMINGTON
NO. OF RESERVOIRS: 70

RESERVOIR INFORMATION

RESERVOIR:	TOWN LOT AREA FAULT BLOCK III RANGE	
NO. OF ZONES:	5	DISCOVERY YEAR: 1937
AREA, ACRES:	200	SPACING, ACRES: 7
TOTAL WELLS:		PRODUCING WELLS: 26
SHUT-IN WELLS:	9	INJECTION WELLS: 11

GEOLOGICAL INFORMATION

FORMATION: REPETTO-PUENTE
GEOLOGICAL AGE: PLIOCENE-MIOCENE
BASIN: LOS ANGELES BASIN
TRAP TYPE: STRUCTURAL - ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
HETEROGENEITY; MOD CLAY CONTENT, %:
FAULTING; MOD INTERBEDDED STREAKS: YES
FRACTURE; MINOR BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT:	2500	NET PAY, FT:	150
GROSS PAY, FT:	500	RANGE:	TO
POROSITY, %:	35.0	RANGE:	250 TO 2000
PERMEABILITY, MD:	400	SAT. PRESSURE, PSI:	1000
BHT, DEF F:	125	GAS CAP, ACRES:	
GAS CAP:	NO	WETTING PHASE:	
GAS CAP/OIL ZONE RATIO:		CURRENT:	OIL SAT., %; 59.0 *
INITIAL: OIL SAT., %;	77.0		WTR SAT., %; 41.0
WTR SAT., %;	23.0		GAS SAT., %;
GAS SAT., %;			FVF, BBL/STB; 1.035
FVF, BBL/STB;	1.090		WOR, BBL/BBL;
WOR, BBL/BBL;			GOR, SCF/BBL; 340
GOR, SCF/BBL;			BHP, PSI;
BHP, PSI;	1000		

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.0 RANGE: 12.0 TO 22.0
 VISCOSITY @ BHT, CP: 50.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: 1.60 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE: ASPHALTIC
 WATER SALINITY, PPM; 33000
 WATER HARDNESS: CA,PPM; 300 MG,PPM; 300

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 57,500,000 BBL/AC-FT: 1918
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 10,886,207
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 345,806
 GAS,MCF; 29,000
 WATER,BBL; 735,000
 OIL REMAINING IN PLACE,STB: 46,700,000 BBL/AC-FT: 1555
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1973-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 24 NO. INJ WELLS: 12
 VOLUME INJECTED: (EQUIV)WATER, BBL; 4,827,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): SUN OIL CO

SOURCES: 5,12,14,37,38,58,113,129,132; 72,110,124,145,290

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: FRESNO
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: COALINGA GR - COALINGA
 NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: EAST SIDE TEMBLOR	
NO. OF ZONES: 10	DISCOVERY YEAR: 1887
AREA, ACRES: 10560 *	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 889
SHUT-IN WELLS: 856	INJECTION WELLS: 7

GEOLOGICAL INFORMATION

FORMATION: TEMBLOR
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCT/STRAT - THINNING ON ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 14.0
 HETEROGENEITY; HIGH CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3182	NET PAY, FT: 50
GROSS PAY, FT: 300	RANGE: 20.0 TO 46.0
POROSITY, %: 26.9	RANGE: TO 45000
PERMEABILITY, MD: 683	SAT. PRESSURE, PSI:
BHT, DEF F: 100	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 25.0 *
INITIAL: OIL SAT., %; 65.0	WTR SAT., %; 75.0
WTR SAT., %; 35.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 47
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.8 RANGE: 16.0 TO 30.0
 VISCOSITY @ BHT, CP: 50.0; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: .71 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 3.1 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 5000
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 682,100,000 BBL/AC-FT: 1292
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 403,373,408
 (DEC 31, 1977) GAS,MCF; 80,997,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 2,776,954
 GAS,MCF;
 WATER,BBL; 12,490,000
 OIL REMAINING IN PLACE,STB: 278,700,000 BBL/AC-FT: 528
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PILOT REPRESSURE (1930-1948)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF; 127,000,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): MOBIL OIL

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 WATERFLOOD (1953-1958)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 1,093,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

S.3 WATERFLOOD (1953-1957)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL; 3,263,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

S.4 WATERFLOOD (1961-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 2
VOLUME INJECTED: (EQUIV)WATER, BBL; 93,230,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

T.1 STEAM DRIVE (1963-1966)

AREA, ACRES: 530 FLUID INJECTED: S
NO. PROD WELLS: 93 NO. INJ WELLS: 60
VOLUME INJECTED: (EQUIV)WATER, BBL; 26,351,875
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU 1976) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): MOBIL OIL

T.2 POLYMER FLOOD (1976-)

AREA, ACRES: 130 FLUID INJECTED: P/W
NO. PROD WELLS: 9 NO. INJ WELLS: 4
VOLUME INJECTED: (EQUIV)WATER, BBL;
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: 32.6 BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): MOBIL OIL

REMARKS: TERTIARY STEAM INJ CONVERTED TO WF

SOURCES: 5,12,14,37,38,58,113,129,132; 17,18,30,44,104,139

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: CYMRIC
 NO. OF RESERVOIRS: 24

RESERVOIR INFORMATION

RESERVOIR: SHEEP SPRINGS AREA CARNEROS
 NO. OF ZONES: DISCOVERY YEAR: 1944
 AREA, ACRES: 160 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 8
 SHUT-IN WELLS: 4 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: TEMBLOR
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; HIGH INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3400	NET PAY, FT: 100
GROSS PAY, FT: 150	RANGE: TO
POROSITY, %: 34.0	RANGE: TO
PERMEABILITY, MD: 800	SAT. PRESSURE, PSI:
BHT, DEF F: 141 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 55.0 *
INITIAL: OIL SAT., %; 58.0 *	WTR SAT., %; 45.0
WTR SAT., %; 42.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.040 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 610
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

CASE 137

OIL GRAVITY, API: 22.0 RANGE: 20.0 TO 25.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 10000
 WATER HARDNESS: CA, PPM; MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 23,300,000 BBL/AC-FT: 1457
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 892,657
 (DEC 31, 1977) GAS, MCF; 413,000
 WATER, BBL; 3,623,000
 1977 ANNUAL PROD: OIL, BBL; 11,680
 GAS, MCF; 13,000
 WATER, BBL; 137,000
 OIL REMAINING IN PLACE, STB: 22,400,000 BBL/AC-FT: 1401
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:
 MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SOURCES: 5,12,14,37,38,58,113,129,132; 35,128

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: EDISON
 NO. OF RESERVOIRS: 14

RESERVOIR INFORMATION

RESERVOIR: PORTALS - FAIRFAX AREA WICKER NOZU
 NO. OF ZONES: 3 DISCOVERY YEAR: 1928
 AREA, ACRES: 490 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 51
 SHUT-IN WELLS: 8 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: FRUITVALE-ROUND MOUNTAIN
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRATIGRAPHIC - REGIONAL FACIES CHANGE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4402	NET PAY, FT: 110
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 35.0	RANGE: TO
PERMEABILITY, MD: 2500	SAT. PRESSURE, PSI:
BHT, DEF F: 160 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 66.0 *	WTR SAT., %;
WTR SAT., %; 34.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.0	RANGE: 15.0 TO 26.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 1200	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	BBL/AC-FT: 1706
ORIGINAL GAS IN PLACE, MCF:	
CUM PROD : OIL, BBL;	3,756,652
(DEC 31, 1977) GAS, MCF;	164,000
WATER, BBL;	
1977 ANNUAL PROD: OIL, BBL;	68,025
GAS, MCF;	1,000
WATER, BBL;	46,000
OIL REMAINING IN PLACE, STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES (DEC 31,)	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1963-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	221,796
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1973) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SOURCES: 5,12,14,37,38,58,113,129,132; 118

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: EDISON
 NO. OF RESERVOIRS: 14

RESERVOIR INFORMATION

RESERVOIR: WEST AREA CHANAC SANTA MARGARITA
 NO. OF ZONES: 2 DISCOVERY YEAR: 1935
 AREA, ACRES: 1125 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 126
 SHUT-IN WELLS: 71 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: CHANAC-SANTA MARGARITA
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCT/STRAT - FACIES CHANGE IN FLTD HOMOCL
 LITHOLOGY: SILTY SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 8.0
 HETEROGENEITY; HIGH CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3846	NET PAY, FT: 100
GROSS PAY, FT: 400	RANGE: 15.0 TO 40.0
POROSITY, %: 27.0	RANGE: 50 TO 10000
PERMEABILITY, MD: 2000	SAT. PRESSURE, PSI:
BHT, DEF F: 150 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 57.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 43.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 117
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

CASE 147

OIL GRAVITY, API: 20.5	RANGE: 17.0 TO 24.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 115	
SULFUR CONTENT, %: .20	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 4.7	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 600	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	157,100,000	BBL/AC-FT: 1396
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	23,032,423	
(DEC 31, 1977) GAS, MCF;	3,608,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	162,368	
GAS, MCF;	13,000	
WATER, BBL;	369,000	
OIL REMAINING IN PLACE, STB:	134,100,000	BBL/AC-FT: 1192
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

REMARKS: PRODUCTION INCLUDES WEST AREA FREEMAN JEWETT

SOURCES: 5,12,14,37,38,58,113,129,132; 131,138

STATE: CALIFORNIA
COUNTY: KERN
DISTRICT: SAN JOAQUIN VALLEY REGION
FIELD NAME: ELK HILLS
NO. OF RESERVOIRS: 15

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA UPPER	
NO. OF ZONES: 5	DISCOVERY YEAR: 1919
AREA, ACRES: 16000	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 502
SHUT-IN WELLS: 534	INJECTION WELLS: 3

GEOLOGICAL INFORMATION

FORMATION: SAN JOAQUIN ETCHEGOIN
GEOLOGICAL AGE: PLEISTOCENE-PLIOCENE
BASIN: SAN JOAQUIN BASIN
TRAP TYPE: STRUCT/STRAT - FACIES CHANGE ON ANTICLINE
LITHOLOGY: SAND
DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2967	
GROSS PAY, FT:	NET PAY, FT: 57
POROSITY, %: 32.0	RANGE: TO
PERMEABILITY, MD: 1250	RANGE: TO
BHT, DEF F: 134	SAT. PRESSURE, PSI:
GAS CAP: YES	GAS CAP, ACRES:
GAS CAP/OIL ZONE RATIO:	WETTING PHASE:
INITIAL: OIL SAT., %; 70.0	CURRENT: OIL SAT., %; 53.0 *
WTR SAT., %; 30.0	WTR SAT., %; 47.0
GAS SAT., %;	GAS SAT., %;
FVF, BBL/STB; 1.050	FVF, BBL/STB; 1.000
WOR, BBL/BBL;	WOR, BBL/BBL;
GOR, SCF/BBL;	GOR, SCF/BBL; 62
BHP, PSI;	BHP, PSI;

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.4	RANGE: 11.0 TO 44.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 135	
SULFUR CONTENT, %: .68	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 2.1	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 32000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 1,509,400,000 BBL/AC-FT: 1655
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 302,049,076
 (DEC 31, 1977) GAS,MCF; 1,836,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 15,963,425
 GAS,MCF; 148,784
 WATER,BBL; 7,926,000
 OIL REMAINING IN PLACE,STB: 1,207,300,000 BBL/AC-FT: 1324
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: GRAVITY

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1945-)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS: 5
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF; 35,516,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

S.2 WATERFLOOD (1957-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 5
 VOLUME INJECTED: (EQUIV)WATER, BBL; 37,276,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): WILLIAMS BRO ENGR

SOURCES: 5,12,14,37,38,58,113,129,132; 17,115

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: FRUITVALE
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: MAIN AREA CHANAC-KERNCO
 NO. OF ZONES: 7 DISCOVERY YEAR: 1928
 AREA, ACRES: 2680 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 360
 SHUT-IN WELLS: 82 INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: ETCHEGOIN-CHANAC-SANTA MARGARITA
 GEOLOGICAL AGE: PLIOCENE-MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCT/STRAT - FAULTED HOMOCLINE/PERM VAR
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 4.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; MOD INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4008	NET PAY, FT: 89
GROSS PAY, FT: 675	RANGE: TO
POROSITY, %: 30.0	RANGE: TO
PERMEABILITY, MD: 1250	SAT. PRESSURE, PSI:
BHT, DEF F: 155	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 44.0 *
INITIAL: OIL SAT., %; 66.0	WTR SAT., %; 56.0
WTR SAT., %; 34.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 377
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.9	RANGE: 15.0 TO 24.0
VISCOSITY @ BHT, CP: 20.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 1750	
SULFUR CONTENT, %: .93	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 5.6	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 3000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	348,900,000	BBL/AC-FT: 1463
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	103,110,141	
(DEC 31, 1977) GAS, MCF;	36,093,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	946,597	
GAS, MCF;	325,000	
WATER, BBL;	7,571,000	
OIL REMAINING IN PLACE, STB:	245,800,000	BBL/AC-FT: 1031
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %: 5.3	

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATER DISPOSAL (1962-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 10
VOLUME INJECTED: (EQUIV) WATER, BBL; 35,400,000	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): GULF ENERGY; TENNECO W.	

SOURCES: 5,12,14,37,38,58,113,129,132; 17,130

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: MIDWAY-SUNSET
 NO. OF RESERVOIRS: 17

RESERVOIR INFORMATION

RESERVOIR: LAKEVIEW	
NO. OF ZONES:	DISCOVERY YEAR: 1910
AREA, ACRES: 24370	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 15
SHUT-IN WELLS: 76	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MIOCENE	
GEOLOGICAL AGE: MIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCTURAL	- REGIONAL FACIES CHANGE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3109	NET PAY, FT: 116
GROSS PAY, FT: 200	RANGE: TO
POROSITY, %: 33.0	RANGE: TO
PERMEABILITY, MD: 3655	SAT. PRESSURE, PSI:
BHT, DEF F: 136 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 76.0	WTR SAT., %;
WTR SAT., %; 24.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

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FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE: 19.0 TO 25.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 7500	
WATER HARDNESS: CA, PPM; MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	BBL/AC-FT: 1853
ORIGINAL GAS IN PLACE, MCF:	
CUM PROD : OIL, BBL; 50,678,450	
(DEC 31, 1977) GAS, MCF;	
WATER, BBL;	
1977 ANNUAL PROD: OIL, BBL; 72,069	
GAS, MCF; 51,000	
WATER, BBL; 147,000	
OIL REMAINING IN PLACE, STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES (DEC 31,)	
PRIMARY PRODUCTION:	
MECHANISM: GRAVITY DRAINAGE	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SOURCES: 5,12,14,37,38,58,113,129,132

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: MIDWAY-SUNSET
 NO. OF RESERVOIRS: 17

RESERVOIR INFORMATION

RESERVOIR: REPUBLIC	
NO. OF ZONES:	DISCOVERY YEAR: 1928
AREA, ACRES:	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 51
SHUT-IN WELLS: 26	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MIOCENE	
GEOLOGICAL AGE: MIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCT/STRAT - FAULTED ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2667	NET PAY, FT: 150
GROSS PAY, FT: 340	RANGE: TO
POROSITY, %: 31.0	RANGE: TO
PERMEABILITY, MD: 927	SAT. PRESSURE, PSI:
BHT, DEF F: 127 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 76.0	WTR SAT., %;
WTR SAT., %; 24.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 753
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.5	RANGE: 15.0 TO 23.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 1200	
WATER HARDNESS: CA, PPM; MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	BBL/AC-FT: 1741
ORIGINAL GAS IN PLACE, MCF:	
CUM PROD : OIL, BBL;	23,211,252
(DEC 31, 1977) GAS, MCF;	11,149,000
WATER, BBL;	85,737,000
1977 ANNUAL PROD: OIL, BBL;	150,185
GAS, MCF;	102,000
WATER, BBL;	1,828,000
OIL REMAINING IN PLACE, STB:	BBL/AC-FT:
(DEC 31,)	
RESERVES (DEC 31,)	
PRIMARY PRODUCTION:	
MECHANISM: GAS CAP GAS WATER DR	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SOURCES: 5,12,14,37,38,58,113,129,132

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: PLEITO
 NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: CREEK AREA	
NO. OF ZONES:	DISCOVERY YEAR: 1951
AREA, ACRES: 150	SPACING, ACRES: 9
TOTAL WELLS:	PRODUCING WELLS: 12
SHUT-IN WELLS: 5	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: BASAL CHANAC-SANTA MARGARITA	
GEOLOGICAL AGE: PLIOCENE-MIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE	
LITHOLOGY: SILTY SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 30.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4300		NET PAY, FT: 150 *
GROSS PAY, FT: 200		RANGE: TO
POROSITY, %: 28.0		RANGE: TO
PERMEABILITY, MD: 50		SAT. PRESSURE, PSI:
BHT, DEF F: 158 *		GAS CAP, ACRES:
GAS CAP:		WETTING PHASE:
GAS CAP/OIL ZONE RATIO:		CURRENT: OIL SAT., %; 66.0 *
INITIAL: OIL SAT., %; 70.0 *		WTR SAT., %; 34.0
WTR SAT., %; 30.0		GAS SAT., %;
GAS SAT., %;		FVF, BBL/STB; 1.040 *
FVF, BBL/STB; 1.050 *		WOR, BBL/BBL;
WOR, BBL/BBL;		GOR, SCF/BBL; 333
GOR, SCF/BBL; 610		BHP, PSI; 189
BHP, PSI; 300		

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.2	RANGE: 13.0 TO 20.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	32,600,000	BBL/AC-FT: 1448
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	1,502,376	
(DEC 31, 1977) GAS, MCF;	1,139,000	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	24,970	
GAS, MCF;	2,000	
WATER, BBL;	6,000	
OIL REMAINING IN PLACE, STB:	31,100,000	BBL/AC-FT: 1381
(DEC 31,)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1954-1968)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	289,896
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): JIM RILEY	

SOURCES: 5, 12, 14, 37, 38, 58, 113, 129, 132; 70

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: PLEITO
 NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: RANCH AREA	
NO. OF ZONES:	DISCOVERY YEAR: 1957
AREA, ACRES: 50	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 4
SHUT-IN WELLS: 2	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: CHANAC	
GEOLOGICAL AGE: PLIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCTURAL - FAULT	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 68.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 10564	
GROSS PAY, FT: 300	NET PAY, FT: 200
POROSITY, %: 28.0	RANGE: TO
PERMEABILITY, MD: 58	RANGE: TO
BHT, DEF F: 277 *	SAT. PRESSURE, PSI:
GAS CAP:	GAS CAP, ACRES:
GAS CAP/OIL ZONE RATIO:	WETTING PHASE:
INITIAL: OIL SAT., %; 70.0 *	CURRENT: OIL SAT., %; 58.0 *
WTR SAT., %; 30.0	WTR SAT., %; 42.0
GAS SAT., %;	GAS SAT., %;
FVF, BBL/STB; 1.050 *	FVF, BBL/STB; 1.010 *
WOR, BBL/BBL;	WOR, BBL/BBL;
GOR, SCF/BBL;	GOR, SCF/BBL; 214
BHP, PSI;	BHP, PSI;

FLUID CHARACTERISTICS

CASE 170

OIL GRAVITY, API: 23.3 RANGE: 21.0 TO 24.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %:
 CARBON RESIDUE, %: CARBON/HYDROGEN RATIO:
 OIL TYPE: ACID NUMBER:
 WATER SALINITY, PPM; 8900
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 14,500,000 BBL/AC-FT: 1448
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 1,954,049
 (DEC 31, 1977) GAS,MCF; 747,000
 WATER,BBL; 999,000
 1977 ANNUAL PROD: OIL,BBL; 171,630
 GAS,MCF; 78,000
 WATER,BBL; 155,000
 OIL REMAINING IN PLACE,STB: 12,500,000 BBL/AC-FT: 1253
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:
 MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SOURCES: 5,12,14,37,38,58,113,129,132

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
COUNTY: KERN
DISTRICT: SAN JOAQUIN VALLEY REGION
FIELD NAME: ROSEDALE RANCH
NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: CHANAC		
NO. OF ZONES: 2	DISCOVERY YEAR: 1945	
AREA, ACRES: 285 *	SPACING, ACRES:	
TOTAL WELLS:	PRODUCING WELLS: 20	
SHUT-IN WELLS: 9	INJECTION WELLS: 1	

GEOLOGICAL INFORMATION

FORMATION: UPPER & LOWER CHANAC	
GEOLOGICAL AGE: MIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCT/STRAT - FAULTED ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 7.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; HIGH	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4776	NET PAY, FT: 80
GROSS PAY, FT: 180	RANGE: TO
POROSITY, %: 29.0	RANGE: 10 TO 1100
PERMEABILITY, MD: 800	SAT. PRESSURE, PSI:
BHT, DEF F: 167 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 57.0 *
INITIAL: OIL SAT., %; 70.0 *	WTR SAT., %; 43.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 370
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

6504 101

OIL GRAVITY, API: 21.8	RANGE: 17.0 TO 25.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 28000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	34,200,000	BBL/AC-FT: 1500
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	5,526,868	
(DEC 31, 1977) GAS,MCF;	3,642,000	
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	101,258	
GAS,MCF;	85,000	
WATER,BBL;	2,676,000	
OIL REMAINING IN PLACE,STB:	28,700,000	BBL/AC-FT: 1257
(DEC 31,)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
RECOVERY FACTOR, %: BBL/AC-FT:
ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1967-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS: 1
VOLUME INJECTED: (EQUIV)WATER,	BBL; 19,704,000
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): CHEVRON	

REMARKS: U & L CHANAC: 30 AND 50 FT THICK, RESPECTIVELY.

SOURCES: 5,12,14,37,38,58,113,129,132; 31,48

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: ROSEDALE RANCH
 NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: LERDO	
NO. OF ZONES:	DISCOVERY YEAR: 1953
AREA, ACRES: 600	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 25
SHUT-IN WELLS: 13	INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: ETCHEGOIN	
GEOLOGICAL AGE: PLIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCT/STRAT - FACIES CHANGE ON FLTD ANTICL	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 7.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; HIGH	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4311	NET PAY, FT: 70
GROSS PAY, FT: 200	RANGE: TO
POROSITY, %: 27.0	RANGE: TO 2000
PERMEABILITY, MD: 500	SAT. PRESSURE, PSI:
BHT, DEF F: 159 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 51.0 *
INITIAL: OIL SAT., %; 61.0	WTR SAT., %; 49.0
WTR SAT., %; 39.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 409
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.1	RANGE: 15.0 TO 21.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 22000	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

CASE 102

ORIGINAL OIL IN PLACE, STB: 51,100,000 BBL/AC-FT: 1217
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 6,617,801
 (DEC 31, 1977) GAS, MCF; 5,247,000
 WATER, BBL; 51,880,000
 1977 ANNUAL PROD: OIL, BBL; 96,440
 GAS, MCF; 96,000
 WATER, BBL; 3,458,000
 OIL REMAINING IN PLACE, STB: 44,500,000 BBL/AC-FT: 1059
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1955-1956)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF; 522,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

S.2 WATERFLOOD (1955-1956)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 4
 VOLUME INJECTED: (EQUIV) WATER, BBL; 51,116,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHEVRON

SOURCES: 5,12,14,37,38,58,113,129,132; 31,48

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: TEJON GR - TEJON GRAPEVINE
 NO. OF RESERVOIRS: 13

RESERVOIR INFORMATION

RESERVOIR: CENTRAL AREA RESERVE
 NO. OF ZONES: 1 DISCOVERY YEAR: 1937
 AREA, ACRES: 305 * SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 11
 SHUT-IN WELLS: 4 INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: FRUITVALE
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4439	NET PAY, FT: 80
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 31.0	RANGE: TO
PERMEABILITY, MD: 1900	SAT. PRESSURE, PSI:
BHT, DEF F: 161 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 52.0 *
INITIAL: OIL SAT., %; 57.0	WTR SAT., %; 48.0
WTR SAT., %; 43.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 280
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

CASE 100

OIL GRAVITY, API: 21.5 RANGE: 18.0 TO 32.0
 VISCOSITY @ BHT, CP: ; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %: CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM;
 WATER HARDNESS: CA, PPM; MG, PPM;

RESERVES AND PRODUCTION DATA

CUM PROD ORIGINAL OIL IN PLACE, STB: 31,900,000 BBL/AC-FT: 1306
 ORIGINAL GAS IN PLACE, MCF:
 : OIL, BBL; 2,028,581
 (DEC 31, 1977) GAS, MCF; 252,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 19,149
 GAS, MCF; 4,000
 WATER, BBL; 124,000
 OIL REMAINING IN PLACE, STB: 29,800,000 BBL/AC-FT: 1222
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATER DISPOSAL (1974-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 1
 VOLUME INJECTED: (EQUIV) WATER, BBL; 255,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): DRILLING & PROD CO

SOURCES: 5,12,14,37,38,58,113,129,132; 107

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: TEJON GR - TEJON GRAPEVINE
 NO. OF RESERVOIRS: 13

RESERVOIR INFORMATION

RESERVOIR: WESTERN AREA S	
NO. OF ZONES:	DISCOVERY YEAR: 1945
AREA, ACRES: 540	SPACING, ACRES: 6
TOTAL WELLS:	PRODUCING WELLS: 54
SHUT-IN WELLS: 30	INJECTION WELLS: 7

GEOLOGICAL INFORMATION

FORMATION: TRANSITION-SANTA MARGARITA	
GEOLOGICAL AGE: MIOCENE	
BASIN: SAN JOAQUIN BASIN	
TRAP TYPE: STRUCTURAL - ANTICLINE	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 1.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: NO

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2649	NET PAY, FT: 55
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 2000	SAT. PRESSURE, PSI:
BHT, DEF F: 127 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 42.0 *
INITIAL: OIL SAT., %; 61.0	WTR SAT., %; 58.0
WTR SAT., %; 39.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	
ORL WOR, BBL/BBL;	GOR, SCF/BBL; 192
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 15.8	RANGE: 14.0 TO 18.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 1100	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 38,800,000 BBL/AC-FT: 1307
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 10,772,460
 (DEC 31, 1977) GAS, MCF; 258,000
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 73,778
 GAS, MCF; 8,000
 WATER, BBL; 1,429,000
 OIL REMAINING IN PLACE, STB: 28,000,000 BBL/AC-FT: 944
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: GC & WD
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1960-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 9
 VOLUME INJECTED: (EQUIV) WATER, BBL; 39,669,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): CHANSLOR; D&P; GULF

T.1 CYCLIC STEAM (1964-1967)

AREA, ACRES: FLUID INJECTED: S
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL; 167,189
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

SOURCES: 5, 12, 14, 37, 38, 58, 113, 129, 132; 107

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: CALIFORNIA
 COUNTY: KERN
 DISTRICT: SAN JOAQUIN VALLEY REGION
 FIELD NAME: WHEELER RIDGE
 NO. OF RESERVOIRS: 16

RESERVOIR INFORMATION

RESERVOIR: WINDGAP AREA L-36 RESERVE
 NO. OF ZONES: DISCOVERY YEAR: 1959
 AREA, ACRES: 310 SPACING, ACRES:
 TOTAL WELLS: PRODUCING WELLS: 23
 SHUT-IN WELLS: 6 INJECTION WELLS: 10

GEOLOGICAL INFORMATION

FORMATION: FRUITVALE (RESERVE SANDSTONE)
 GEOLOGICAL AGE: MIOCENE
 BASIN: SAN JOAQUIN BASIN
 TRAP TYPE: STRUCT/STRAT - ANTICLINE W/PERM BARRIER
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 4.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS: YES
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5792	NET PAY, FT: 170
GROSS PAY, FT: 190	RANGE: TO
POROSITY, %: 29.0	RANGE: TO
PERMEABILITY, MD: 855	SAT. PRESSURE, PSI:
BHT, DEF F: 187 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 52.0 *
INITIAL: OIL SAT., %; 65.0	WTR SAT., %; 48.0
WTR SAT., %; 35.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 166
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.4	RANGE: 19.0 TO 25.0
VISCOSITY @ BHT, CP: ; @ F, CP:	
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %:	
OIL TYPE:	
WATER SALINITY, PPM; 10000	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 73,400,000 BBL/AC-FT: 1393
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 12,785,524
 (DEC 31, 1977) GAS, MCF; 4,592,000
 WATER, BBL; 10,100,000
 1977 ANNUAL PROD: OIL, BBL; 321,779
 GAS, MCF; 65,000
 WATER, BBL; 1,254,000
 OIL REMAINING IN PLACE, STB: 60,600,000 BBL/AC-FT: 1150
 (DEC 31,)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1960-1968)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF; 1,653,000
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): ARCO

S.2 WATERFLOOD (1962-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 13
 VOLUME INJECTED: (EQUIV) WATER, BBL; 24,623,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): ARCO

SOURCES: 5,12,14,37,38,58,113,129,132; 126

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
AMAR-MARION
DISTRICT:
FIELD NAME: BAXTERVILLE
NO. OF RESERVOIRS: 7

RESERVOIR INFORMATION

RESERVOIR: L. TUSCALOOSA MASSIVE	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 3080	SPACING, ACRES: 39
TOTAL WELLS: 78	PRODUCING WELLS: 78
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: L. TUSCALOOSA MASSIVE	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL - FAULTED DOME	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 8800	NET PAY, FT: 57
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 24.3	RANGE: TO
PERMEABILITY, MD: 1474	SAT. PRESSURE, PSI: 1110
BHT, DEF F: 229	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 50.0 *
INITIAL: OIL SAT., %; 87.4	WTR SAT., %; 50.0
WTR SAT., %; 12.6	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.100	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL; 238	BHP, PSI;
BHP, PSI; 4022	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 17.0	RANGE: 15.0 TO 18.0
VISCOSITY @ BHT, CP: 25.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 1500	
SULFUR CONTENT, %: 2.71	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.3	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 200000	
WATER HARDNESS: CA,PPM; 18500	MG,PPM; 2000

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	263,000,000	BBL/AC-FT: 1498
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	98,909,376	
(DEC 31, 1977) GAS,MCF;	26,092,999	
WATER,BBL;	245,608,420	
1977 ANNUAL PROD: OIL,BBL;	2,882,064	
GAS,MCF;	941,271	
WATER,BBL;	27,528,353	
OIL REMAINING IN PLACE,STB:	164,100,000	BBL/AC-FT: 934
(DEC 31, 1977)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

REMARKS: DIVIDED IN 1971 INTO: L TUSC & L TUSC MSSV
 APPRX CUM PROD BY WEIGHING TOTAL AS PROD SINCE 71

SOURCES: 5,14,17,191; 11,15,17

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
COUNTY: LAMAR & MARION
DISTRICT:
FIELD NAME: BAXTERVILLE
NO. OF RESERVOIRS: 7

RESERVOIR INFORMATION

RESERVOIR: LOWER TUSCALOOSA	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 4280	SPACING, ACRES: 35
TOTAL WELLS: 122	PRODUCING WELLS: 109
SHUT-IN WELLS: 13	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: LOWER TUSCALOOSA	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED DOME
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 8675	NET PAY, FT: 57
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 22.9	RANGE: TO
PERMEABILITY, MD: 680	SAT. PRESSURE, PSI: 1110
BHT, DEF F: 229	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 56.0 *
INITIAL: OIL SAT., %; 81.7	WTR SAT., %; 44.0
WTR SAT., %; 18.3	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.100 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 238
GOR, SCF/BBL; 238	BHP, PSI;
BHP, PSI; 4022	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 16.0 RANGE: 14.0 TO 20.0
 VISCOSITY @ BHT, CP: 25.0; @ F, CP:
 SAYBOLT VISC (100F), SEC: 2400
 SULFUR CONTENT, %: 2.80 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 9.0 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 200000
 WATER HARDNESS: CA,PPM; 18500 MG,PPM; 2000

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 321,900,000 BBL/AC-FT: 1320
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 79,000,000 *
 (DEC 31, 1977) GAS,MCF; 24,000,000
 WATER,BBL; 183,000,000
 1977 ANNUAL PROD: OIL,BBL; 2,383,792
 GAS,MCF; 945,232
 WATER,BBL; 15,591,085
 OIL REMAINING IN PLACE,STB: 242,900,000 BBL/AC-FT: 996
 (DEC 31, 1977)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

REMARKS: DIVIDED IN 1971 INTO LOWER TUSCALOOSA AND
 LOWER TUSCALOOSA MASSIVE

SOURCES: 5,14,17,191; 11,15,17

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: LAMAR & MARION
 DISTRICT:
 FIELD NAME: BAXTERVILLE-SOUTHEAST FAULT
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: LOWER TUSCALOOSA		
NO. OF ZONES:		DISCOVERY YEAR: 1973
AREA, ACRES:	440	SPACING, ACRES: 110
TOTAL WELLS:	4	PRODUCING WELLS: 3
SHUT-IN WELLS:	1	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: LOWER TUSCALOOSA	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL - FAULTED DOME	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 8544	NET PAY, FT: 37
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 22.9	RANGE: TO 680
PERMEABILITY, MD: 680	SAT. PRESSURE, PSI: 1110
BHT, DEF F: 229	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 81.0 *
INITIAL: OIL SAT., %; 81.7	WTR SAT., %; 19.0
WTR SAT., %; 18.3	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.100 *
FVF, BBL/STB; 1.100 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 238
GOR, SCF/BBL; 238	BHP, PSI; 4022
BHP, PSI; 4022	BHP, PSI;

FLUID CHARACTERISTICS

OIL GRAVITY, API: 16.0	RANGE: 15.0 TO 19.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 2400	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 2.80	ACID NUMBER:
CARBON RESIDUE, %: 8.7	
OIL TYPE:	
WATER SALINITY, PPM;	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	21,500,000	BBL/AC-FT: 1320
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	102,578	
(DEC 31, 1977) GAS, MCF;	29,008	
WATER, BBL;	35,384	
1977 ANNUAL PROD: OIL, BBL;	47,934	
GAS, MCF;	96	
WATER, BBL;	19,565	
OIL REMAINING IN PLACE, STB:	21,400,000	BBL/AC-FT: 1313
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
COUNTY: WAYNE
DISTRICT:
FIELD NAME: EUCUTTA, EAST
NO. OF RESERVOIRS: 7

RESERVOIR INFORMATION

RESERVOIR: EUTAW	
NO. OF ZONES:	DISCOVERY YEAR: 1943
AREA, ACRES: 2360	SPACING, ACRES: 25
TOTAL WELLS: 62	PRODUCING WELLS: 58
SHUT-IN WELLS: 4	INJECTION WELLS: 32

GEOLOGICAL INFORMATION

FORMATION: EUTAW	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4884	NET PAY, FT: 59
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 27.0	RANGE: 1 TO 5000
PERMEABILITY, MD: 210	SAT. PRESSURE, PSI: 276
BHT, DEF F: 152	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 40.0 *
INITIAL: OIL SAT., %; 53.8	WTR SAT., %; 60.0
WTR SAT., %; 46.2	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 50
GOR, SCF/BBL; 50	BHP, PSI; 1200
BHP, PSI; 2068	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 23.0 RANGE: 21.0 TO 24.0
 VISCOSITY @ BHT, CP: 18.0; @ F, CP:
 SAYBOLT VISC (100F), SEC: 360
 SULFUR CONTENT, %: 3.89 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 9.7 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 140000
 WATER HARDNESS: CA,PPM; 7300 MG,PPM; 1500

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 149,400,000 BBL/AC-FT: 1073
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 39,732,185
 (DEC 31, 1977) GAS,MCF; 2,029,210
 WATER,BBL; 86,930,297
 1977 ANNUAL PROD: OIL,BBL; 906,287
 GAS,MCF; 39,909
 WATER,BBL; 8,694,747
 OIL REMAINING IN PLACE,STB: 109,700,000 BBL/AC-FT: 788
 (DEC 31, 1977)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: LIMITED WATER DRIVE
 RECOVERY FACTOR, %: 19.9
 ANNUAL DECLINE RATE, %:

BBL/AC-FT: 213

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1966-)

AREA, ACRES: 2360 FLUID INJECTED: W
 NO. PROD WELLS: 51 NO. INJ WELLS: 32
 VOLUME INJECTED: (EQUIV)WATER, BBL; 68,793,742
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 26,058,950
 (THRU) GAS, MCF; 1,302,948
 WATER, BBL; 38,452,772
 RECOVERY FACTOR, %: 7.5 BBL/AC-FT: 81
 DEGREE OF SUCCESS:
 OPERATOR(S): AMERADA HESS CORP.

SOURCES: 5,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
COUNTY: PERRY
DISTRICT:
FIELD NAME: GLAZIER
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: UPPER TUSCALOOSA	
NO. OF ZONES:	DISCOVERY YEAR: 1951
AREA, ACRES: 240	SPACING, ACRES: 120
TOTAL WELLS: 2	PRODUCING WELLS: 2
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: UPPER TUSCALOOSA	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- SALT DOME CLOSURE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 7046	NET PAY, FT: 80
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 24.0	RANGE: TO 200
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 206	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 61.0 *
INITIAL: OIL SAT., %; 70.0	WTR SAT., %; 39.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.200 *
FVF, BBL/STB; 1.330	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI; 2592	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 10.0	RANGE: 9.0 TO 11.0
VISCOSITY @ BHT, CP:	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	18,800,000	BBL/AC-FT: 980
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	586,416	
(DEC 31, 1977) GAS, MCF;	2,859	
WATER, BBL;	4,000,465	
1977 ANNUAL PROD: OIL, BBL;	16,889	
GAS, MCF;		
WATER, BBL;	321,650	
OIL REMAINING IN PLACE, STB:	18,200,000	BBL/AC-FT: 949
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: JASPER
 DISTRICT:
 FIELD NAME: HEIDELBERG, EAST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: EUTAW	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 8360	SPACING, ACRES: 72
TOTAL WELLS: 115	PRODUCING WELLS: 107
SHUT-IN WELLS: 2	INJECTION WELLS: 6

GEOLOGICAL INFORMATION

FORMATION: EUTAW	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL - FAULTED DOME	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4687	NET PAY, FT: 42
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 27.0	RANGE: TO
PERMEABILITY, MD: 300	SAT. PRESSURE, PSI:
BHT, DEF F: 152	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 67.0 *
INITIAL: OIL SAT., %; 79.0	WTR SAT., %; 33.0
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.045	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 192
GOR, SCF/BBL; 75	BHP, PSI; 544
BHP, PSI; 2101	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.5	RANGE: 21.0 TO 30.0
VISCOSITY @ BHT, CP: 10.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 250	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.70	ACID NUMBER:
CARBON RESIDUE, %: 10.5	
OIL TYPE:	
WATER SALINITY, PPM;	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	556,000,000	BBL/AC-FT: 1584
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	66,398,343	
(DEC 31, 1977) GAS, MCF;	7,970,350	
WATER, BBL;	95,849,387	
1977 ANNUAL PROD: OIL, BBL;	1,325,498	
GAS, MCF;	294,825	
WATER, BBL;	2,719,393	
OIL REMAINING IN PLACE, STB:	489,600,000	BBL/AC-FT: 1394
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SG & WD
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,11,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: JASPER
 DISTRICT:
 FIELD NAME: HEIDELBERG, EAST
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: UPPER TUSCALOOSA	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 520	SPACING, ACRES: 40
TOTAL WELLS: 13	PRODUCING WELLS: 13
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: UPPER TUSCALOOSA	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED DOME
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4932	NET PAY, FT: 55
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 28.8	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI: 891
BHT, DEF F: 152	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 50.0 *
INITIAL: OIL SAT., %; 70.0	WTR SAT., %; 50.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL; 77	BHP, PSI;
BHP, PSI; 2196	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.5	RANGE: 22.0 TO 30.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 250	
SULFUR CONTENT, %: 3.70	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 10.5	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	42,600,000	BBL/AC-FT: 1490
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	10,863,512	
(DEC 31, 1977) GAS, MCF;	827,765	
WATER, BBL;	61,323,182	
1977 ANNUAL PROD: OIL, BBL;	240,817	
GAS, MCF;	23,989	
WATER, BBL;	3,871,733	
OIL REMAINING IN PLACE, STB:	31,700,000	BBL/AC-FT: 1110
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SOURCES: 5,14,17,191; 11

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: JASPER
 DISTRICT:
 FIELD NAME: HEIDELBERG, WEST
 NO. OF RESERVOIRS: 10

RESERVOIR INFORMATION

RESERVOIR: CHRISTMAS	
NO. OF ZONES:	DISCOVERY YEAR: 1971
AREA, ACRES: 560	SPACING, ACRES: 43
TOTAL WELLS: 13	PRODUCING WELLS: 13
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: CHRISTMAS	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: -	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4974	NET PAY, FT: 46
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 29.4	RANGE: TO
PERMEABILITY, MD: 1100	SAT. PRESSURE, PSI: 446
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 73.0 *
INITIAL: OIL SAT., %; 79.0	WTR SAT., %; 27.0
WTR SAT., %; 21.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 72
GOR, SCF/BBL; 72	BHP, PSI;
BHP, PSI; 2100	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.3	RANGE: 21.0 TO 27.0
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 270	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 4.10	ACID NUMBER:
CARBON RESIDUE, %: 11.4	
OIL TYPE:	
WATER SALINITY, PPM;	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	44,200,000	BBL/AC-FT: 1716
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	2,567,678	
(DEC 31, 1977) GAS, MCF;	541,289	
WATER, BBL;	10,929,963	
1977 ANNUAL PROD: OIL, BBL;	319,455	
GAS, MCF;	70,072	
WATER, BBL;	2,531,990	
OIL REMAINING IN PLACE, STB:	41,600,000	BBL/AC-FT: 1616
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SOURCES: 5,14,17,191; 11

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
COUNTY: JASPER
DISTRICT:
FIELD NAME: HEIDELBERG, WEST
NO. OF RESERVOIRS: 10

RESERVOIR INFORMATION

RESERVOIR: EUTAW	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 1920	SPACING, ACRES: 38
TOTAL WELLS: 50	PRODUCING WELLS: 49
SHUT-IN WELLS: 1	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: EUTAW	
GEOLOGICAL AGE: UPPER CRETACEOUS	
BASIN: MID-GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED DOME
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5000	NET PAY, FT: 31
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 28.7	RANGE: TO 1021
PERMEABILITY, MD: 300	SAT. PRESSURE, PSI: 446
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 38.0 *
INITIAL: OIL SAT., %; 66.4	WTR SAT., %; 62.0
WTR SAT., %; 33.6	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030 *
FVF, BBL/STB; 1.127	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 207
GOR, SCF/BBL; 72	BHP, PSI; 520
BHP, PSI; 2034	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE: 15.0 TO 25.0
VISCOSITY @ BHT, CP: 28.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 500	
SULFUR CONTENT, %: 4.00	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 12.0	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	75,500,000	BBL/AC-FT: 1268
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	27,908,000	
(DEC 31, 1977) GAS, MCF;	5,214,244	
WATER, BBL;	64,870,104	
1977 ANNUAL PROD: OIL, BBL;	508,442	
GAS, MCF;	187,545	
WATER, BBL;	2,045,164	
OIL REMAINING IN PLACE, STB:	47,600,000	BBL/AC-FT: 799
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,11,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: JONES & COVINGTON
 DISTRICT:
 FIELD NAME: SUMMERLAND
 NO. OF RESERVOIRS: 10

RESERVOIR INFORMATION

RESERVOIR: U WASHITA - FREDERICKSBURG
 NO. OF ZONES: DISCOVERY YEAR: 1961
 AREA, ACRES: 600 SPACING, ACRES: 66
 TOTAL WELLS: 9 PRODUCING WELLS: 7
 SHUT-IN WELLS: 2 INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: U WASHITA - FREDERICKSBURG
 GEOLOGICAL AGE: COMANCHE
 BASIN: MID-GULF COAST BASIN
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 9400	NET PAY, FT: 33
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 20.0	RANGE: 10 TO 1720
PERMEABILITY, MD: 265	SAT. PRESSURE, PSI:
BHT, DEF F: 200	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 60.0 *
INITIAL: OIL SAT., %; 79.3	WTR SAT., %; 40.0
WTR SAT., %; 20.7	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 175
GOR, SCF/BBL; 105	BHP, PSI; 3684
BHP, PSI; 4225	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 25.0	RANGE: 23.0 TO 31.0
VISCOSITY @ BHT, CP:	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	22,900,000	BBL/AC-FT: 1172
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	4,650,889	
(DEC 31, 1977) GAS, MCF;	684,167	
WATER, BBL;	5,412,213	
1977 ANNUAL PROD: OIL, BBL;	91,077	
GAS, MCF;	9,107	
WATER, BBL;	374,813	
OIL REMAINING IN PLACE, STB:	18,200,000	BBL/AC-FT: 933
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: FLUID EXPANSION

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1969-1971)

AREA, ACRES:	FLUID INJECTED: SW
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	1,869,411
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	2,021,130
(THRU 1976) GAS, MCF;	200,091
WATER, BBL;	3,697,004
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS: ABND	
OPERATOR(S): TRIAD OIL & GAS CO	

SOURCES: 5,14,17,191

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: MISSISSIPPI
 COUNTY: WAYNE
 DISTRICT:
 FIELD NAME: YELLOW CREEK, WEST
 NO. OF RESERVOIRS: 6

RESERVOIR INFORMATION

RESERVOIR: EUTAW		
NO. OF ZONES: 4	DISCOVERY YEAR: 1947	
AREA, ACRES: 3560	SPACING, ACRES: 38	
TOTAL WELLS: 93	PRODUCING WELLS: 66	
SHUT-IN WELLS: 1	INJECTION WELLS: 26	

GEOLOGICAL INFORMATION

FORMATION: EUTAW
 GEOLOGICAL AGE: UPPER CRETACEOUS
 BASIN: MID-GULF COAST BASIN
 TRAP TYPE: STRUCTURAL - GRABEN FAULT
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION;
 HETEROGENEITY;
 FAULTING;
 FRACTURE;
 DIP, DEG.:
 CLAY CONTENT, %:
 INTERBEDDED STREAKS:
 BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4938	NET PAY, FT: 38
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 26.7	RANGE: TO 1400
PERMEABILITY, MD: 167	SAT. PRESSURE, PSI: 220
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 62.0	WTR SAT., %; 52.0
WTR SAT., %; 38.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.060	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 25
GOR, SCF/BBL; 65	BHP, PSI; 1000
BHP, PSI; 2025	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.0	RANGE: 19.0 TO 24.0
VISCOSITY @ BHT, CP: 21.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 450	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.85	ACID NUMBER:
CARBON RESIDUE, %: 10.3	
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM; 6000	MG, PPM; 1400

RESERVES AND PRODUCTION DATA

CASE 251

ORIGINAL OIL IN PLACE, STB: 120,000,000 BBL/AC-FT: 882
ORIGINAL GAS IN PLACE, MCF:
CUM PROD : OIL, BBL; 22,501,149
(DEC 31, 1977) GAS, MCF; 1,037,709
WATER, BBL; 50,365,524
1977 ANNUAL PROD: OIL, BBL; 876,868
GAS, MCF;
WATER, BBL; 4,424,426
OIL REMAINING IN PLACE, STB: 96,800,000 BBL/AC-FT: 715
(DEC 31, 1977)
RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: FLUID EXPANSION

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1973-)

AREA, ACRES: FLUID INJECTED: W
NO. PROD WELLS: NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;
GAS, MCF;
CUMULATIVE PROD: OIL, BBL;
(THRU) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S):

T.1 POLYMER FLOOD (1973-1982)

AREA, ACRES: FLUID INJECTED: P/W
NO. PROD WELLS: 63 NO. INJ WELLS: 26
VOLUME INJECTED: (EQUIV) WATER, BBL; 18,658,252
GAS, MCF;
CUMULATIVE PROD: OIL, BBL; 3,853,756
(THRU 1976) GAS, MCF; 25,547
WATER, BBL; 3,667,942
RECOVERY FACTOR, %: 9.0 BBL/AC-FT: 92
DEGREE OF SUCCESS:
OPERATOR(S): EXXON CORP.

REMARKS: OOIP FROM 1977 STATE O&G BULLETIN

SOURCES: 5,14,17,191; 11,16,181,192

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: OKLAHOMA
 COUNTY: GARVIN
 DISTRICT: SOUTH CENTRAL
 FIELD NAME: PAULS VALLEY SOUTHEAST
 NO. OF RESERVOIRS: 5

RESERVOIR INFORMATION

RESERVOIR: OIL CREEK SAND	
NO. OF ZONES: 1	DISCOVERY YEAR: 1955
AREA, ACRES: 325	SPACING, ACRES: 16
TOTAL WELLS:	PRODUCING WELLS: 13
SHUT-IN WELLS: 2	INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: OIL CREEK
 GEOLOGICAL AGE: M. ORDOVICIAN
 BASIN: OKLAHOMA FOLDED BELT
 TRAP TYPE: STRUCTURAL - FAULTED ANTICLINAL NOSE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; UNC DIP, DEG.: 3.0
 HETEROGENEITY; MINOR CLAY CONTENT, %:
 FAULTING; NONE INTERBEDDED STREAKS: NO
 FRACTURE; MINOR BARRIER TO FLOW: NO

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4300	NET PAY, FT: 58
GROSS PAY, FT: 100	RANGE: TO
POROSITY, %: 23.5	RANGE: 878 TO 12000
PERMEABILITY, MD: 2000	SAT. PRESSURE, PSI:
BHT, DEF F: 110	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %;
INITIAL: OIL SAT., %; 80.0	WTR SAT., %;
WTR SAT., %; 20.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.000	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 1850
BHP, PSI; 1850	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 10.0	RANGE: TO
VISCOSITY @ BHT, CP: 7500.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %:	ACID NUMBER:
CARBON RESIDUE, %:	
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 27,700,000 BBL/AC-FT: 1459
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 1,502,863
 (DEC 31, 1975) GAS,MCF;
 WATER,BBL;
 1975 ANNUAL PROD: OIL,BBL; 98,808
 GAS,MCF;
 WATER,BBL;
 OIL REMAINING IN PLACE,STB: BBL/AC-FT:
 (DEC 31,)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %: 5.0 BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PROD WATER REINJ. (1965-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

T.1 IN-SITU COMBUSTION (1970-1972)

AREA, ACRES: 30 FLUID INJECTED: AIR
 NO. PROD WELLS: 2 NO. INJ WELLS: 1
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF; 886,000
 CUMULATIVE PROD: OIL, BBL; 112,000
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): SOHIO PET. CO.

SOURCES: 5,14; 194,198

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: OKLAHOMA
 COUNTY: STEPHENS
 DISTRICT: SOUTHWEST
 FIELD NAME: SHO-VEL-TUM
 NO. OF RESERVOIRS: 51

RESERVOIR INFORMATION

RESERVOIR: SIMS C-1, C-2	
NO. OF ZONES: 2	DISCOVERY YEAR: 1947
AREA, ACRES: 2620	SPACING, ACRES: 12
TOTAL WELLS:	PRODUCING WELLS: 116
SHUT-IN WELLS:	INJECTION WELLS: 88

GEOLOGICAL INFORMATION

FORMATION: SIMS	
GEOLOGICAL AGE:	
BASIN: OKLAHOMA FOLDED BELT	
TRAP TYPE: STRUCTURAL -	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5200	NET PAY, FT: 57
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 17.0	RANGE: TO
PERMEABILITY, MD: 164	SAT. PRESSURE, PSI:
BHT, DEF F: 110	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 33.0 *
INITIAL: OIL SAT., %; 75.0 *	WTR SAT., %; 67.0
WTR SAT., %; 25.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 25.0	RANGE: TO
VISCOSITY @ BHT, CP: ;	@ 60F, CP: 13.6
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

CASE 255

ORIGINAL OIL IN PLACE, STB: 140,700,000 BBL/AC-FT: 942
ORIGINAL GAS IN PLACE, MCF:
CUM PROD : OIL, BBL; 74,960,820
(DEC 31, 1976) GAS, MCF;
WATER, BBL;
1976 ANNUAL PROD: OIL, BBL; 1,479,417
GAS, MCF;
WATER, BBL;
OIL REMAINING IN PLACE, STB: 65,700,000 BBL/AC-FT: 440
(DEC 31, 1976)
RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1955-)

AREA, ACRES: FLUID INJECTED: W
NO. PROD WELLS: 111 NO. INJ WELLS: 85
VOLUME INJECTED: (EQUIV) WATER, BBL; 363,421,648
GAS, MCF;
CUMULATIVE PROD: OIL, BBL; 47,055,166
(THRU 1976) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): AMOCO PROD CO

S.2 WATERFLOOD (1958-)

AREA, ACRES: FLUID INJECTED: W
NO. PROD WELLS: 5 NO. INJ WELLS: 3
VOLUME INJECTED: (EQUIV) WATER, BBL; 7,472,162
GAS, MCF;
CUMULATIVE PROD: OIL, BBL; 1,107,654
(THRU 1976) GAS, MCF;
WATER, BBL;
RECOVERY FACTOR, %: BBL/AC-FT:
DEGREE OF SUCCESS:
OPERATOR(S): MOBIL OIL CORP

REMARKS: FORMERLY SHOLEM-ALECHEM (UNTIL 1955)

SOURCES: 5,14; 11,15,196,198

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: OKLAHOMA
COUNTY: STEPHENS
DISTRICT: SOUTHWEST
FIELD NAME: SHO-VEL-TUM
NO. OF RESERVOIRS: 51

RESERVOIR INFORMATION

RESERVOIR: TUSSY	
NO. OF ZONES:	DISCOVERY YEAR: 1945
AREA, ACRES: 1164	SPACING, ACRES: 15
TOTAL WELLS:	PRODUCING WELLS: 28
SHUT-IN WELLS: 38	INJECTION WELLS: 8

GEOLOGICAL INFORMATION

FORMATION: TUSSY	
GEOLOGICAL AGE: DESMOINES	
BASIN: OKLAHOMA FOLDED BELT	
TRAP TYPE: STRUCTURAL -	
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; HIGH	DIP, DEG.: 45.0
HETEROGENEITY; HIGH	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS: YES
FRACTURE; MINOR	BARRIER TO FLOW: NO

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4098	NET PAY, FT: 55
GROSS PAY, FT: 250	RANGE: TO
POROSITY, %: 22.0	RANGE: TO
PERMEABILITY, MD: 70	SAT. PRESSURE, PSI: 1425
BHT, DEF F: 106	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 73.0	WTR SAT., %; 37.0
WTR SAT., %; 27.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.040
FVF, BBL/STB; 1.120	WOR, BBL/BBL; 2
WOR, BBL/BBL;	GOR, SCF/BBL; 890
GOR, SCF/BBL; 245	BHP, PSI;
BHP, PSI; 2000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 25.0 RANGE: TO
 VISCOSITY @ BHT, CP: 9.6; @ F, CP:
 SAYBOLT VISC (100F), SEC:
 SULFUR CONTENT, %:
 CARBON RESIDUE, %:
 OIL TYPE:
 WATER SALINITY, PPM;
 WATER HARDNESS: CA,PPM; MG,PPM;

CARBON/HYDROGEN RATIO:
ACID NUMBER:

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	71,200,000	BBL/AC-FT: 1112
ORIGINAL GAS IN PLACE,MCF:	17,356,000	
CUM PROD : OIL,BBL;	5,333,525	
(DEC 31, 1978) GAS,MCF;	10,626,226	
WATER,BBL;	2,037,743	
1978 ANNUAL PROD: OIL,BBL;	153,854	
GAS,MCF;	136,983	
WATER,BBL;	254,512	
OIL REMAINING IN PLACE,STB:	65,900,000	BBL/AC-FT: 1029
(DEC 31, 1978)		
RESERVES(DEC 31, 1978)	9,953,000	

PRIMARY PRODUCTION:

MECHANISM: SOLUTION GAS
 RECOVERY FACTOR, %: 4.5 BBL/AC-FT: 49
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1968-)

AREA, ACRES: 1164	FLUID INJECTED: W
NO. PROD WELLS: 28	NO. INJ WELLS: 8
VOLUME INJECTED: (EQUIV)WATER, BBL;	6,764,936
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	2,298,411
(THRU) GAS, MCF;	4,156,205
WATER, BBL;	2,209,611
RECOVERY FACTOR, %: 3.2	BBL/AC-FT: 36
DEGREE OF SUCCESS: POOR	
OPERATOR(S): GETTY OIL	

SOURCES: 5,14; 11,15,198,292,298

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: JACKSON
DISTRICT: 2
FIELD NAME: GANADO, WEST
NO. OF RESERVOIRS: 19

RESERVOIR INFORMATION

RESERVOIR: 4700 ZONE	
NO. OF ZONES:	DISCOVERY YEAR: 1950
AREA, ACRES: 1132	SPACING, ACRES: 19
TOTAL WELLS:	PRODUCING WELLS: 42
SHUT-IN WELLS: 11	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MARGINULINA	
GEOLOGICAL AGE: OLIGOCENE	
BASIN: GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- FAULTED ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.: 1.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS: NO
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4730	NET PAY, FT: 44
GROSS PAY, FT: 49	RANGE: TO
POROSITY, %: 33.6	RANGE: 800 TO 1500
PERMEABILITY, MD: 1411	SAT. PRESSURE, PSI:
BHT, DEF F: 146	GAS CAP, ACRES:
GAS CAP: YES	WETTING PHASE:
GAS CAP/OIL ZONE RATIO: .02	CURRENT: OIL SAT., %; 38.0 *
INITIAL: OIL SAT., %; 62.0	WTR SAT., %; 62.0
WTR SAT., %; 38.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.170	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 224
GOR, SCF/BBL; 330	BHP, PSI; 2000
BHP, PSI; 2129	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.4	RANGE:	TO
VISCOSITY @ BHT, CP:	@	F, CP:
SAYBOLT VISC (100F), SEC: 47		
SULFUR CONTENT, %: .17	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: .5	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM;		
WATER HARDNESS: CA, PPM;	MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	68,800,000	BBL/AC-FT: 1381
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	20,000,000 *	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	782,477	
GAS, MCF;	186,131	
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	48,800,000	BBL/AC-FT: 980
(DEC 31, 1977)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

REMARKS: SUBDIVIDED FROM GANADO, WEST IN 1963

SOURCES: 5,12,14,200,204,209,211,214,266,267; 221

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: REFUGIO
DISTRICT: 2
FIELD NAME: LAKE PASTURE
NO. OF RESERVOIRS: 26

RESERVOIR INFORMATION

RESERVOIR: H-440 SAND	
NO. OF ZONES:	DISCOVERY YEAR: 1959
AREA, ACRES: 4725	SPACING, ACRES: 36
TOTAL WELLS:	PRODUCING WELLS: 101
SHUT-IN WELLS: 13	INJECTION WELLS: 4

GEOLOGICAL INFORMATION

FORMATION: GRETA	
GEOLOGICAL AGE: OLIGOCENE	
BASIN: GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: NO
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4491	NET PAY, FT: 50
GROSS PAY, FT: 75	RANGE: TO
POROSITY, %: 32.7	RANGE: 1000 TO 3000
PERMEABILITY, MD: 1197	SAT. PRESSURE, PSI: 1970
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP: YES	WETTING PHASE:
GAS CAP/OIL ZONE RATIO: .93	CURRENT: OIL SAT., %; 38.0 *
INITIAL: OIL SAT., %; 44.0	WTR SAT., %; 62.0
WTR SAT., %; 56.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.090
FVF, BBL/STB; 1.115	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 506
GOR, SCF/BBL; 212	BHP, PSI; 1750
BHP, PSI; 1893	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.0	RANGE:	TO
VISCOSITY @ BHT, CP:	@ 155F, CP:	2.4
SAYBOLT VISC (100F), SEC: 60		
SULFUR CONTENT, %: .20	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: .7	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM; 80000		
WATER HARDNESS: CA, PPM;	MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	236,500,000	BBL/AC-FT: 1001
ORIGINAL GAS IN PLACE, MCF:	179,300,000	
CUM PROD : OIL, BBL;	28,462,126	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	2,844,499	
GAS, MCF;	16,120,596	
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	208,000,000	BBL/AC-FT: 881
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WD & SG	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1965-1988)

AREA, ACRES: 1890	FLUID INJECTED: G
NO. PROD WELLS: 45	NO. INJ WELLS: 3
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	10,439,000
CUMULATIVE PROD: OIL, BBL;	2,037,000
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %: 6.8	BBL/AC-FT: 59
DEGREE OF SUCCESS: VE	
OPERATOR(S): QUINTANA PETR CORP	

SOURCES: 5,12,14,200,204,209,211,214,266,267; 11,15,17,223

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: BEE
DISTRICT: 2
FIELD NAME: PAPALOTE, EAST
NO. OF RESERVOIRS: 5

RESERVOIR INFORMATION

RESERVOIR:	3250 B	DISCOVERY YEAR:	1964
NO. OF ZONES:		SPACING, ACRES:	20
AREA, ACRES:	480	PRODUCING WELLS:	17
TOTAL WELLS:	24	INJECTION WELLS:	1
SHUT-IN WELLS:	1		

GEOLOGICAL INFORMATION

FORMATION:	MASSIVE CATAHOULA	
GEOLOGICAL AGE:	OLIGOCENE	
BASIN:	GULF COAST BASIN	
TRAP TYPE:	-	
LITHOLOGY:	SHALY SAND	
DEGREE OF: CONSOLIDATION; UNC	DIP, DEG.:	1.0
HETEROGENEITY;	CLAY CONTENT, %:	
FAULTING;	INTERBEDDED STREAKS:	YES
FRACTURE;	BARRIER TO FLOW:	

RESERVOIR CHARACTERISTICS

DEPTH, FT:	3250	NET PAY, FT:	42
GROSS PAY, FT:		RANGE:	TO
POROSITY, %:	30.5	RANGE:	742 TO 2900
PERMEABILITY, MD:	1500	SAT. PRESSURE, PSI:	1282
BHT, DEF F:	106	GAS CAP, ACRES:	
GAS CAP:	NO	WETTING PHASE:	
GAS CAP/OIL ZONE RATIO:		CURRENT:	OIL SAT., %; 53.0 *
INITIAL: OIL SAT., %;	65.0		WTR SAT., %; 47.0
WTR SAT., %;	35.0		GAS SAT., %;
GAS SAT., %;			FVF, BBL/STB; 1.050 *
FVF, BBL/STB;	1.180		WOR, BBL/BBL;
WOR, BBL/BBL;			GOR, SCF/BBL; 1218
GOR, SCF/BBL;			BHP, PSI; 1282
BHP, PSI;	1282		

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE:	TO
VISCOSITY @ BHT, CP:	@	F, CP:
SAYBOLT VISC (100F), SEC:		
SULFUR CONTENT, %:	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %:	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM; 32600		
WATER HARDNESS: CA, PPM;	MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	26,300,000	BBL/AC-FT: 1303
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	2,065,218	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	117,961	
GAS, MCF;	847	
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	24,200,000	BBL/AC-FT: 1201
(DEC 31, 1977)		
RESERVES (DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 5,12,14,200,204,209,211,214,266,267; 225

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: JACKSON
DISTRICT: 2
FIELD NAME: WEST RANCH
NO. OF RESERVOIRS: 38

RESERVOIR INFORMATION

RESERVOIR: GRETA SAND	
NO. OF ZONES:	DISCOVERY YEAR: 1939
AREA, ACRES: 4700	SPACING, ACRES: 29
TOTAL WELLS:	PRODUCING WELLS: 122
SHUT-IN WELLS: 27	INJECTION WELLS: 8

GEOLOGICAL INFORMATION

FORMATION: FRIO	
GEOLOGICAL AGE: OLIGOCENE	
BASIN: GULF COAST BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 1.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; NONE	INTERBEDDED STREAKS: NO
FRACTURE; MINOR	BARRIER TO FLOW: NO

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5100	NET PAY, FT: 40
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 31.9	RANGE: 104 TO 4369
PERMEABILITY, MD: 1000	SAT. PRESSURE, PSI: 2357
BHT, DEF F: 160	GAS CAP, ACRES:
GAS CAP: YES	WETTING PHASE:
GAS CAP/OIL ZONE RATIO: .13	CURRENT: OIL SAT., %; 48.0 *
INITIAL: OIL SAT., %; 67.0	WTR SAT., %; 52.0
WTR SAT., %; 33.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.131
FVF, BBL/STB; 1.159	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 705
GOR, SCF/BBL; 284	BHP, PSI; 1705
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.7 RANGE: TO
 VISCOSITY @ BHT, CP: 1.5; @ F, CP:
 SAYBOLT VISC (100F), SEC: 57
 SULFUR CONTENT, %: .16 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: .5 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 59500
 WATER HARDNESS: CA,PPM; MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 223,200,000 BBL/AC-FT: 1431
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 60,850,723
 (DEC 31, 1977) GAS,MCF; 5,000,000
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 3,984,304
 GAS,MCF; 2,564,414
 WATER,BBL;
 OIL REMAINING IN PLACE,STB: 162,300,000 BBL/AC-FT: 1041
 (DEC 31, 1977)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %: BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1977-)

AREA, ACRES: 4000 FLUID INJECTED: SW
 NO. PROD WELLS: 129 NO. INJ WELLS: 6
 VOLUME INJECTED: (EQUIV)WATER, BBL; 659,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 616,000
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: UD
 OPERATOR(S): MOBIL OIL CORP

SOURCES: 5,12,14,200,204,209,211,266-7; 11,15

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: FORT BEND
DISTRICT: 3
FIELD NAME: THOMPSON, SOUTH
NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: 4400 SAND (MIOCENE Y)	
NO. OF ZONES:	DISCOVERY YEAR: 1939
AREA, ACRES: 680	SPACING, ACRES: 23
TOTAL WELLS:	PRODUCING WELLS: 19
SHUT-IN WELLS: 7	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MIOCENE	
GEOLOGICAL AGE: MIOCENE	
BASIN: GULF COAST BASIN	
TRAP TYPE: STRUCT/STRAT - SAND PINCHOUT ON SALT DOME	
LITHOLOGY: SHALY SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 8.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4300	NET PAY, FT: 58
GROSS PAY, FT: 190	RANGE: 26.7 TO 33.7
POROSITY, %: 29.0	RANGE: 8 TO 940
PERMEABILITY, MD: 357	SAT. PRESSURE, PSI: 2000
BHT, DEF F: 135	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 42.0 *
INITIAL: OIL SAT., %; 71.0	WTR SAT., %; 58.0
WTR SAT., %; 29.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.080
FVF, BBL/STB; 1.115	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 317
GOR, SCF/BBL; 249	BHP, PSI; 1950
BHP, PSI; 2000	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.8	RANGE: TO
VISCOSITY @ BHT, CP: 4.5;	@ F, CP:
SAYBOLT VISC (100F), SEC: 126	
SULFUR CONTENT, %: .20	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 1.2	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM; 44200	
WATER HARDNESS: CA,PPM;	MG,PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	56,500,000	BBL/AC-FT: 1433
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	22,032,000	
(DEC 31, 1977) GAS,MCF;		
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	1,628,667	
GAS,MCF;	579,135	
WATER,BBL;		
OIL REMAINING IN PLACE,STB:	34,500,000	BBL/AC-FT: 874
(DEC 31, 1977)		
RESERVES(DEC 31,)		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

REMARKS: SEPARATED FROM THOMPSON, S., 8-1-56.

SOURCES: 5,12,14,200,204,209,211,266-7; 11,15,232

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
 COUNTY: WOOD
 DISTRICT: 6
 FIELD NAME: FOREST HILL
 NO. OF RESERVOIRS: 4

RESERVOIR INFORMATION

RESERVOIR: HARRIS SAND (B-F SEGMENTS)
 NO. OF ZONES: DISCOVERY YEAR: 1954
 AREA, ACRES: 2856 SPACING, ACRES: 77
 TOTAL WELLS: PRODUCING WELLS: 27
 SHUT-IN WELLS: 5 INJECTION WELLS: 5

GEOLOGICAL INFORMATION

FORMATION: HARRIS SAND -EAGLEFORD GROUP
 GEOLOGICAL AGE: GULFIAN, U CRET
 BASIN: EAST TEXAS BASIN
 TRAP TYPE: STRUCTURAL - FAULT CLOSURE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.: 2.0
 HETEROGENEITY; CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4800	NET PAY, FT: 13
GROSS PAY, FT:	RANGE: TO
POROSITY, %: 28.0	RANGE: 1 TO 3000
PERMEABILITY, MD: 740	SAT. PRESSURE, PSI: 150
BHT, DEF F: 150	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 65.0 *
INITIAL: OIL SAT., %; 70.0	WTR SAT., %; 35.0
WTR SAT., %; 30.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010
FVF, BBL/STB; 1.060	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 1000
BHP, PSI; 1675	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 9.7	RANGE: TO
VISCOSITY @ BHT, CP: 9526.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 3390	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.35	ACID NUMBER:
CARBON RESIDUE, %: 4.4	
OIL TYPE:	
WATER SALINITY, PPM;	MG, PPM;
WATER HARDNESS: CA, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB: 53,300,000 BBL/AC-FT: 1434
 ORIGINAL GAS IN PLACE,MCF:
 CUM PROD : OIL,BBL; 1,057,605
 (DEC 31, 1977) GAS,MCF;
 WATER,BBL;
 1977 ANNUAL PROD: OIL,BBL; 66,186
 GAS,MCF; 18,881
 WATER,BBL;
 OIL REMAINING IN PLACE,STB: 52,200,000 BBL/AC-FT: 1406
 (DEC 31, 1977)
 RESERVES(DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: SG & FE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

T.1 ISC/WATER INJ (1976-)

AREA, ACRES: 1656 FLUID INJECTED: A/W
 NO. PROD WELLS: 26 NO. INJ WELLS: 2
 VOLUME INJECTED: (EQUIV)WATER, BBL; 9,000
 GAS, MCF; 131,000
 CUMULATIVE PROD: OIL, BBL; 91,000
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): GREENWICH OIL CORP

T.2 STEAM DRIVE (1965-)

AREA, ACRES: 717 FLUID INJECTED: S
 NO. PROD WELLS: 12 NO. INJ WELLS: 1
 VOLUME INJECTED: (EQUIV)WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): MCWOOD CORP

SOURCES: 5,12,14,200,204,209,211,214,266-7; 256

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: WOOD
DISTRICT: 6
FIELD NAME: HAWKINS
NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: WOODBINE	
NO. OF ZONES:	DISCOVERY YEAR: 1940
AREA, ACRES: 10665	SPACING, ACRES: 16
TOTAL WELLS:	PRODUCING WELLS: 343
SHUT-IN WELLS: 240	INJECTION WELLS: 35

GEOLOGICAL INFORMATION

FORMATION: WOODBINE	
GEOLOGICAL AGE: GULFIAN, U. CRET	
BASIN: EAST TEXAS BASIN	
TRAP TYPE: STRUCTURAL	- ANTICLINE FAULT
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 6.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MINOR	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: NO

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4200	NET PAY, FT: 108
GROSS PAY, FT: 525	RANGE: TO
POROSITY, %: 27.6	RANGE: 10 TO 10000
PERMEABILITY, MD: 2950	SAT. PRESSURE, PSI: 1985
BHT, DEF F: 168	GAS CAP, ACRES: 3600
GAS CAP: YES	WETTING PHASE:
GAS CAP/OIL ZONE RATIO: .25	CURRENT: OIL SAT., %; 49.0 *
INITIAL: OIL SAT., %; 88.6	WTR SAT., %; 51.0
WTR SAT., %; 11.4	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.191
FVF, BBL/STB; 1.222	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 700
GOR, SCF/BBL;	BHP, PSI; 1452
BHP, PSI; 1985	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 24.2	RANGE: TO
VISCOSITY @ BHT, CP: 4.0;	@ F, CP:
SAYBOLT VISC (100F), SEC:	
SULFUR CONTENT, %: 2.41	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %:	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM; 2783	MG, PPM; 490

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	1,500,000,000	BBL/AC-FT: 1300
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	649,100,464	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	32,429,163	
GAS, MCF;	22,801,969	
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	851,000,000	BBL/AC-FT: 731
(DEC 31, 1977)		
RESERVES (DEC 31, 1972)	296,000,000	

PRIMARY PRODUCTION:

MECHANISM: GC & GD	
RECOVERY FACTOR, %:	BBL/AC-FT:
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 PRESSURE MAINTENANCE (1972-1975)

AREA, ACRES: 211	FLUID INJECTED: G
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	2,495,000
CUMULATIVE PROD: OIL, BBL;	876,000
(THRU 1977) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): TEXACO INC.	

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 GAS STORAGE (1969-2025)

AREA, ACRES:	217	FLUID INJECTED:	G
NO. PROD WELLS:	5	NO. INJ WELLS:	5
VOLUME INJECTED:	(EQUIV)WATER, BBL;		
	GAS, MCF;	39,007,000	
CUMULATIVE PROD:	OIL, BBL;		
(THRU 1977)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:			
OPERATOR(S):	EXXON CORP.		

S.3 PRESS.MAINT./W DISP. (1973-1974)

AREA, ACRES:	104	FLUID INJECTED:	G/SW
NO. PROD WELLS:	5	NO. INJ WELLS:	
VOLUME INJECTED:	(EQUIV)WATER, BBL;	73,000	
	GAS, MCF;	830,000	
CUMULATIVE PROD:	OIL, BBL;	685,000	
(THRU 1977)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:			
OPERATOR(S):	AMOCO PROD. CO.		

S.4 INERT GAS INJ (1975-)

AREA, ACRES:		FLUID INJECTED:	IG
NO. PROD WELLS:	367	NO. INJ WELLS:	36
VOLUME INJECTED:	(EQUIV)WATER, BBL;		
	GAS, MCF;	72,237,000	
CUMULATIVE PROD:	OIL, BBL;	3,000,000	
(THRU 1977)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:	VE		
OPERATOR(S):	EXXON CORP		

REMARKS: SECONDARY PROJECT LISTING IS NOT EXHAUSTIVE

SOURCES: 5,12,14,200,204,209,211,266-7; 257

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: TEXAS
COUNTY: TITUS
DISTRICT: 6
FIELD NAME: TALCO
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: PALUXY	
NO. OF ZONES: 1	DISCOVERY YEAR: 1936
AREA, ACRES: 9500	SPACING, ACRES: 13
TOTAL WELLS:	PRODUCING WELLS: 539
SHUT-IN WELLS: 118	INJECTION WELLS: 14

GEOLOGICAL INFORMATION

FORMATION: PALUXY	
GEOLOGICAL AGE: COMANCHE	
BASIN: EAST TEXAS BASIN	
TRAP TYPE: STRUCTURAL	- GRABEN TYPE FAULT
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 1.5
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4290	NET PAY, FT: 44
GROSS PAY, FT: 46	RANGE: 25.0 TO 28.0
POROSITY, %: 25.5	RANGE: TO 17840
PERMEABILITY, MD: 100	SAT. PRESSURE, PSI: 180
BHT, DEF F: 147	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 58.0 *
INITIAL: OIL SAT., %; 87.0	WTR SAT., %; 42.0
WTR SAT., %; 13.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 71
GOR, SCF/BBL; 20	BHP, PSI; 600
BHP, PSI; 1920	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.0 RANGE: 20.0 TO 22.0
 VISCOSITY @ BHT, CP: 20.0; @ 60F, CP: 500.0
 SAYBOLT VISC (100F), SEC: 520
 SULFUR CONTENT, %: 3.00 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 2.4 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 190000
 WATER HARDNESS: CA, PPM; 439 MG, PPM; 55

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 742,000,000 BBL/AC-FT: 1775
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 246,462,412
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 3,007,195
 GAS, MCF; 1,906
 WATER, BBL;
 OIL REMAINING IN PLACE, STB: 496,000,000 BBL/AC-FT: 1185
 (DEC 31, 1977)
 RESERVES (DEC 31,) 43,538,000

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %: BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1967-1981)

AREA, ACRES: 1053 FLUID INJECTED: SW
 NO. PROD WELLS: 51 NO. INJ WELLS: 3
 VOLUME INJECTED: (EQUIV) WATER, BBL; 20,864,000
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 898,000
 (THRU 1977) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: VE
 OPERATOR(S): EXXON CORP

SECONDARY AND TERTIARY RECOVERIES (CONT.)

S.2 PRESSURE MAINTENANCE (1974-1975)

AREA, ACRES:	580	FLUID INJECTED:	SW
NO. PROD WELLS:	58	NO. INJ WELLS:	2
VOLUME INJECTED:	(EQUIV)WATER, BBL;		15,000
	GAS, MCF;		
CUMULATIVE PROD:	OIL, BBL;		
(THRU 1977)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:	NE		
OPERATOR(S):	EXXON CORP		

S.3 PRESSURE MAINTENANCE (1969-)

AREA, ACRES:	110	FLUID INJECTED:	SW
NO. PROD WELLS:	9	NO. INJ WELLS:	1
VOLUME INJECTED:	(EQUIV)WATER, BBL;		
	GAS, MCF;		
CUMULATIVE PROD:	OIL, BBL;		
(THRU 1977)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:	ME		
OPERATOR(S):	GETTY OIL CO.		

T.1 IN-SITU COMBUSTION (1972-)

AREA, ACRES:		FLUID INJECTED:	AIR
NO. PROD WELLS:		NO. INJ WELLS:	
VOLUME INJECTED:	(EQUIV)WATER, BBL;		
	GAS, MCF;		
CUMULATIVE PROD:	OIL, BBL;		
(THRU)	GAS, MCF;		
	WATER, BBL;		
RECOVERY FACTOR, %:		BBL/AC-FT:	
DEGREE OF SUCCESS:			
OPERATOR(S):			

SOURCES: 5,12,14,200,204,209,211,266-7; 16,18,261

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: BIG HORN
 DISTRICT:
 FIELD NAME: BYRON
 NO. OF RESERVOIRS: 6

RESERVOIR INFORMATION

RESERVOIR: EMBAR-TENSLEEP	
NO. OF ZONES:	DISCOVERY YEAR: 1930
AREA, ACRES: 2336	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 50
SHUT-IN WELLS:	INJECTION WELLS: 15

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP	
GEOLOGICAL AGE: PENN	
BASIN: BIGHORN	
TRAP TYPE:	-
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.: 11.0
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5437	NET PAY, FT: 78
GROSS PAY, FT: 185	RANGE: 12.0 TO 15.0
POROSITY, %: 14.7	RANGE: TO 150
PERMEABILITY, MD: 78	SAT. PRESSURE, PSI: 66
BHT, DEF F: 130	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 80.0
INITIAL: OIL SAT., %; 92.5	WTR SAT., %; 20.0
WTR SAT., %; 7.5	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB;
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 1200
BHP, PSI; 2085	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 23.8	RANGE:	TO
VISCOSITY @ BHT, CP: 16.0;	@	F, CP:
SAYBOLT VISC (100F), SEC: 140		
SULFUR CONTENT, %: 2.50	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: 6.1	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM; 138		
WATER HARDNESS: CA,PPM; 509	MG,PPM; 144	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	183,100,000	BBL/AC-FT: 1005
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	96,598,941	
(DEC 31, 1977) GAS,MCF;	11,908,862	
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	2,809,068	
GAS,MCF;	103,317	
WATER,BBL;		
OIL REMAINING IN PLACE,STB:		BBL/AC-FT:
(DEC 31,)		
RESERVES(DEC 31, 1977)	20,066,390	

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE	
RECOVERY FACTOR, %: 44.0	BBL/AC-FT: 467
ANNUAL DECLINE RATE, %:	

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1973-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S): MARATHON OIL CO.	

REMARKS: PROD & RES INCLUDE 2 OTHER MINOR POOLS

SOURCES: 12,14,286,289; 294A

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: JOHNSON
 DISTRICT:
 FIELD NAME: CELLERS RANCH
 NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES:	DISCOVERY YEAR: 1960
AREA, ACRES: 320	SPACING, ACRES: 40
TOTAL WELLS:	PRODUCING WELLS: 8
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP	
GEOLOGICAL AGE: DESMOINES	
BASIN: POWDER RIVER	
TRAP TYPE: STRUCTURAL	- ANTICLINE FAULT
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 6530	NET PAY, FT: 90
GROSS PAY, FT: 200	RANGE: TO
POROSITY, %: 15.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 118	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 71.0 *
INITIAL: OIL SAT., %; 89.0 *	WTR SAT., %; 29.0
WTR SAT., %; 11.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI; 3138	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE:	TO
VISCOSITY @ BHT, CP:	@	F, CP:
SAYBOLT VISC (100F), SEC: 270		
SULFUR CONTENT, %: 3.51	CARBON/HYDROGEN RATIO: 6.90	
CARBON RESIDUE, %:	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM;		
WATER HARDNESS: CA,PPM;	MG,PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	28,400,000	BBL/AC-FT: 986
ORIGINAL GAS IN PLACE,MCF:		
CUM PROD : OIL,BBL;	4,818,252	
(DEC 31, 1977) GAS,MCF;	2,908	
WATER,BBL;		
1977 ANNUAL PROD: OIL,BBL;	84,344	
GAS,MCF;		
WATER,BBL;		
OIL REMAINING IN PLACE,STB:	23,600,000	BBL/AC-FT: 819
(DEC 31, 1977)		
RESERVES(DEC 31, 1977)	1,581,748	

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 12,14,286,289

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: HOT SPRINGS
 DISTRICT:
 FIELD NAME: GRASS CREEK
 NO. OF RESERVOIRS: 6

RESERVOIR INFORMATION

RESERVOIR: EMBAR-TENSLEEP	
NO. OF ZONES: 1	DISCOVERY YEAR: 1922
AREA, ACRES: 1315	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 58
SHUT-IN WELLS:	INJECTION WELLS: 33

GEOLOGICAL INFORMATION

FORMATION: EMBAR-TENSLEEP	
GEOLOGICAL AGE: PENN-PERM	
BASIN: BIGHORN	
TRAP TYPE: STRUCTURAL	- ASYMMETRIC DOMAL CLOSURE
LITHOLOGY: SAND/LIMESTONE	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4180	NET PAY, FT: 90
GROSS PAY, FT: 270	RANGE: TO
POROSITY, %: 14.3	RANGE: 75 TO 150
PERMEABILITY, MD: 112	SAT. PRESSURE, PSI: 140
BHT, DEF F: 119	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 67.0 *
INITIAL: OIL SAT., %; 96.0	WTR SAT., %; 33.0
WTR SAT., %; 4.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000
FVF, BBL/STB; 1.030	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 950
BHP, PSI; 1300	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 23.0 RANGE: TO
 VISCOSITY @ BHT, CP: 13.0; @ F, CP:
 SAYBOLT VISC (100F), SEC: 135
 SULFUR CONTENT, %: 2.72 CARBON/HYDROGEN RATIO:
 CARBON RESIDUE, %: 7.8 ACID NUMBER:
 OIL TYPE:
 WATER SALINITY, PPM; 529
 WATER HARDNESS: CA, PPM; 465 MG, PPM; 176

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 122,400,000 BBL/AC-FT: 1034
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 34,000,000 *
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 900,000 *
 GAS, MCF;
 WATER, BBL;
 OIL REMAINING IN PLACE, STB: 88,400,000 BBL/AC-FT: 747
 (DEC 31, 1977)
 RESERVES (DEC 31, 1977) 2,700,000

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %: 45.9 BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1974-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S):

SOURCES: 12,14,286,289; 11,15,17,294A

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
COUNTY: PARK
DISTRICT:
FIELD NAME: HALF MOON
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: EMBAR-TENSLEEP	DISCOVERY YEAR: 1944
NO. OF ZONES:	SPACING, ACRES: 40
AREA, ACRES: 640	PRODUCING WELLS: 14
TOTAL WELLS:	INJECTION WELLS: 2
SHUT-IN WELLS:	

GEOLOGICAL INFORMATION

FORMATION: EMBAR-TENSLEEP	
GEOLOGICAL AGE: PERM-PENN	
BASIN: BIGHORN	
TRAP TYPE:	
LITHOLOGY: SAND/LIMESTONE	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3365	NET PAY, FT: 40
GROSS PAY, FT: 77	RANGE: 10.0 TO 23.0
POROSITY, %: 16.0	RANGE: 26 TO 579
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 110	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 66.0 *
INITIAL: OIL SAT., %; 81.0 *	WTR SAT., %; 34.0
WTR SAT., %; 19.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.0	RANGE:	TO
VISCOSITY @ BHT, CP: ;	@	F, CP:
SAYBOLT VISC (100F), SEC: 2940		
SULFUR CONTENT, %: 2.87	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: 10.7	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM; 219		
WATER HARDNESS: CA,PPM; 612	MG,PPM; 179	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE,STB:	24,500,000	BBL/AC-FT:	958
ORIGINAL GAS IN PLACE,MCF:			
CUM PROD : OIL,BBL;	3,907,745		
(DEC 31, 1977) GAS,MCF;			
WATER,BBL;			
1977 ANNUAL PROD: OIL,BBL;	98,796		
GAS,MCF;			
WATER,BBL;			
OIL REMAINING IN PLACE,STB:	20,600,000	BBL/AC-FT:	805
(DEC 31, 1977)			
RESERVES(DEC 31, 1977)	586,255		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1971-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV)WATER, BBL;	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

SOURCES: 12,14,286,289

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: HOT SPRINGS
 DISTRICT:
 FIELD NAME: HAMILTON DOME
 NO. OF RESERVOIRS: 5

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES: 6	DISCOVERY YEAR: 1929
AREA, ACRES: 2175	SPACING, ACRES: 8
TOTAL WELLS:	PRODUCING WELLS: 180
SHUT-IN WELLS:	INJECTION WELLS: 26

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP	
GEOLOGICAL AGE: DESMOINES	
BASIN: BIG HORN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING; MOD	INTERBEDDED STREAKS: YES
FRACTURE;	BARRIER TO FLOW: YES

RESERVOIR CHARACTERISTICS

DEPTH, FT: 2750	NET PAY, FT: 175
GROSS PAY, FT: 400	RANGE: TO
POROSITY, %: 14.8	RANGE: TO
PERMEABILITY, MD: 99	SAT. PRESSURE, PSI: 52
BHT, DEF F: 135	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 55.0 *
INITIAL: OIL SAT., %; 88.7	WTR SAT., %; 45.0
WTR SAT., %; 11.3	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.030
FVF, BBL/STB; 1.033	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL; 20
GOR, SCF/BBL; 10	BHP, PSI; 240
BHP, PSI; 750	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.0	RANGE: 15.0 TO 25.0
VISCOSITY @ BHT, CP: 42.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 230	
SULFUR CONTENT, %: 2.98	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 7.5	ACID NUMBER:
OIL TYPE: ASPHALTIC	
WATER SALINITY, PPM; 401	
WATER HARDNESS: CA, PPM; 524	MG, PPM; 90

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	375,300,000	BBL/AC-FT: 986
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	143,500,000 *	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	3,500,000 *	
GAS, MCF;		
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	231,800,000	BBL/AC-FT: 609
(DEC 31, 1977)		
RESERVES (DEC 31, 1977)	18,718,000	

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SOURCES: 12,14,286,289; 11,17

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
COUNTY: WASHAKIE
DISTRICT:
FIELD NAME: HIDDEN DOME
NO. OF RESERVOIRS: 3

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES:	DISCOVERY YEAR: 1947
AREA, ACRES: 450	SPACING, ACRES: 40
TOTAL WELLS:	PRODUCING WELLS: 15
SHUT-IN WELLS:	INJECTION WELLS: 2

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP	
GEOLOGICAL AGE: DESMOINES	
BASIN: BIG HORN	
TRAP TYPE: STRUCTURAL	- ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4550	NET PAY, FT: 54
GROSS PAY, FT: 60	RANGE: TO
POROSITY, %: 16.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 137 *	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 63.0 *
INITIAL: OIL SAT., %; 81.0 *	WTR SAT., %; 37.0
WTR SAT., %; 19.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.010 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI;	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 20.0	RANGE:	TO
VISCOSITY @ BHT, CP:	@	F, CP:
SAYBOLT VISC (100F), SEC: 460		
SULFUR CONTENT, %: 3.45	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: 8.3	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM; 27		
WATER HARDNESS: CA, PPM; 59	MG, PPM; 52	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	23,300,000	BBL/AC-FT: 958
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	4,600,410	
(DEC 31, 1977) GAS, MCF;	22,288,263	
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	171,447	
GAS, MCF;	11,874	
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	18,700,000	BBL/AC-FT: 768
(DEC 31, 1977)		
RESERVES (DEC 31, 1977)	76,590	

PRIMARY PRODUCTION:

MECHANISM:

RECOVERY FACTOR, %:

BBL/AC-FT:

ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1976-)

AREA, ACRES:	FLUID INJECTED: W
NO. PROD WELLS:	NO. INJ WELLS:
VOLUME INJECTED: (EQUIV) WATER, BBL;	
GAS, MCF;	
CUMULATIVE PROD: OIL, BBL;	
(THRU) GAS, MCF;	
WATER, BBL;	
RECOVERY FACTOR, %:	BBL/AC-FT:
DEGREE OF SUCCESS:	
OPERATOR(S):	

REMARKS: PROD & RES INCLUDE ONE OTHER MINOR POOL

SOURCES: 12,14,286,289

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: PARK & HOT SPRINGS
 DISTRICT:
 FIELD NAME: LITTLE BUFFALO BASIN
 NO. OF RESERVOIRS: 5

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES:	DISCOVERY YEAR: 1944
AREA, ACRES: 1770	SPACING, ACRES: 10
TOTAL WELLS:	PRODUCING WELLS: 61
SHUT-IN WELLS:	INJECTION WELLS: 48

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP
 GEOLOGICAL AGE: DESMOINES
 BASIN: BIF HORN
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; MINOR BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 4453	NET PAY, FT: 121
GROSS PAY, FT: 275	RANGE: TO
POROSITY, %: 14.0	RANGE: TO
PERMEABILITY, MD: 84	SAT. PRESSURE, PSI: 85
BHT, DEF F: 128	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE: OIL
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 66.0 *
INITIAL: OIL SAT., %; 90.0	WTR SAT., %; 34.0
WTR SAT., %; 10.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.020
FVF, BBL/STB; 1.020	WOR, BBL/BBL; 3
WOR, BBL/BBL;	GOR, SCF/BBL; 297
GOR, SCF/BBL; 15	BHP, PSI;
BHP, PSI; 1704	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 21.0	RANGE: TO
VISCOSITY @ BHT, CP: 41.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 320	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.14	ACID NUMBER:
CARBON RESIDUE, %: 9.5	
OIL TYPE:	
WATER SALINITY, PPM; 76	
WATER HARDNESS: CA, PPM; 183	MG, PPM; 248

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 189,000,000 BBL/AC-FT: 958
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 50,547,472
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 4,305,304
 GAS, MCF;
 WATER, BBL;
 OIL REMAINING IN PLACE, STB: 138,500,000 BBL/AC-FT: 702
 (DEC 31, 1977)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: WD & FE
 RECOVERY FACTOR, %: 14.0 BBL/AC-FT:
 ANNUAL DECLINE RATE, %: 16.0

SECONDARY AND TERTIARY RECOVERIES:

S.1 WATERFLOOD (1966-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: 61 NO. INJ WELLS: 48
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 12,600,000
 (THRU 1968) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: 34.0 BBL/AC-FT:
 DEGREE OF SUCCESS: GOOD
 OPERATOR(S): AMOCO

S.2 GAS INJECTION (1958-)

AREA, ACRES: FLUID INJECTED: G
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS:
 OPERATOR(S): AMOCO

REMARKS: TERTIARY MICELLAR FLOOD ANTICIPATED

SOURCES: 12,14,286,289; 17,287

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
COUNTY: JOHNSON
DISTRICT:
FIELD NAME: NORTH FORK
NO. OF RESERVOIRS: 1

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES:	DISCOVERY YEAR: 1951
AREA, ACRES: 1000	SPACING, ACRES: 40
TOTAL WELLS:	PRODUCING WELLS: 24
SHUT-IN WELLS:	INJECTION WELLS: 1

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP	
GEOLOGICAL AGE: DESMOINES	
BASIN: POWDER RIVER	
TRAP TYPE: STRUCTURAL	- FAULTED PLUNGING ANTICLINE
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 6486	NET PAY, FT: 90
GROSS PAY, FT: 192	RANGE: TO
POROSITY, %: 15.0	RANGE: TO
PERMEABILITY, MD:	SAT. PRESSURE, PSI:
BHT, DEF F: 122	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 68.0 *
INITIAL: OIL SAT., %; 89.0 *	WTR SAT., %; 32.0
WTR SAT., %; 11.0	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050 *	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI; 2960
BHP, PSI; 3138	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 22.0	RANGE:	TO
VISCOSITY @ BHT, CP: ;	@	F, CP:
SAYBOLT VISC (100F), SEC: 390		
SULFUR CONTENT, %: 3.51	CARBON/HYDROGEN RATIO:	
CARBON RESIDUE, %: 3.0	ACID NUMBER:	
OIL TYPE:		
WATER SALINITY, PPM;		
WATER HARDNESS: CA, PPM;	MG, PPM;	

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	88,800,000	BBL/AC-FT:	986
ORIGINAL GAS IN PLACE, MCF:			
CUM PROD : OIL, BBL;	17,833,912		
(DEC 31, 1977) GAS, MCF;	8,418		
WATER, BBL;			
1977 ANNUAL PROD: OIL, BBL;	364,470		
GAS, MCF;			
WATER, BBL;			
OIL REMAINING IN PLACE, STB:	70,900,000	BBL/AC-FT:	788
(DEC 31, 1977)			
RESERVES (DEC 31, 1977)	3,166,088		

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE

RECOVERY FACTOR, %:

ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 12,14,286,289

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
COUNTY: CAMPBELL
DISTRICT:
FIELD NAME: ROCKY POINT
NO. OF RESERVOIRS: 2

RESERVOIR INFORMATION

RESERVOIR: MINNELUSA	
NO. OF ZONES:	DISCOVERY YEAR: 1962
AREA, ACRES: 671	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 15
SHUT-IN WELLS:	INJECTION WELLS:

GEOLOGICAL INFORMATION

FORMATION: MINNELUSA	
GEOLOGICAL AGE: U. PENN.	
BASIN: POWDER RIVER	
TRAP TYPE:	-
LITHOLOGY: SAND	
DEGREE OF: CONSOLIDATION;	DIP, DEG.:
HETEROGENEITY;	CLAY CONTENT, %:
FAULTING;	INTERBEDDED STREAKS:
FRACTURE;	BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 5450	NET PAY, FT: 43
GROSS PAY, FT: 350	RANGE: TO
POROSITY, %: 17.9	RANGE: TO
PERMEABILITY, MD: 475	SAT. PRESSURE, PSI:
BHT, DEF F: 170	GAS CAP, ACRES:
GAS CAP:	WETTING PHASE:
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 65.0 *
INITIAL: OIL SAT., %; 89.5	WTR SAT., %; 35.0
WTR SAT., %; 10.5	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.000 *
FVF, BBL/STB; 1.050	WOR, BBL/BBL;
WOR, BBL/BBL;	GOR, SCF/BBL;
GOR, SCF/BBL;	BHP, PSI;
BHP, PSI; 2270	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 18.0	RANGE: TO
VISCOSITY @ BHT, CP: ;	@ F, CP:
SAYBOLT VISC (100F), SEC: 110	
SULFUR CONTENT, %: 3.46	CARBON/HYDROGEN RATIO:
CARBON RESIDUE, %: 13.4	ACID NUMBER:
OIL TYPE:	
WATER SALINITY, PPM;	
WATER HARDNESS: CA, PPM;	MG, PPM;

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB:	34,200,000	BBL/AC-FT: 1184
ORIGINAL GAS IN PLACE, MCF:		
CUM PROD : OIL, BBL;	8,081,172	
(DEC 31, 1977) GAS, MCF;		
WATER, BBL;		
1977 ANNUAL PROD: OIL, BBL;	392,192	
GAS, MCF;		
WATER, BBL;		
OIL REMAINING IN PLACE, STB:	26,100,000	BBL/AC-FT: 904
(DEC 31, 1977)		
RESERVES (DEC 31, 1977)	2,500,000	

PRIMARY PRODUCTION:

MECHANISM: WATER DRIVE
 RECOVERY FACTOR, %:
 ANNUAL DECLINE RATE, %:

BBL/AC-FT:

SOURCES: 12,14,286,289; 294

RESERVOIR AND PRODUCTION DATA ELEMENTS

STATE: WYOMING
 COUNTY: FREMONT
 DISTRICT:
 FIELD NAME: WINKLEMAN DOME
 NO. OF RESERVOIRS: 5

RESERVOIR INFORMATION

RESERVOIR: TENSLEEP	
NO. OF ZONES: 1	DISCOVERY YEAR: 1944
AREA, ACRES: 825	SPACING, ACRES:
TOTAL WELLS:	PRODUCING WELLS: 41
SHUT-IN WELLS:	INJECTION WELLS: 14

GEOLOGICAL INFORMATION

FORMATION: TENSLEEP
 GEOLOGICAL AGE: PENNSYLVANIAN
 BASIN: WIND RIVER
 TRAP TYPE: STRUCTURAL - ANTICLINE
 LITHOLOGY: SAND
 DEGREE OF: CONSOLIDATION; DIP, DEG.:
 HETEROGENEITY; MOD CLAY CONTENT, %:
 FAULTING; INTERBEDDED STREAKS:
 FRACTURE; MOD BARRIER TO FLOW:

RESERVOIR CHARACTERISTICS

DEPTH, FT: 3091	NET PAY, FT: 240
GROSS PAY, FT: 315	RANGE: TO
POROSITY, %: 16.0	RANGE: TO
PERMEABILITY, MD: 190	SAT. PRESSURE, PSI: 272
BHT, DEF F: 130	GAS CAP, ACRES:
GAS CAP: NO	WETTING PHASE: OIL
GAS CAP/OIL ZONE RATIO:	CURRENT: OIL SAT., %; 65.0 *
INITIAL: OIL SAT., %; 88.5	WTR SAT., %; 35.0
WTR SAT., %; 11.5	GAS SAT., %;
GAS SAT., %;	FVF, BBL/STB; 1.050
FVF, BBL/STB; 1.050	WOR, BBL/BBL; 3
WOR, BBL/BBL;	GOR, SCF/BBL; 50
GOR, SCF/BBL; 51	BHP, PSI; 700
BHP, PSI; 1121	

FLUID CHARACTERISTICS

OIL GRAVITY, API: 25.0	RANGE: TO
VISCOSITY @ BHT, CP: 30.0;	@ F, CP:
SAYBOLT VISC (100F), SEC: 765	CARBON/HYDROGEN RATIO:
SULFUR CONTENT, %: 3.17	ACID NUMBER:
CARBON RESIDUE, %: 7.2	
OIL TYPE:	
WATER SALINITY, PPM; 34	
WATER HARDNESS: CA, PPM; 320	MG, PPM; 19

RESERVES AND PRODUCTION DATA

ORIGINAL OIL IN PLACE, STB: 167,400,000 BBL/AC-FT: 1046
 ORIGINAL GAS IN PLACE, MCF:
 CUM PROD : OIL, BBL; 45,081,911
 (DEC 31, 1977) GAS, MCF;
 WATER, BBL;
 1977 ANNUAL PROD: OIL, BBL; 1,241,411
 GAS, MCF;
 WATER, BBL;
 OIL REMAINING IN PLACE, STB: 122,300,000 BBL/AC-FT: 764
 (DEC 31, 1977)
 RESERVES (DEC 31,)

PRIMARY PRODUCTION:

MECHANISM: FE, WD & SG
 RECOVERY FACTOR, %: 25.0 BBL/AC-FT:
 ANNUAL DECLINE RATE, %:

SECONDARY AND TERTIARY RECOVERIES:

S.1 PERIPHERAL WF (1967-)

AREA, ACRES: FLUID INJECTED: W
 NO. PROD WELLS: NO. INJ WELLS:
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL; 21,022,000
 (THRU 1968) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: 16.0 BBL/AC-FT:
 DEGREE OF SUCCESS: ME
 OPERATOR(S): AMOCO

T.1 MISCIBLE DISPLNT. (1970-)

AREA, ACRES: 752 FLUID INJECTED:
 NO. PROD WELLS: 39 NO. INJ WELLS: 16
 VOLUME INJECTED: (EQUIV) WATER, BBL;
 GAS, MCF;
 CUMULATIVE PROD: OIL, BBL;
 (THRU) GAS, MCF;
 WATER, BBL;
 RECOVERY FACTOR, %: BBL/AC-FT:
 DEGREE OF SUCCESS: ME
 OPERATOR(S):

REMARKS: PLAN TO EXPAND SECONDARY WATERFLOOD
 TERTIARY MICELLAR FLOOD ANTICIPATED

SOURCES: 12,14,286,289; 16,17,273,287

APPENDIX

OPERATORS, PAST RECOVERY DATA AND PROJECT DATA SOURCES FOR CANDIDATE HEAVY OIL RESERVOIRS

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1. OPERATORS AND PAST RECOVERY DATA

Tabulation of the operators for each reservoir, along with past recovery data, is contained alphabetically by state in Exhibit 1-1.

Exhibit 1-1. Table of Operators and Past Recovery Data

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
		Alaska										
1	160	-----										
2	9200	Atlantic Richfield Co. Sohio Petroleum Co.										
		Arkansas										
3	1900*	Key Oil Co., Inc. Lowery Oil Co. Schmidt Prod. Co.										
4	2300	Mobil Oil Nevada Oil Co. Trio Prod.					ISC	64-66				
5	1120	Phillips Petroleum Co.								MD	76-	
6,7,8,9,10	43970*	American Trav. Beebe, J.S., Oil Co. Beebe-Tirk Benton, J.P. Berg-Laney-Br										

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
243		Corley, W.E.		WF	72-		SD ISC	69- 70-				
		Cross Development Co.										
		Daniels, Orlis										
		Gulf Oil		WF	71-		SD	69-	ME			
		Holloway, D.G. and D.F.										
		Kerr-McGee Corp.										
		MacFarlane Co.		WF	54-							
		MacBeebe										
		Mason and Son										
		May, Joe		WF	71-							
		Milam Brothers										
		Murphy Corp.										
		Pace, H.		WF	71-							
		Phillips Petroleum										
		Phillips-Monsanto										
		Price, N.R.		WF	71-							
		Reynolds, J.D.										
		Rutledge-Daniels										

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
11	997	Rutledge, N.T.					SD	66-				
		Sklar-Beebe										
		Tennyson Oil										
		Williams, R.E., Drilling Co.										

		Mobil Oil										
12	110	Nevada Oil	110									

		California										

		Van Horn, James M.										

13	500	Mobil Oil Corp.					ISC	80-83				
14	3500*	-----										
		Mobil Oil Corp.	880				ISC	59-	NE			
		Teal Petroleum Co.	250									
		Texaco, Inc.	2370									
15	4200*	-----										
		Mobil Oil Corp.	2380	WF	56-		CS	64-				
							ISC	63-	ME			
							SD	68-				
16	200*	Texaco, Inc.	1820									

		Getty Oil Co.	200									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
17	400*	Chevron USA, Inc.	100									
		Getty Oil Co.	280	WF	76-							

18	600*	Southern California Gas Co.	600									

19	50	McCulloch Oil and Gas Co.	50	WF	70-							

20	350	Teal Petroleum Co.	340				CS	65-				
		----					ISC	64-				
21	260	Shell Oil Co.	260									

22	50	Union Oil Co.	40									

23	910*	Exxon	910	WF	58-69							
		----		PM	54-71							
24	140	Morton and Dolley	110									

25	100	Union Oil Co.	100									

26	425	Union Oil Co.	425	WF	56-59		CS	64-65	NE			

27	190	Arco Oil and Gas Co.	90									
		Ojai Oil Co.	50									

28	435	Arco Oil and Gas Co.	435									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VF - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
29	150	Decalta International Corp.	40									
		Getty Oil Co.	110	WF	64-							

30	700	Albert, Jacob	40									
		Crown Central Petroleum Corp.	270	WF	54-		CS	64-71				
							ISC	64-	NE			
		Riley, Jim	140									

31	430*	Chevron USA, Inc.	80									
		Crestmont Oil & Gas Co.	40									
		Gulf Energy and Minerals Co.	40									
		Herley Kelley Co.	50									
		Superior Oil Co.	60									
		Texaco, Inc.	140									

32	70*	Union Oil Co.	70				CS	64-65				

33	100	Texaco, Inc.	100									

34	240	Feldman, D.D., Oil and Gas	50									
		Union Oil Co.	190									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
35	2060	Arco	500									
		Chevron	270									
		Richards Oil Co.	320									
		Teal Petroleum Co.	100									
		Union Oil Co.	870									
36	480	-----										
		Getty Oil Co.	980									
		Husky Oil Co.	480									
		Occidental Petroleum Corp.	120									
		Oxy Petroleum, Inc.	(NA)									
37	1120	Russell, Robert G. and Son, Inc.	60									

		Chevron	180									
		Continental Oil Co.	600									
		Getty Oil Co.	50									
38	100*	Texaco, Inc.	160									

		Mobil Oil Corp.	80									
39	2780	-----										
		Chevron USA, Inc.	400									
		Getty Oil Co.	370	WF	68-							
		Husky Oil Co.	270									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
40	590	Mobil Oil Corp.	300									
		Sun Oil Co.	190	WF	68-							
		Union Oil Co.	1150									
		Getty Oil Co.	490	WF	64-		CS	63-				
		Union Oil Co.	80	WF	64-		ISC	65-				
41	2930	Getty Oil Co.	130									
		Sun Oil Co.	110									
		Union Oil Co.	2690	WF	54-		CS	64-				
42	650	Arco Co. (Joint Op.)	80				SD	71-				
		Berwood Corp.	80									
		Chevron USA, Inc.	170									
		Sun Oil Co. (Joint Op.)	80									
		Texaco, Inc.	100									
		Union Oil Co.	140									
43	1990	Thriftway Oil of California	40									
		Union Oil Co. of California	1940				CS	64-				

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam
2. ISC - In Situ Combustion
3. MD - Miscible Displacement
4. PF - Polymer Flood
5. PM - Pressure Maintenance
6. SD - Steam Drive
7. TH - Thermal
8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
44	2110	Union Oil Co.	2110									

45	3670	American Pacific International	50									
		Baumgartner Oil Co.	40									
		Reserve Oil Co.	290	WF	50-							
		Shell Oil Co.	630									
		Union Oil Co.	2660	WF	50-							

46	570	Shell Oil Co.	400									
		Union Oil Co.	170									

47	230	Husky Oil of Delaware	230									

48	4020	Argo Petroleum Corp.	100									
		Husky Oil Co.	180									
		Kovac, Paul J.	40									
		McFarland Energy, Inc.	80									
		Union Oil Co.	3600	WF	51-							

49	120	Husky Oil Co.	120				CS	65-66				

50	600*	Continental Oil Co.	60									
		Husky Oil Co. of Delaware	150									

Evaluation Descriptions

- ME - Moderately Effective
- NE - Not Effective
- UD - Undetermined
- VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. FM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
51	450	Shell Oil Co.	170	WF	76-							
		SM Hydrocarbons, Inc.	40									
		Texaco, Inc.	120									
		Union Oil Co.	40									
52	300	Getty Oil Co.	450	WF	53-		CS	63-65				
		Arco Oil and Gas Co.	80									
		Gulf Oil Corp.	200									
		Oxy Petroleum, Inc.	(NA)									
53	120	Gulf Oil Corp.	100									
		Brea-Canon Oil Co.	150									
		Copper and Brain-Brea	70									
		Shell Oil Co.	500	WF	61-		SD	72-				
54	860*	Union Oil Co.	120									
		Chanslor-Western Oil and Development Co.	170									
		Crestmont Oil and Gas Co.	80									
		Mobil Oil Corp.	50									
55	705*	Shell Oil Co.	240									
		Union Oil Co.	150	WF	64-							

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
56	590	Mobil Oil Corp.	110									
		Union Oil Co.	480	WF	65-72	NE	ISC	72-				
57	750	Union Oil Co.	720	WF	68-		CS	69-				
58	200	Anaheim Union Water Co.	40									
		Union Oil Co.	160	WF	69-							
59	400	Union Oil Co.	400	WF	66-							
60	160	Chevron USA, Inc.	160									
61	80	Chevron USA, Inc.	60									
62	2345	Chevron USA, Inc.										
		Energy Development of California, Inc.										
		Tiberg Oil Co.										
63	NA	Aminoil USA, Inc.										
64	1200*	Aminoil USA, Inc.										
		Chevron USA, Inc.										
65		Aminoil USA, Inc.		WF	65-							
		Chevron USA, Inc.		WF	65-							

Evaluation Descriptions

1. ME - Moderately Effective
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3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam
2. ISC - *In Situ* Combustion
3. MD - Miscible Displacement
4. PF - Polymer Flood
5. PM - Pressure Maintenance
6. SD - Steam Drive
7. TH - Thermal
8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
66	930	Chevron USA, Inc. ---		WF	65-							
67		Chevron USA, Inc. Energy Development of California, Inc. ---		WF	71-							
68	370	Chevron USA, Inc. ---	370	WF	71-		CS SD	64- 65-				
69	1070	Chevron USA, Inc. Getty Oil Co. ---	860 50									
70	70	Palm Petroleum Corp. Union Oil ---	70	WF	68-							
71	45	Sun Oil Co. ---	45									
72	965	Arco, Inc. Shell Oil Co. Texaco, Inc. ---	200 200 350	WF WF WF	64- 64- 64-							
73	650*	Chevron USA, Inc. Texaco, Inc. ---	470 60	WF	53-							
74		Kernview Oil Corp. ---										

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
75	625	General Crude Oil -----	600									
76	248	Southern California Gas Co. -----	214									
77	342	Southern California Gas Co. -----	342	WF	71-							
78	1160	Pyramid Oil Co. Texaco, Inc. Union Oil Co. -----	60 580 450	 WF WF	 62- 62-							
79	350*	Chevron USA, Inc. Union Oil Co. -----	210 140	WF WF	44- 44-							
80	365	Chevron Seaboard Oil and Gas Co. -----	80 285									
81	330	Chevron -----	330	WF	71-							
82	270	Union Oil Co. -----	240									
83	1480	American Pacific International Chanslor-Western Oil and Development Co. Chevron Driltrol	290 70 200 50									

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
84	3435	Exxon Co. USA	120									
		Mobil Oil Co.	260									
		Petro-Lewis Corp.	200									
		Santa Fe Energy Co.	90									

		American Pacific International	350									
		Chanslor and Western Oil and Development Co. and Mobil Oil Corp. (Unitized)	650									
		Cooper and Brain, Inc.	60									
		Decalta International Corp.	70									
		Exxon Co. USA	170									
85	500*	Granes	60									
		Great Lakes, Inc.	230									
		O'Donnell	80									
86	100	Petro-Lewis Corp.	200									
		Superior Oil Co. (Unitized)	780									

85	500*	Chevron USA, Inc.	480	WF	61-							
86	100	Mitchell Energy Corp.	80									

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
87	1115	Thums Long Beach Co. — — —	1115	WF	67-	VE						
88	125	Thums Long Beach Co. — — —	125	WF	67-	ME						
89	520	Thums Long Beach Co. — — —	520	WF	67-	ME						
90	270	Thums Long Beach Co. — — —	270	WF	67-	ME						
91	213	Thums Long Beach Co. — — —	213	WF	67-	ME						
92	2376	Thums Long Beach Co. — — —	2376	WF	65-	VE						
93	1040	Thums Long Beach Co. — — —	1040									
94	1020	Thums Long Beach Co. — — —	1020	WF	67-	VE						
95	449	Thums Long Beach Co. — — —	449	WF	67-	VE						
96	159	Thums Long Beach Co. — — —	159	WF	67-	VE						
97	128	Thums Long Beach Co. — — —	128	WF	67-	ME						
98	856*	Long Beach Oil Development Co. Mobil Oil Corp. Sun Oil Co. — — —	371 391 93	WF WF WF	61- 61- 61-							

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
99	630*	Long Beach, Department of Properties	328	WF	58-	VE						
		Mobil Oil Corp.	302	WF	58-	VE						
100	708*	Long Beach Oil Development Co.	323	WF	58-	VE						
		Mobil Oil Corp.	385	WF	58-	VE						
101	2000	Chevron USA, Inc.	230									
		Long Beach Oil Development Co.	975	WF	61-	VE				PF	69-71	NE
		Mobil Oil Corp.	695									
		Powerine Oil Co.	95	WF	61-	VE				PF	69-71	NE
102	859	Long Beach Oil Development Co.	682	WF	60-	VE						
		Powerine Oil Co.	168	WF	60-	VE						
103	72*	Long Beach Oil Development Co.	72	WF	64-66							
104	366	Long Beach Oil Development Co.	308	WF	53-	VE						
		Powerine Oil Co.	58	WF	53-	VE						
105	241	Powerine Oil Co.	218	WF	58-	ME						
106	740*	Chevron USA, Inc.	400									
		Continental Production Co.	79									
		Long Beach Oil Development Co.	55	WF	56-	VE						

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
107	199	Powerine Oil Co.	206	WF	56-	VE						

		Powerine Oil Co.	166	WF	59-	VE						
108	600*	-----										
		Champlin Petroleum Co.	391	WF	61-	VE						
		Exxon Co., USA	128	WF	61-	VE						
		Mobil Oil Corp.	81	WF	61-	VE						

109	210	Champlin Petroleum Co.	124	WF	59-	VE						
		Long Beach Oil Development Co.	86	WF	59-	VE						

110	180	Champlin Petroleum Co.	174	WF	54-	VE						
111	488	-----										
		Champlin Petroleum Co.	435	WF	59-	VE						
		Long Beach Oil Development Co.	53	WF	59-	VE						
112	80	-----										
		Champlin Petroleum Co.	80	WF	60-	VE						

113	64	Champlin Petroleum Co.	64	WF	59-	VE						
114	500*	-----										
		Champlin Petroleum Co.	372	WF	58-	VE						
		Long Beach Oil Development Co.	128	WF	58-	VE						
115	224*	-----										
		Champlin Petroleum Co.	202	WF	54-	VE						

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
116	2095*	Argo Petroleum Corp.	(NA)									
		Exxon Co. USA	1993	WF	59-	VE						
117	235*	Sun Oil Co.	185	WF	59-	VE						
118	104	Champlin Petroleum Co.	45	WF	59-	VE						
		Sun Oil Co.	52	WF	59-	VE						
119	200	Sun Oil Co.	183	WF	73-	VE	CS	63-				
120	200*	Shell Oil Co.	110				SD					
121	620	Gulf Oil Co.	100									
		Shell Oil Co.	460				CS	60-				
		Tenneco Oil Co.	60				SD	71-				
122	90*	Shell Oil Co.	90				CS	65-				
123	105	(Many Minor Operators)					SD	64-				
124	130	H.H. and W. Exploration Co.	100									
125	85	Petro-Lewis Corp.	85									
126	285	Chevron USA, Inc.	60									
		Samson Resources Co.	220	WF	59-							

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
127	145	Shell Oil Co.	90									
128	(NA)	Pickrell, D.J.										
		Shell Oil Co.										
		Texaco, Inc.										
129	265	Shell Oil Co.	200									
		Texaco, Inc.	65									
130	280	Getty Oil Co.	110									
		Shell Oil Co.	150									
131	(NA)	Belridge Oil Co.										
		Chevron USA, Inc.										
		Evans and Carey, Inc.										
		Shell Oil Co.										
		Union Oil Co.										
		Virsal Oil Co.										
132	8610	Belridge Oil Co.	(NA)									
		Berry Oil Co.	50									
		Chevron USA, Inc.	240									

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
133	10560*	Daleco Resources	100									
		Getty Oil Co.	90									
		K and K Oil Co.	130									
		Mobil Oil Corp.	1730				CS	64-				
							SD	63-				
							ISC	64-				
		Petro-Lewis Corp.	180									
		Rainbow Oil Co.	40									
		Shell Oil Co.	6010									

134	6400*	Chevron USA, Inc.	4330									
		Getty Oil Co.	80									
		Gulf Oil Corp.	90									
		Shell Oil Co.	5740							PF	76-	

		Central California Oil Co.	50									
		Chambers - Movren	60									
		Chanslor-Western Oil and Development Corp.	750									
		Chevron	2670									
		Hougham, E.B.	130									
		Shell Oil Co.	1730									

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
135	160	Texaco, Inc.	590									
		Whittier, M.H. Corp.	290									

136	1380	Mobil Oil Co.	100									

		Chevron USA, Inc.	570				SD	75-	VE			
		Getty Oil Co.	70									
		Mobil Oil Co.	170									
		Sun Oil Co.	110									
		Union Oil Co.	90									
		Victory Oil Co.	40									

137	310	Tesoro Petroleum	310	PM	48-							

		California Steam Oil Co.	70									

139	160	Killingsworth, C.C.	70									
		Tesoro Oil Co.	40									

140	1670	Chevron Oil Co.	530									
		Getty Oil Co.	120									
		Gulf Oil Corp.	40									
		Superior Oil Co.	40									

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
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4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
141	1600	Union Oil Co.	70									
		Victory Oil Co.	110									

		Exxon USA, Inc.	710									
		Henry, G.A.	50									
		Jayco, E.M.	170									
		Miller, R. Bruce	60									
		Mobil Oil Co.	50									
		Morris, Mark	280									
142	1500*	Texaco, Inc.	120									
		Union Oil Co.	60									

		Chapparral Petroleum, Inc.	50									
		EMJAYCO	170									
		Energy Production and Sales Co.	40									
143	490	Exxon USA, Inc.	990									
		Mobil Oil Co.	130									

		Buttes Resources Co.	140									
		Petro-Lewis Corp.	40									
		Redbank Oil Co.	150									

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
144	1125	Buttes Resources Co.	200									
		Chevron, Inc.	90									
		King Petroleum and Development Corp.	60									
		Morris, Mark, Inc.	150									
		Pyramid Oil Co.	100									
		Riley, Jim	90									
		Rothschild Oil Co.	230									

145	16000	Williams Brothers Engineering	16000									

146	1125	Texaco, Inc.	1125									

147	2680	Aminoil USA, Inc.	220									
		Ancord-Verde Corp.	190									
		Baker, J.E.	40									
		Buttes Resources Co.	90									
		Crestmont Oil and Gas Co.	80									
		Gulf Oil Co.	1280									
		Henry, R.W.	50									
		Lebow and Lebow	160									
		Mobil Oil Co.	40									

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2. ISC - <i>In Situ</i> Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
148	610	Mowhawk Oil Co.	60									
		Montara Petroleum Co.	50									
		PSI Land Co.	40									
		Teal Petroleum Co.	40									
		Tenneco West, Inc.	110									

		Crestmont Oil and Gas Co.	70									
		EMJAYCO	90									
149	5540	Gulf Oil Corp.	280									
		Petro-Lewis Corp.	70									

		Arco	230									
		Carrec Oil Associates	120									
		Century Oil Management	710									
		Chanslor-Western Oil and Development Corp.	410									
		Chevron USA, Inc.	1170									
		Crestmont Oil and Gas Co.	690									
		Draucker, C.D.	40									
		Drinkhouse and Hammerslough	40									
		Getty Oil Co.	990									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
149 (Cont.)	9435	Mobil Oil Co.	560									
		Texaco, Inc.	320									
		Whittier, M.H. Corp.	100									

150		Chanslor Western Oil and Development Corp.	500									
		Chapparral Petroleum, Inc.	60									
		Chevron USA, Inc.	1650				SD	62-	VE			
		Exxon Co., USA	(NA)									
		Getty Oil Co.	5100				SD	62-	VE			
		Great Western Properties, Inc.	50									
		McManus Oil Co.	60									
		Pacific Leasehold, Inc.	50									
		Rainbow Oil Co.	40									
		Road Oil Sales, Inc.	80									
	Shell Oil Co.	1080				SD	62-	VE				
	Sun Oil Co.	110										
	Tenneco Oil Co.	540										

151	200	Gulf Oil Corp.	50									
		Mobil Oil Co.	70									

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
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*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
151 (Cont.)	4000*	Superior Oil Co.	40									
152		Arco Oil and Gas Co.	80									
		Chevron USA, Inc.	930									
		Getty Oil Co.	290									
		Mobil Oil Corp.	910									
		Superior Oil Co.	50									
153	360	Chevron USA, Inc.	80									
		Marlyn Co.	220									
154	1430	Brogdon Oil Co.	50									
		Chevron USA, Inc.	160									
		Circle Oil Co.	60									
		Getty Oil Co.	1090									
		Oxy Petroleum, Inc.	40									
155	(NA)	Chevron USA, Inc.										
		Getty Oil Co.										
		Texfel Petroleum Corp.										
		Union Oil Co.										

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
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*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
156	(NA)	Arco Oil and Gas Co. Chevron USA, Inc. Getty Oil Co. -----										
157	430	Chevron USA, Inc. Mobil Oil Corp. -----	140 290									
158	(NA)	Chevron USA, Inc. -----										
159	(NA)	Chapparral Petroleum, Inc. O'Brien-Sill Lease Petro-Lewis Corp. -----										
160		Chevron USA, Inc. Mobil Oil Co. Texaco, Inc. -----	13647 2193 8530									
161	265	Arco Oil and Gas Co. Mobil Oil Co. Texaco, Inc. -----	130 40 60									
162	(NA)	Chevron USA, Inc. General American Oil Co. of Texas										

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
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*Acres estimated.

**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evalu- ation	Thermal			Other		
							Type	Date	Evalu- ation	Type	Date	Evalu- ation
162 (Cont.)		Mobil Oil Co. Petro-Lewis Oil Corp. Sun Oil Co. Windes, A.L. ---										
163	120	Tenneco Oil Co. ---	120									
164	230	Chevron USA, Inc. Mobil Oil Co. ---	170 50									
165	320	Arco Oil and Gas Co. Chevron USA, Inc. Getty Oil Co. ---	70 100 150									
166		Alford/Elliot Arco Oil and Gas Co. B/R Oil Co. Berry/Ewing Berry Holding Berry Oil Co. Big Ten Oil Co. Chanslor and Western Oil Development Corp	40 1080 50 680 340 380 190 4030									

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
166 (Cont.)		Chapparral Petroleum, Inc.	480									
		Chevron USA, Inc.	4620									
		Directors Oil Co.	40									
		Drilling and Production Co.	120									
		Ethel, D. Co.	170									
		Exeter Oil Co., Ltd.	220									
		Formax Oil Co.	270									
		Gary Drilling Co.	50									
		General American Oil Co. of Texas	210									
		Getty Oil Co.	1380									
		Gulf Oil Corp.	110									
		McCullogh Oil Corp.	410									
		McFarland Energy, Inc.	490									
		Mobil Oil Corp.	1850				ISC	60-				
		Occidental Petroleum Corp.	150									
		Overland Petroleum Co.	40									
		Petro-Lewis Corp.	40									
		Pyramid Oil Co.	50									
		Shell Oil Co.	2000									

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Recovery Type Descriptions

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2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
166 (Cont.)		Sun Oil Co.	910									
		Surprise Oil Co.	160									
		Tannehill Oil Co.	450									
		Tenneco Oil Co.	650									
		Texaco, Inc.	500									
		Thomas Oil Co.	50									
		Union Oil Co.	800									
		Victory Oil Co.	280									
		Whittier, M.H. Corp.	280									
		Williams Oil Co.	60									
167		----- Chevron USA, Inc.										
168		----- Chanslor-Western Oil and Development Corp. McFarland Energy, Inc. Shell Oil Co. Union Oil Co. -----										
169	(NA)	Chanslor-Western Oil and Development Corp. Chevron USA, Inc. Shell Oil Co. -----										

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - <i>In Situ</i> Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
170	(NA)	Chanslor-Western Oil and Development Corp -----										
171	250	Chanslor-Western Oil and Development Corp -----					CS	73-74	NE			
172	665	Brady, Jerry Crestmont Oil and Gas Co. Doe, Robert B. Schaefer Oil Co. Steele Petroleum Co. -----	50 70 40 360 50				SD	75-				
173	375	EMJAYCO Petro-Lewis Corp. Road Oil Sales, Inc. Santa Fe Energy Co. Thomas Oil Co. -----	90 90 40 90 50									
174	2220	Shell Oil Co. Texaco, Inc. Transcon Oil Well Service -----	2100 60 40				CS SD	63-				
175	150	Riley, Jim -----	150	WF	54-68							

Evaluation Descriptions

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3. UD - Undetermined
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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. WF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
176	60	---										
177	165*	Getty Oil Co.	100									
178	280	Petro-Lewis Corp.	200									
179	3285	Atlantic Oil Co.	50									
		Century Oil Management, Inc.	70									
		Chanslor-Western Oil and Development Corp.	240									
		Chevron USA, Inc.	1670	WF	72-							
		Dougan, L.C.	50									
		Drinkhouse and Hammerslaugh	60									
		Getty Oil Co.	270									
		Marathon Oil Co.	240									
		Sperry, Kenneth	40									
		Tenneco Oil Co.	320									
		Tesoro Petroleum Corp.	230									
180	140*	General Crude Oil Co.	90									
181	285*	Chevron USA, Inc.	285	WF	67-							

Evaluation Descriptions

1. ME - Moderately Effective
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3. UE - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam
2. ISC - In Situ Combustion
3. MD - Miscible Displacement
4. PF - Polymer Flood
5. PM - Pressure Maintenance
6. SD - Steam Drive
7. TH - Thermal
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
182	600	Chevron USA, Inc.	600	WF	55-56							
183	435	Ken-Lynn Corp.	40									
		Pacifica Oil Co.	120									
		Thomas Oil Co.	270									
184	990	Getty Oil Co.	520									
		Pacifica Oil Co.	40									
		Shell Oil Co.	160									
		Thomas Oil Co.	270									
185	620	Getty Oil Co.	70									
		Scoggins, W.E.	40									
		Shell Oil Co.	350									
		Thomas Oil Co.	160									
186	305*	Drilling & Production Co.	155									
		Reserve Oil Co.	150									
187	435	Arco Oil and Gas Co.	60									
		Reserve Oil Co.	230									

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Recovery Type Descriptions

1. CS - Cyclic Steam
2. ISC - *In Situ* Combustion
3. MD - Miscible Displacement
4. PF - Polymer Flood
5. PM - Pressure Maintenance
6. SD - Steam Drive
7. TH - Thermal
8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
188	195	Arco Oil and Gas Co. -----	195									
189	540	Chanslor-Western Oil and Development Corp.	200	WF	60-							
		Drilling and Production Co. -----	200	WF	60-							
190	170	Arco Oil and Gas Co. Tenneco West, Inc. -----	130	WF	62-							
			40									
191	310	Arco Oil and Gas Co. -----	310	WF	62-							
192	410	Callon Petroleum Co. Seaboard Oil and Gas Co. -----	140									
			60									
193	90	Occidental Petroleum Corp. ----- Colorado -----	90				CS ISC	64-	NE			
194	601	Conoco -----	601							MD		NE
195	448	Atlantic Richfield Getty Oil W.C. McBride -----	336									
			56									
			56									
196	400	Brew, R.D. Brunel, John H.	40									
			80									

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Recovery Type Descriptions

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
196 (Cont.)		Union Texas Petroleum	280									
		----- Illinois										
197	800	Barr-Homan-Robinson	180	WF	66-							
		Dobie, G.T.	90	WF	66-							
		Henigman, W., Estate	60	WF	66-							
		Neuman, Judith	40	WF	66-							
		Patillo, Otis, Estate	110	WF	66-							
		----- Kansas										
198	1240	Bird, Handley L.	60									
		Colt, Mack C.	720	WF	57-							
		Steinforth, Lore	240									

199	1910	Boyer, Marvin E., Oil Co. (Don Boyer)	560									
		Carmel Energy	40									
		Layton Oil Co.	240				ISC	63-				
		Royal Oil and Gas	140									

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Recovery Type Descriptions

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
200	4520	Banner Oil	40									
		Colt, Mack C., Inc.	360	WF	53-							
		Ensminger Drilling Co.	640	WF	76-		ISC	65-				
		Inexco Oil Co.	2540									
201	1740	-----										
		Aztec Oil	80									
		Dunigan, E.J. (F.H. Thompson)	80									
		Fleming and Stubbs (Ray C. Fleming)	80									
		McClure, M.C.	40									
		N and B Enterprises (Ed Noland)	580	WF								
		Susmio Oil Co. (Don B. Smith)	140									
		Tee Drilling Co., Inc. (F.H. Thompkins)	400	WF	75-							
202		-----										
		Kentucky										

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
203	900	Louisiana										
		Bayou State Oil Corp.					ISC	63-	ME			
		Cities Service Co.					ISC	71-	ME			
204	100480	Getty Oil Co.					ISC	63-	ME			
		Allen Brothers										
		Allen, W.C.										
		Amoco Production Co. (R.M. Darling)										
		B&G Oil Co.										
		Backus and Lanford										
		Bailey, J.W.										
		Bayou Production Co., Inc.										
		Bayou State Oil Corp.										
		Bonner and Carter										
		Bonner, H.J.										
		Bowers, John C.										
		Brooks and Lee										
		Cities Service Co. (E.L. Cralle)										
		Cohen and Kosovitz										

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1. CS - Cyclic Steam	5. PM - Pressure Maintenance
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
204 (Cont.)		Conoco Davis, R.H. Dempsey, Jimmy P. Ducote Oil Co. Energy Oil and Gas Transportation Fields, Herman Four Star Oil Company Gemini Exploration, Inc. Goodwill, G.R. Haddad, George A., Jr. Hardey, B.A., Jr. Hardey Company, The Hargraves, F.E. Hargraves, F.E. and Son Drilling Co., Inc. Hart and McFarland Israel-Atlas Properties Jeems Bayou Production Corp. Kennedy and Bacheller Latham, Gary D.					ISC	73-	VE			

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
204 (Cont.)		Lewis and Manziel										
		Lynn, Bruce N.										
		Marcom, J.D.										
		Martin Oil and Gas Co.										
		McGoldrick Oil Co.										
		McKnight, I.W., Production										
		Mid-Field Oil Co.										
		Mobil Oil Corp.										
		Morris, C.L.										
		Morris, C.L., Inc.										
		Muslow and Parker										
		O.F.H., Inc.										
		Pardue, N.J.										
		Pen-Tex Corp.										
		Roussel, Louis J.										
		Schmitz, Herbert J.										
		Southern Oil and Gas Co.										
		Star Falcon Oil Co.										
		Stewart, Austin E.										

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
204 (Cont.)		Stinhall Corp. Sugar Oil Co. (Alan Sugar) Sutton, H.E. Texaco, Inc. (R.H. Abbott, Jr.) Tholl Oil Co. Thomas, John W. W&K Oil Co. W&L Oil Co. ---					SD	75-	ME			
205	9300	Colgrade Investment Corp. Cross Development Co. Crown Zellerback Crown Zellerback and Newton Energy Management, Inc. Galoob, Mitton Harter Oil Co. RLS Partnership ---										
206	1995	Monsanto Co. Yellow Dog Oil Co. ---		WF	55-	VE						

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
207	8120	Bodcaw Co. (W.L. Davis) Cross Development Co. Hawkins, H.L. and H.L., Jr. Hunt, Caroline Trust Estate Hunt Petroleum Corp. James, T.L. and Co., Inc. Justiss-Mears Oil Co., Inc. Placid Oil Co. Reliance Trust ---										
208	1290	Caddo Oil Co., Inc. (D.A. Raymond, III) Crown Zellerback and Newton Ray, S.W., et al. Sour, A.W., Jr. ---										
209,210	9500	A.A.A. Corp. Alexander, E.P. Alexander, E.P., et al. American Casing Crews, Inc. BLSW Pleasure Corp., Inc. Beebe, H.K.										

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evalu- ation	Thermal			Other		
							Type	Date	Evalu- ation	Type	Date	Evalu- ation
209,210 (Cont.)		Cities Service Co. (E.L. Cralle) Cross Development Co. Easterling, Thomas Gilbert, J.C. Harter Oil Co. Horne, Ransom, Jr. Loe, Glen D. Miles Oil and Gas Co. Moore, Ellis M., et al. Placid Oil Co. SSM Partnership -----										
211	57	Shell Oil Co. (R.L. Fay) -----					SD	74-	ME			
212	4140	Energy Reserves Group Energy Sources, Inc. Estis, W.L. Great Southern Oil and Gas Co. (R.L. McAdams) Lyon Petroleum, Inc. (E.L. Hillard) Meason Operating Co. (J.R. Meason)										

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - <i>In Situ</i> Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
212 (Cont.)		Parnes, Irwin H. Petroleum Management, Inc. Texaco, Inc. Windfohr Oil Co. -----					SD	74-	UD			
213	7020	Auster Oil and Gas, Inc. Brown, C.L., III Exchange Oil and Gas Corp. Gulf Oil Corp. MPS Production Co. Pickens Co., Inc. Texas Pacific Oil Co. (J.D. Waggoner) Tribal Oil Co. Union Oil Co. of California (H.B. Ingram) ----- Mississippi -----										
214	3080	Exxon Corp. Gulf Oil Corp. North Central Oil Corp. Pruet and Hughes Co.	80 2500 80 40									

Evaluation Descriptions

1. ME - Moderately Effective
2. NE - Not Effective
3. UD - Undetermined
4. VE - Very Effective

Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - <i>In Situ</i> Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
214 (Cont.)		Sun Oil Co.	240									
		Superior Oil Co.	40									
		Texaco, Inc. ---	120									
215	4280	Gulf Oil Corp.	3400									
		Sun Oil Co.	250									
		Superior Oil Co.	70									
		Texaco, Inc.	180									
		Marshall R. Young Oil Co. ---	140									
216	440	Exxon Corp.	110									
		Gulf Oil Corp.	110									
		Pruett and Hughes Co. ---	220									
217	2360	Amerada Hess Corp. ---	1400	WF	66-							
218	240	Ginther, N.C.	120									
		Tyson, R.W., Producing ---	120									
219	1360	Gulf Oil Corp.	8000									
		Lake Ronel Oil Co.	120									
		Sun Oil Co. ---	200									

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Recovery Type Descriptions

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Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
220	8360	Altex Corp., The	3100									
		Atlantic Richfield Co.	140									
		Barnhart Co.	220									
		C&K Petroleum, Inc.	510									
		Collins, Ora C. Assoc., Inc.	70									
		Dixie Oil Co.	70									
		Getty Oil Co.	70									
		Gulf Oil Corp.	2800									
		Hammill, Claud B:	70									
		Heidelberg Oil Co.	140									
		Hunt, Hassie, Inc.	70									
		Ladd Petroleum Corp.	70									
		Lake Ronel Oil Co.	280									
		Monsanto Chemical Co.	70									
		Morgan, C.L., et al.	70									
		Sun Oil Co.	360									
221	520	Tenneco Oil Co.	220									

		Gulf Oil Corp.	360									
		Sun Oil Co.	80									

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Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
222	560	Barnhart Co.	40									
		Gulf Oil Corp.	480									
		Tenneco Oil Co.	40									
223	554	-----										
		Gulf Oil Corp.	280	PM	71-							

224	1920	American Petrofina Co. of Texas	80									
		Barnhart Co.	110									
		Gulf Oil Corp.	1540									
		Mobil Oil Corp.	80									
		Tenneco Oil Co.	110									

225	1320	Anderson, Arden A.	420									
		Clarke Equipment and Supply Co.	70									
		General Exploration Co.	140									
		Oglesby, Marshall	350									
		Pounds, J.R., Inc.	100									
		Southeastern Public Service Co.	70									
		Stack, J.E., Jr.	170									

226	1320	Anderson, Arden A.	1250	WF	67-							
		Thurber, George, Jr.	70									

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
227	680	Ginther, N.C.	290									
		Lee-Tyson Companies	390									

228	900	Ainsworth, Otis	260									
		Petroleum Management, Inc.	450									
		White, Charles R.	190									

229	600	Triad Oil and Gas Co., Inc.	600	PM	69-71							

230	1040	Cashion, Lyle, Co.	480	WF	72-							
		Davis, Jimmy B.	80									
		Gas Rock Corp.	40									
		McGoldrick Oil Co.	120									
		McGoldrick and Watson	320									

231	3560	Exxon Corp.	2360							PF	73-(82)	

		Oklahoma										

232	840	Mobil Oil Corp.	760	WF	51-							

233	5020	---										

234	325	Sohio Petroleum Corp.					ISC	70-72	VE			

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
235	705	Shell Oil Co.		WF	64-		SD	64-				
		-----					ISC	61-				
236	370	Twin Mountain Oil Co.		WF	62-							

237	4000*	C&S Oil Co.	600									
		Continental Oil Co.	2300				ISC	75	NE			
		Flournoy, C.D.	180				SD	76	VE			
		Swan Oil Co.	80									
		Weeks, Bill	100									

238	560	Getty Oil Co.	560	PM	66-							

239	2620	Amoco Production Co.		WF	55-							
		Mobil Oil Corp.		WF	58-							

240	1164*	Getty Oil Co.	1164	WF	68-							
		Sun Oil Co.	(NA)									

		Texas										

241	1900	Atlantic Richfield Co.	325									
		Mobil Oil Corp.	570	PM	68-	VE						
		Sun Oil Co.	220		(87)							

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
241 (Cont.)	1290	Texaco, Inc.	760									
242		B&E Production Co.	50									
		Harvey, K.J.	45									
		Lagerquist, Walter G., Jr.	80									
		Lama Oil Co.	550									
		McFadden Oil Corp.	440									
		Morrill, George P.	60									
243	5500	Electrothermics Co., The	500									
		Mormal Oil and Gas Co. (for Hanover Pet.)	5000				ISC	75-76	NE			
244	4700	Gillespie, Frank M., Jr.	140									
		Hydrocarbon Operating Co. of America	90									
		Jennings, C.A.	140									
		Klaeger, G.H.	330									
		McFadden Oil Corp.	640									
		Medina Exploration, Inc.	60									
		Moebius, Preston F.	390									
		Petro Oil and Gas, Inc.	620									
		Production Research of Texas, Inc.	850				SD	78-	VE			

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4. PF - Polymer Flood
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
244 (Cont.)		Rorico Oil Co.	45									
		Texas Secondary Oil Corp.	390									
		Tex-East Petroleum Corp.	70									
		Wernette, Louis J.	50									
		Whitcomb, Gail -----	600									
245	820	Allen and Shumate, Inc. -----	820									
246	1556	Amerada Hess Corp.	980									
		Ken Petroleum	230									
		Reserve Oil Co. -----	310									
247	1750	Ashland Exploration, Inc.	790									
		Exxon Corp.	80									
		Rutherford Oil Corp.	510									
		Rutherford Oil Corp./Royal Oil & Gas Co. -----	340									
248	525	Averill, W.M., Jr.	70									
		Monsanto Chemical Co.	50									
		Petro-Lewis Corp.	290									
		Petro-Search, Inc. -----	60									

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
249	1132	Hass, Charles F.	120									
		Union Oil Co. ---	1010									
250	5755	American Petrofina	150									
		Amoco Production Co.	480									
		Atlantic Richfield Co.	1040									
		Expando Production Co.	150									
		Exxon Corp.	1240	PM	66-	ME						
		Hewitt and Dougherty	280									
		Johns, Edwin M. Oil Co.	130									
		Josey, Lenoir M., Inc.	200									
		Peet Oil Co.	150									
		Pennzoil Production Co.	150									
		Reserve Oil, Inc.	460									
		Sohio	410									
		Sun Oil Co. (Houston) ---	280									
251	4725	Quintana Petroleum Co.	2090	PM	65-	VE						
		T-C Oil Co. - O'Connor ---	2630		(88)							
252	4007	Exxon Corp. - Houston ---	4007	PM	71-	ME						
					(91)							

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
253	480	Bridwell Oil Co.	260									
		Hamilton, John M.	100									
		Wiser Oil Co., The	120									
254	7642	-----										
		Braman, D.H., Jr.	100									
		Copano Co.	100									
		Exxon Corp.	100									
		Hewitt and Dougherty	1410									
		Mellon Oil United	2010									
		Pennzoil Producing Co.	1610									
		Quintana Petroleum Corp.	2310	PM	67-75	UD						
255	2198	Pennzoil Producing Co.	70									
		Quintana Petroleum Corp.	2090	PM	76-							
256	4700	Mobil Oil Corp.	4580	PM	77-	UD						
		Exxon	90									
257	586	-----										
		Brenham Drilling Co.	160									
		Sun Oil Co.	420	WF	67-72							

258	1400	Anderson Producing, Inc.	225									
		Caddo Oil Co., Inc.	320									
		Intercity Management Corp.	540									
		Jet Oil Producers	45									

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- PF - Polymer Flood
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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
258 (Cont.)		Marine Container and Supply, Inc.	90									
		Marshall, A.B.	140									
		Smith, D.H.	45									
259	7895	-----										
		Amoco Production Co. - Old Ocean	165									
		Atlantic Richfield Co.	330									
		Bass Enterprise Production Co.	50									
		Dow Chemical Co., The	753									
		Exxon Corp.	1540	PM	67-	ME						
		Tartan Production Co.	188		(85)							
		Texaco, Inc.	4707									
260	680	Van Norman Oil Co.	80									

		Exxon Corp.	340									
		Gulf Oil Corp.	160									
		Quintana Petroleum Corp.	130									
261	1200	Swearingen, W.P.	50									

		Exxon Corp.	550									
		Gulf Oil Corp.	100									
		Quintana Petroleum Corp.	150									

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
261 (Cont.)		Swearingen, W.P.	400									
262	1500	Chevron USA, Inc.	1500	PM	48-	ME						
263	1840	Buck, George	760	WF	61-80	ME						
		King, R.A. and Sons, Ltd.	540	WF	64-	ME						
		Petroleum Corporation of Texas	270	WF	69- (87)	ME						
		Reynolds, J.C. and W.F.	240	WF	70-	ME						
264	1000	Jones, R.W.	460	WF	64-							
		Mobil Oil Corp.	120	WF	51-73		TH	67-85	ME			
		Sun Oil Co. - Houston	260									
		Texaco, Inc.	140									
265	1800	Horine, Perry W.	1300				TH	68-78				
		Speedman Oil Co.	500									
266	2375	Akers, Bill	65									
		Basic Earth Science Systems, Inc.	1220									
		HNG Oil Co.	60									
		Hawn Brothers and Venus Oil Co.	300									
		Killam and Hurd, Ltd.	620									

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
266 (Cont.)		Petroleum Corporation of Texas ---	85									
267	1900	Sun Oil Co. ---		WF	67-	ME						
268	8500	Bleakley, Jack	370									
		Coffield, H.H.	60									
		Crystal Oil and Land Co.	400									
		Dural County Ranch Co.	210									
		Horine, Perry W.	90									
		Hytech Energy Corp.	1130									
		Intercity Management Corp.	270									
		Jones, Terry, and Eddings	120									
		Kelley Production Co.	150									
		Lundells, Inc.	150									
		Miller-Jones Oil Co.	120	WF	65-78							
		Mobil Oil Corp.	400				ISC	62-				
		Morsey-Wells Oil and Gas Corp.	460									
		Murrell, Gene	550									
		Sparks, Sidney A., Trustee	90									
		Sun Oil Co.	3560	WF	51-	VE						
		Texaco, Inc.	300									

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(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
							Thermal			Other		
				Type	Date	Evaluation	Type	Date	Evaluation	Type	Date	Evaluation
268 (Cont.)	4500	Yucca Production Co.	90									
269		-----										
		Bryant, Harry T., Drilling Co.	260									
		Chumley, George	140									
		Cox, Edwin L. and J. L. Hamon	350	WF	63-90	ME						
		Freer Oil Co.	170									
		Harmon Oil Co.	170									
		Lundells, Inc.	430	WF	68-	ME						
		McAnear, John S.	90									
		Mirando Crude Oil Co.	60									
		Mobil Oil Corp.	400	WF	68-82	ME						
		Morsey-Wells Oil and Gas Corp.	140									
		Petroleum Corporation of Texas	430									
		Seventy Oil Co.	120									
		Texaco, Inc.	60									
		Worldwide Energy Corp.	1640	WF	70-87	ME						

270	4700	Cox, Edwin L.	2300	WF	48-85	VE						
		Cox, Edwin L. and Jake L. Hamand	810									
		Cueller Brothers Oil Co., Inc.	430									

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Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
270 (Cont.)		Expando Oil Co.	150									
		Hytech Energy Corp.	215									
		Johnson, William D.	50									
		Killam and Hurd, Ltd.	80									
		Morsey-Wells Oil and Gas Co.	80									
		Seventy Oil Co.	70									
		Traders Oil and Royalty	70									
		Worldwide Energy Corp.	430									
271	902	Texaco, Inc.	870	WF	58-	VE						
272	1200	Sohio Petroleum Co.	880									
		Teal Petroleum Co.	320									
273	7400	Coffield, H.H.	310									
		General American Oil Co. of Texas	160									
		Gravis, Blanca R.	160									
		Gravis Oil Co.	80									
		Jones and Terry	120									
		Kell Production Co.	160									
		May Belle Oil Co.	80									

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Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
273 (Cont.)		McAnear, John S.	160									
		Morsey-Wells Oil and Gas Corp.	120									
		Petroleum Corporation of Texas	870	WF	57-80	UD						
		Selman, Thomas L.	160									
		Sigmor Corp.	630									
		Smith, R.E.	240									
		Terry Enterprises	40									
		Texaco, Inc.	470									
		Venus Oil Co.	240									
		Warner-Pawel	550	WF								
		Worldwide Energy Corp.	2870	WF	56-87	ME						
274	3544	Abel and Harbison	240	WF	65-85	VE						
		Cox, Edwin L.	675	WF	55-73		ISC	67-72				
		Tesoro Petroleum Corp.	3310	WF	59-82							
275	5000	Beissner, F.L.	515									
		Exxon Corp.	600									
		Lundells, Inc.	2930	PM	45-	UD						
		Mobil Oil Corp.	600									
		Texaco, Inc.	340									

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(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
276	800	Exxon Corp.	430									
		Lundells, Inc.	40									
		Mobil Oil Corp.	100									

277	1135	Fletcher, E.B.	360									
		Mobil Oil Corp.	770	WF	64-75	ME	TH	71-73	ME			

278	1177	(No Operators)										

279	9900	Centurion Energy Resource & Operating Co.	3000									
		Crystal Oil and Land Co.	2700									
		Dinero Oil Co.	1260									
		E and L Corp.	100									
		Expando Production Co.	480									
		Frio Exploration Co.	100									
		McGuffin, Joe S.	300									
		Mobil Oil Corp.	680									
		Morsco, Inc.	780									
		Pearl, Bill Equipment and Rental Co.	100									
		Texaco, Inc.	200									
		Walton, W.W., Jr.	200									

Evaluation Descriptions

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Recovery Type Descriptions

1. CS - Cyclic Steam	5. PM - Pressure Maintenance
2. ISC - In Situ Combustion	6. SD - Steam Drive
3. MD - Miscible Displacement	7. TH - Thermal
4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
280	3600	American Petrofina Co. of Texas	640									
		Hytech Energy Corp.	220									
		Jones, R.W. and Co., Ltd.	310									
		Kelley Production Co.	270									
		Ladd Petroleum Co.	290									
		Petroleum Corporation of Texas	140									
		Rosenthal, Stanley H.	200									
		Teal Petroleum Co.	690									
		Texaco, Inc.	690									
		Universal Mineral Corp.	40									
281	770	Wynn, H.D.	110	PM	69-74							

		Exxon Corp.	230	PM	72-85	ME						
282	1500	Oxoco-Texas, Inc.	70	PM	73-	UD						

		Atlantic Richfield Co.	530									
		Goldston Oil Corp.	420									
		Ridley and Locklin Operating Co., Inc.	220									
		Yates Petroleum Corp.	330									

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Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
283	650	Camp Hill Oil Co., Ltd.	150				TH	71-82				
		Tenneco Oil Co.	240				TH	68-78	ME			
		Texas Recovering Co., Ltd.	260	PM	70-82	UD						
284	2856	-----										
		Gibson, R.L.	105									
		Greenwich Oil Corp.	2640				ISC	76-				
285	10665	Landers, Tom W.	105									

		Exxon Corp.	10665	PM	69-					MD	75-	VE
286	1180	-----										
		American Petrofina Co. of Texas	410									
		C&K Petroleum, Inc.	500									
287	945	Exxon Corp.	270									

		Buck Royalty Co.	120									
288	2500	Gulf Oil Corp.	80									
		Moss Petroleum Co.	240									
		Sapron Energy Corp.	310									
288	2500	-----										
		Shell Oil Co.	1800				TH	67-84				
		Tenneco Oil Co.	390				TH	69-78	ME			
288	2500	Texaco, Inc.	300									

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Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
289	9500	American Petrofina Co. of Texas	160									
		Arcadia Refining Co.	80									
		Byars, B.G.	300									
		Exxon Corp.	4330	WF	67-81	VE						
				PM	74-75	NE						
		Fair, Ralph E., Inc.	190									
		Getty Oil Co.	320									
		Gratton and Vaughan Operating Corp.	340									
		Hinton Production Co.	420									
		Hinton, W.B.	470									
		Lawson Petroleum Co.	100									
		McIlheny-Powell Operating Co.	80									
		Mobil Oil Corp.	940									
		Tenneco Oil Co.	970									
290	850	Texaco Inc.	510									
		Winchester Oil Co.	130									

		Jones-O'Brien, Inc.	470									
		Schlachter, David A.	190									
		Sun Oil - Longview	190							PM	65-77	

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
291	1131	Jones-O'Brien, Inc.	355									
		Schlachter, David	320									
		Sun Oil - Longview	290				TH	69-70				
292	1700	-----										
		Clemco	420									
		Harrison, Sam G.	710									
293	5000	Schlachter, David A.	570									

		Amoco Production Co.	125	WF	61-74							
		Corvette Oil Corp.	370									
		Energy Reserves Group, Inc.	240									
		Gulf Oil Corp.	1510	WF	73-	ME	SD	75-76	ME			
		H & L Oil Co.	75									
		Helmerich and Payne, Inc.	1180	WF	56-99	ME	CS	64-65	NE			
		Iraan Drilling Co., Inc.	71									
		Marathon Oil Co.	580									
		Roberts, James C.	60									
		Slocum, A.G.	100									
		T.J.S. Oil Co.	240									

			1840									

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**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
		Wyoming										
294	1840*	Texaco, Inc.	1840									
295	2360	Marathon Oil Co.	2360	WF	73-							
296	900	Banta and Haigh	490									
		Prenalta Corp.	80									
		True Oil Co.	330									
297	240	Harpel Petroleum Corp.	70									
		Union Oil Co. of California	170				SD	75-	ME			
298	320	Texaco, Inc.	320									
299	760	Continental Oil Co.	760									
300	600*	Union Oil Co. of California	600									
301	1200	Gulf Oil Corp.	1200	WF	71-							
302	1800	Amoco Production Co.	1800	WF	71-							
303	2826	Ajax Oil Co.	200									
		C&K Petroleum, Inc.										
		Mobil Oil Corp.	1300									

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*Acres estimated.

Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

305

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
303 (Cont.)		Phillips Petroleum Co.	200									
		Texaco, Inc.	1000									
304	1220*	Continental Oil Co.	1220									
		Marathon Oil Co.	5880									
305	5880	Marathon Oil Co.	5880									
		Marathon Oil Co.	1315									
306	1315	Marathon Oil Co.	1315									
		Husky Oil Co.	640									
307	640	Husky Oil Co.	640									
		Mobil Oil Corp.	1750									
308	1750	Mobil Oil Corp.	1750									
		Ashland Oil, Inc.	1150									
309	2175	Ashland Oil, Inc.	1150									
		Atlantic Richfield	840									
310	450	Oil Development Co. of Texas	180									
		Homestead Assos.	120									
311	846	Marathon Oil Co.	270									
		Davis Oil Co.	70	WF	75-							
312	712	Dyco Petroleum	100	WF	75-							
		Cities Service Co.	80									
		National Cooperative Refining Co.	80									

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Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
312 (Cont.)		Terra Resources, Inc.	560	WF	73-	VE				PF	75-	VE
313	1770	Amoco Production Co.	1770	WF	66-							
		----		PM	58-							
314	1000	Amoco Production Co.	900									
		Texaco, Inc.	100									

315	760*	Terra Resources, Inc.	760									

316	10300	Husky Oil Co.										
		Marathon Oil Co.		WF	58-							
		Sohio Natural Resources Co.										
		Texaco, Inc.										

317	1640	Husky Oil Co.	1640	WF	67-							

318	680*	Arnell Oil Co.	120									
		Bessemer Oil Co.	560									

319	240*	Chevron USA, Inc.	240	WF								

320	671	Amoco Production Co.	360									
		McCulloch Oil and Gas Co.	310									

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**Exhibit 1-1. Table of Operators and Past Recovery Data
(Continued)**

Reservoir Number	Reservoir Area (Acres)	Names of Operators by States	Area Controlled (Acres)	Secondary Recovery			Enhanced Recovery					
				Type	Date	Evaluation	Thermal			Other		
							Type	Date	Evaluation	Type	Date	Evaluation
321	760	Brehm, C.E.	40									
		Holden, Harold B.	40									
		Pedry, John J.	40									
		Sohio Petroleum Co.	640	WF	71-							
322	320*	Texaco, Inc.	320				ISC	76-	VE			
323	4160	National Cooperative Refining & Assoc.	4160	WF	70-					PF	74-77	
324	200	Continental Oil Co.	200									
325	500*	Sohio Petroleum Co.	150									
		Sun Oil Co.	350									
326	360*	Continental Oil Co.					ISC	59-63	VE			
		Highland Exploration, Inc.	360	WF	62-							
327	207	Amoco Production Co.	207				SD	67-	VE			
328	825	Amoco Production Co.	785	WF	67-	ME						
		Continental Oil Co.	40									

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4. PF - Polymer Flood	8. WF - Water Flood

*Acres estimated.

2. PROJECT DATA SOURCES

This section contains the listing of all sources utilized in the study for data input. The references are categorized as general for those with multiple data, by state, and by company response. The index numbers are those referred to in the printout for each reservoir.

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240. _____: Capitol Resources, Inc. (June 3, 1975); Central Producers, Inc. (February 17, 1967); Delaney Oil Co. (April 22, 1959); Downing, P.A. (November 23, 1971); Jones, Terry & Eddings (January 29, 1968); Mobil Oil Corp. (May 19, 1967, August 3, 1967, April 1969); Newman, B.A., et al. (October 26, 1970, March 24, 1971); Shell Oil Co.; Socony Mobil Oil Co. (November 30, 1961, June 9, 1965); Sparks, Sidney A. Trustee (August 26, 1964, November 13, 1964, January 9, 1965, October 15, 1965, August 15, 1966, May 15, 1967); Sun Oil Co. (October 24, 1963, July 25, 1969, July 5, 1977, January 23, 1979).

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242. _____: Gas Transmission Organization, Inc. (April 25, 1969); Lesh Co. (August 5, 1967, April 30, 1969).
243. _____: The Texas Co. (December 21, 1949, February 10, 1959).
244. _____: C.R. England Oil & Gas Corp. (September 9, 1973, September 10, 1973); Flowers & Ward (December 18, 1956, April 10, 1957); Great Plains Land Co. (July 18, 1973, January 31, 1975); Katz Oil Co. (December 12, 1957); Motco, Inc. (March 15, 1971); Sohio Petroleum Co. (April 29, 1970, September 11, 1970, November 10, 1970, July 26, 1971, June 30, 1972, September 18, 1972, September 13, 1973, October 10, 1973, March 25, 1974, September 27, 1974, March 25, 1975, September 8, 1975, February 2, 1976, December 13, 1976); Teal Petroleum Co. (March 8, 1976, December 13, 1976).
245. _____: Bridwell Oil Co. (August 3, 1955, March 7, 1969); Coffield, H.H. (April 28, 1969); Coonrad & Kelly (July 10, 1969, June 30, 1970); Duval Oil Co. (March 23, 1956, September 25, 1963); Gravis, Blanca R. (June 15, 1974); Humble Oil & Refining Co. (March 20, 1956, June 27, 1956, October 4, 1963); Kelley Production Co. (April 26, 1979, McAnear, John S. (April 29, 1974); Magnolia Petroleum Co. (August 9, 1956); Newman, B.A., et al. (July 2, 1970); Pagenkopf, H.A. & San Andres Production Co. (November 13, 1967, February 28, 1968, March 2, 1970); PetroDynamics, Inc. (November 19, 1971); Petroleum Corp. of Texas (September 1, 1977); Shell Oil Co. (December 21, 1954); Sigmor Corp. (July 8, 1977); Socony Mobil Oil Co. (October 8, 1963, March 2, 1964, January 3, 1966); Texaco Inc. (March 22, 1974); The Texas Co. (July 28, 1955, June 662, 1956); Warner-Pawel (December 7, 1970, September 16, 1972, October 10, 1972); Weco Development Corp. (August 19, 1975, May 7, 1976); Worldwide Energy Corp. (January 29, 1979).

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248. _____: Texaco, Inc. (December 4, 1968).
249. _____: Humble Oil & Refining Co. (April 3, 1951); Magnolia Petroleum Co.; Mobil Oil Corp. (June 17, 1966, March 31, 1967, February 25, 1971, January 29, 1973, March 24, 1976, April 23, 1976, July 30, 1976); Socony Mobil Oil Co. (March 16, 1964, November 10, 1964).
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251. _____: Independence Drilling Corp. (July 16, 1974); Southern Minerals Corp. (June 2, 1949).
252. _____: American Petrofina Co. of Texas (April 28, 1971, July 20, 1973, August 23, 1973); Atlantic Richfield Co. (November 17, 1970); Nugent, G.V. & L.V. Oil Account (April 15, 1971); Sun Oil Co. (July 1, 1971).
253. _____: Republic Natural Gas Co. (November 8, 1950); Texaco, Inc. (September 28, 1960); Williams, H. Martin (May 31, 1958).
254. _____: Cities Service Oil Co. (October 25, 1954); Goldston Oil Corp. (October 15, 1965); Hager, D.S. (December 9, 1936); Spence, Ralph (March 1, 1968).
255. _____: Buttram Petroleum Co. (August 6, 1954); Camp Hill Oil Co. (March 7, 1973, July 13, 1973, September 17, 1973, December 21, 1973); Jeanes, A.G. (May 16, 1966); Kimball Production Co. (July 16, 1968, April 2, 1970); Long, W.L. (August 8, 1961); Premier Oil Refining Co. of Texas (November 25, 1952); Tenneco Oil Co. (February 3, 1970, April 30, 1970, January 11, 1971, March 31, 1972, August 11, 1972); Texas Recovery Co. (July 17, 1973, July 11, 1974, October 16, 1974); Thermal Oil Co. (December 7, 1970, April 30, 1973).

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257. _____: Amoco Prod. Co. (April 13, 1972, May 16, 1972, February 23, 1973); Calto Oil Co. (December 16, 1957); Exxon Corp. (July 1951, September 7, 1976, December 2, 1976, August 23, 1977); Fair Oil Co. (July 31, 1972); Forest Oil Corp. (March 11, 1974); General American Oil Co. of Texas (March 21, 1972); Humble Oil & Refining Co. (June 12, 1968, August 26, 1969, July 7, 1971, November 11, 1971); Mobil Oil Corp. (July 17, 1968, March 5, 1969); Texaco, Inc. (July 17, 1970, February 24, 1972, June 2, 1972, April 6, 1973).
258. _____: Humble Oil & Refining Co. (February 17, 1973).
259. _____: Adair, F.M. (Consultant) (October 28, 1958); Oil Management Corp. (October 30, 1968).
260. _____: Shell Oil Co. (March 28, 1966, April 26, 1966, October 14, 1968, August 1969, February 8, 1972, January 14, 1974, May 25, 1978); Tenneco Oil Co. (April 30, 1970, March 29, 1971, February 10, 1976); Texaco, Inc. (March 25, 1970, January 17, 1974).
261. _____: Exxon Corp. (May 21, 1973, March 24, 1976); Fair, Ralph E., Inc. (May 17, 1976); Getty Oil Co. (December 30, 1975, February 14, 1977); Hinton Production Co. (April 21, 1977); Humble Oil & Refining Co. (May 25, 1967); Mobil Oil Corp. (February 21, 1978, October 27, 1978, January 10, 1979); Tenneco Oil Co. (November 7, 1966); Texaco, Inc. (April 9, 1976);
262. _____: Humble Oil & Refining Co. (November 3, 1959, January 11, 1962); Sunray DX Oil Co. (April 23, 1965).
263. _____: Humble Oil & Refining Co. (November 3, 1959); Schlachter, David A. (October 22, 1975); Sun Oil Co. (July 5, 1977, May 2, 1978); Sunray DX Oil Co. (July 27, 1966, August 6, 1968).
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290. City of Long Beach, Tidelands Agency - Oil Properties, William H. Garrison, Chief Petroleum Engineer, Long Beach, California (July 27, 1979).

291. Exxon Co., USA, E. F. Sabatku, Los Angeles, California (August 7, 1979).

292. Getty Oil Co., Central Exploration and Production Division, R. J. Starrak, Division Production Manager, Tulsa, Oklahoma

293. Gulf Oil Exploration and Production Co., J. P. Benton, Manager, Enhanced Recovery, Houston, Texas (August 3, 1979).

294a. Marathon Oil Company, Casper Division, Casper, Wyoming (1979).

294b. McCulloch Oil and Gas Corp., D. E. Sartan, Staff Engineer, Los Angeles, California (August 1, 1979).

295. Oxy Petroleum Inc., Oil and Gas Exploration and Production, T. D. Blacklock, Bakersfield, California (August 21, 1979).

296. Shell Oil Division, Coastal Division, J. A. Babin, Production Manager, New Orleans, Louisiana (August 15, 1979).

297. Sohio Petroleum Co., Division of Sohio Natural Resources Co., J. E. Owens, Manager of Production, Oklahoma City, Oklahoma (August 6, 1979).

298. Sun Oil Co., J. H. Jowell, District Reservoir Engineer, Tulsa, Oklahoma.

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- 300. Thums Long Beach Company, P. R. Boyle, Staff Reservoir Engineer, Long Beach, California (August 31, 1979).
- 301. Union Oil Company of California, Alan P. Smith, Casper, Wyoming (June 29, 1979).