

WELL ARCO JUSTIS # 6605 1980E COUNTY Lea STATE N. Mex
STRATIGRAPHIC INTERVAL BLINEBRY LOGGED BY JST DATE 9-9-88

DEPTH	PORE TYPE	MINERAL COMPOSITION (INCL. POROSITY)	STRUCTURES	TEXTURE	FABRIC	GRAIN SIZE (DOLOMITE: CRYSTAL SIZE)	CRYSTAL SHAPE	COLOR	FOSSILS/ACCESSORIES										CEMENT
									OR SHAPE	OR LATE	OR PLATE	OR PLATE	OR PLATE	OR PLATE	OR PLATE	OR PLATE	OR PLATE	OR PLATE	
5110				pellicular mudstone wackestone				M Br											
5115			Laminations	med stone				M Br											mold. c. 3-5%
5120			wispy lams					M Br											
5125			Laminations	med stone				M Br											pinpt waxy & moldic c. 6-7%
5130				pellicular mudstone wackestone				M Br											
5135				pellicular mudstone wackestone				M Br											intergranular c. 6-8%
5140				pellicular mudstone wackestone				M Br											intergranular c. 6-8%
5145				pellicular mudstone wackestone				M Br											intergranular c. 4-5%
5150			rip-up clasts - uncongl. dated mud - oolite	pellicular mudstone wackestone				M Br											minor pinpt waxy c. 3-4%
5155			karogen burrowed					M Br											(numerous small line fractures 54-57' 57-77')
5160				pellicular mudstone wackestone				M Br											
5165			burrows	pellicular mudstone wackestone				L Br to L Br											pinpt waxy c.
5170				pellicular mudstone wackestone				L Br to L Br											NO c.
5175				pellicular mudstone wackestone				L Br											NO VIS c.
5180			Terminated	med stone				L Br											NO VIS c.
5185			partially laminated	med stone				L Br											NO VIS c.

WELL ARCO JUSTIS #2

COUNTY Lea

STATE N. Mex

STRATIGRAPHIC INTERVAL BLINEBRY

LOGGED BY GST

DATE 9-9-88

DEPTH	PORE TYPE	MINERAL COMPOSITION (INCL. POROSITY)	STRUCTURES	TEXTURE	FABRIC	GRAIN SIZE (DOLOMITE: CRYSTAL SIZE)	CRYSTAL SHAPE	COLOR	FOSSILS / REEFS										CEMENT
									OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	
5185				Laminated mudstone				L+Br											
5190				Pelloidal mudstone wackestone				L+Br											Minor pipet vuggy Ø 3%
5195				Pelloidal mudstone wackestone				L+Br											
5200				Pelloidal mudstone wackestone Foram mod anhydrite Silt (multiple stages of diagenesis)				L+Br											intergranular pipet vuggy 3-5%Ø
5205				chert nodules pelloidal/skeletal packstone "Crinoid hash" storm deposit				L+Br											intergranular 3-5%Ø
5210				kerogen skeletal packstone/wackestone				L+Br											pipet vuggy Ø 2.5%
5215				Pelloidal mudstone/wackestone bioturbated				L+Br											NO VIS Ø
5220				Pelloidal mudstone/wackestone bioturbated				L+Br											pipet vuggy Ø 3%
5225				kerogen Pelloidal mudstone/wackestone bioturbated				L+Br											pipet vuggy Ø 3%
5230				Pelloidal mudstone/wackestone bioturbated				L+Br											pipet vuggy Ø 3-5%
5235				Pelloidal mudstone/wackestone bioturbated				L+Br											No VIS Ø
5240				Pelloidal mudstone/wackestone				L+Br											pipet vuggy Ø 3-5% to intergranular
5245				kerogen Pelloidal mudstone/wackestone				L+Br											No VIS Ø
5250				Pelloidal laminated mudstone				L+Br											No VIS Ø

DEPTH	PORE TYPE	MINERAL COMPOSITION (INCL. POROSITY)	NATURE OF CONTACT	STRUCTURES		TEXTURE	FABRIC	GRAIN SIZE (DOLOMITE CRYSTAL SIZE)					CRYSTAL SHAPE	COLOR	Ø	FOSSILS/ACCESSORIES										CEMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				TYPE	SIZE			Ø1	Ø2	Ø3	Ø4	Ø5				AM	LM	PM	LM	PM	LM	PM	LM	PM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
5090						MUDSTONE/ WACKSTONE PELLOIDAL ?								L																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

sec 14 T25S R37E
1650 S+E

FIGURE 9A

WELL ARCO LANGLE FEDERAL #2

COUNTY LEA

STATE N. Mex

STRATIGRAPHIC INTERVAL BLUEGRY

LOGGED BY JST

DATE 9-8-88

DEPTH	PORE TYPE	MINERAL COMPOSITION (INCL. POROSITY)	STRUCTURES	TEXTURE	FABRIC	GRAIN SIZE (DOLOMITE CRYSTAL SIZE)	CRYSTAL SIZE	COLOR	FOSSILS/ACCESSORIES										CEMENT
									OL. STAIN	AN. LITHS	AN. LITHS	BRAC.	BRAC.	BRAC.	BRAC.	BRAC.	BRAC.	BRAC.	
5380	MISSING			Pelloidal wackestone				Lt Br											No vis ϕ
5385	MISSING			Pelloidal wackestone				Lt Br											ABUNDANT HAIRLINE FRACTURES No vis ϕ
5390				Pelloidal wackestone				Lt Br											2-3% ppt + vuggy ϕ ABUNDANT STYLOLITES No vis ϕ
5395				Pelloidal wackestone				Lt Br											
5400				Pelloidal wackestone				Lt Br											2-3% ppt vuggy ϕ 3-4% "
5405				Pelloidal wackestone				Lt Br											3-6% ppt vuggy + moldic ϕ Fossils
5410				Pelloidal wackestone				Lt Br											7-8% ppt vuggy to moldic ϕ small vert. frags anhydrite enfilled pores
5415	MISSING			Pelloidal wackestone				Lt Br											4% ϕ abundant anhydrite plugging Brac. molds 4% ϕ CRINOID STEMS - SCANTY
5420			RELICT GRAINSTONE	Grainstone				Lt Br											3-5% ϕ Brac. molds Crinoid fragments
5425			RELICT GRAINSTONE	Pelloidal wackestone				Tan											3-5% ϕ abundant hairline fractures
5430			RELICT GRAINSTONE	Grainstone				Tan											ppt vuggy ϕ $\approx 10\%$
5435				Grainstone				Tan											
5440				Grainstone				Tan											
5445				Grainstone				Tan											
5450				Grainstone				Tan											
5455				Grainstone				Tan											

85

WELL ARCO LANGLEI FEDERAL #2 COUNTY LEA STATE N. Mex
 STRATIGRAPHIC INTERVAL BLINEBY LOGGED BY JT DATE 9-8-88

4
 FIGURE 9

DEPTH FEET	PORE TYPE	MINERAL COMPOSITION (INCL POROSITY)	NATURE OF CONTACT	STRUCTURES		TEXTURE	FABRIC	GRAIN SIZE (DOLOMITE CRYSTAL SIZE)	CRYSTAL SHAPE	COLOR	FOSSILS						CEMENT	
				TYPE	SIZE						SPINIF AN LATHS	SPINIF AN LATHS	SPINIF AN LATHS	SPINIF AN LATHS	SPINIF AN LATHS	SPINIF AN LATHS		
5500						packstone/ grainstone				Tan								Minor intergranular to pinpt vuggy ϕ 4% $\pm$
5505						peloidal packstone/wackestone				L+Br								Minor hairline fracs pinpt vuggy ϕ 3-4% pinpt vuggy ϕ 3-4%
5510						pelloid packstone/wackestone				L+Br								Minor ϕ $\pm$ 2% moldic - forams
5515						peloidal packstone/wackestone				L+Br								minor ϕ 3-5% ϕ moldic - forams
5520						peloidal packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$
5525						pelloid packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$ abundant stylolites
5530						peloidal packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$
5535						peloidal packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$
5540						peloidal packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$
5545						peloidal packstone/wackestone				L+Br								minor pinpt ϕ 3% $\pm$
5550										L+Br								

APPENDIX B

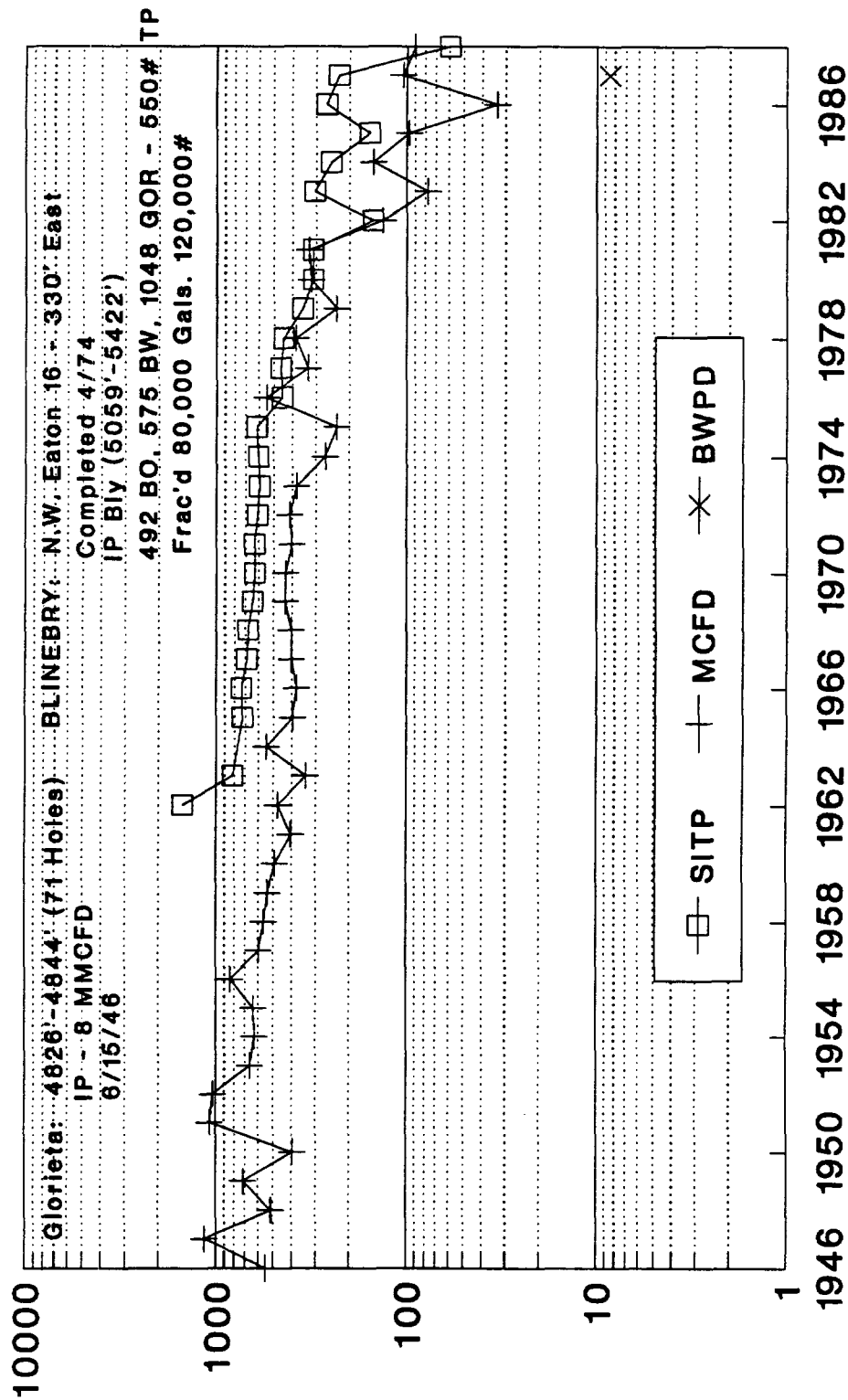
Appendix B - Glorieta Gas Production Data

Figure 1B - ARCO Eaton B #1
Figure 2B - Bruno Carlson A 25 #1
Figure 3B - Chevron McBuffington #3
Figure 4B - Chevron McBuffington #7
Figure 5B - Chevron Ramsay F #3
Figure 6B - El Paso Langlie #1
Figure 7B - Hendrix Wimberly #1
Figure 8B - Lanexco Justis F #2
Figure 9B - Lanexco Justis F #3
Figure 10B - Meridian Carlson #1
Figure 11B - Meridian Carlson A #1
Figure 12B - Meridian Carlson B #1
Figure 13B - Texaco Coates C #1
Figure 14B - Texaco Coates C #13
Figure 15B - Texas Pacific SW Eaton #1

JUSTIS GLORIETA GAS PRODUCTION

ARCO EATON B-1

E-12



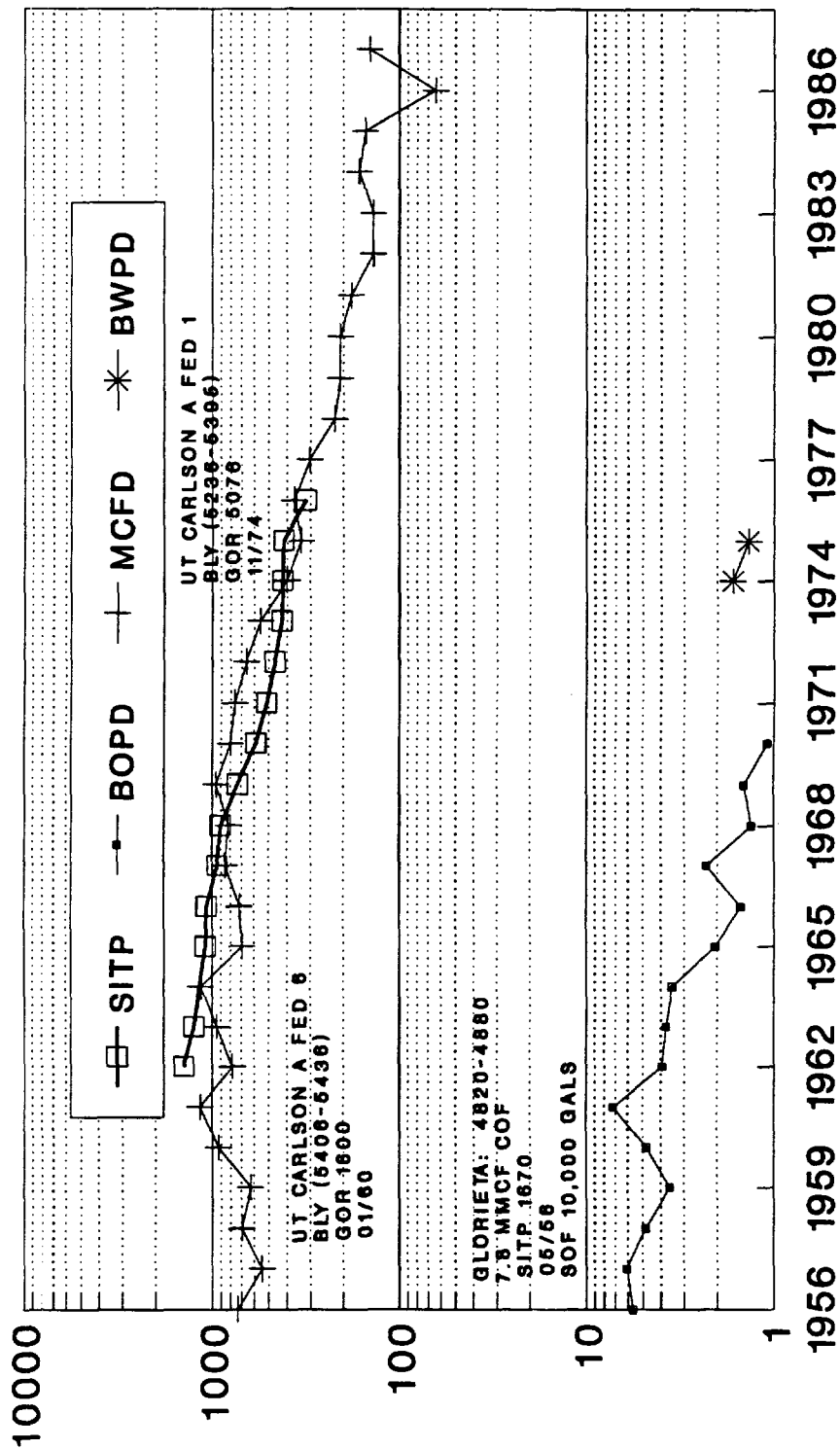
6.97 BCF

FIGURE 1B

JUSTIS GLORIETA GAS PRODUCTION

BRUNO - CARLSON A 25 #1

J-25



6.3 BCF

FIGURE 2B

JUSTIS GLORIETA GAS PRODUCTION

CHEVRON McBUFFINGTON #3

O-13

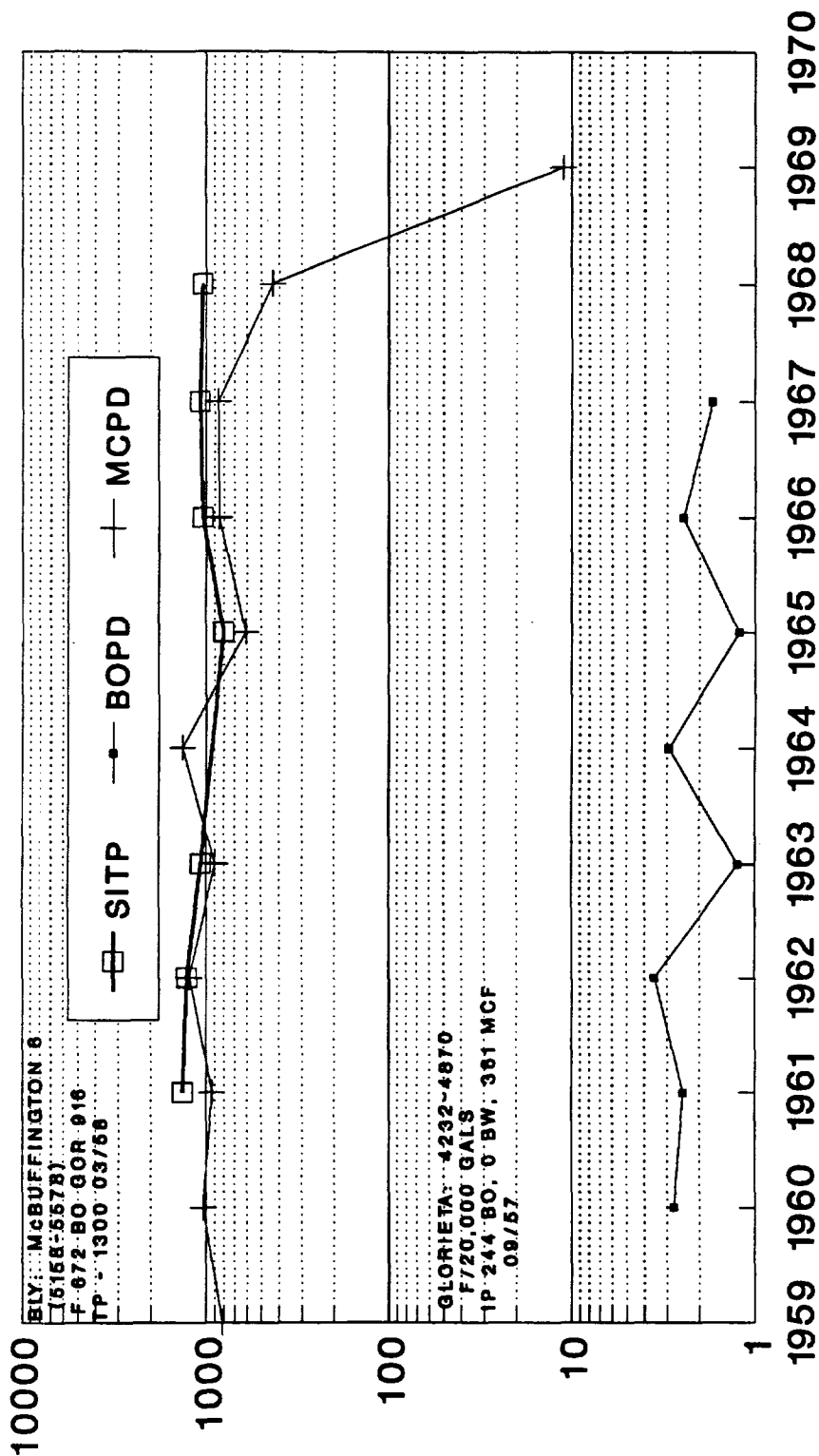


FIGURE 3B

3.28 BCF

JUSTIS GLORIETA GAS PRODUCTION

CHEVRON McBUFFINGTON #7

M-13

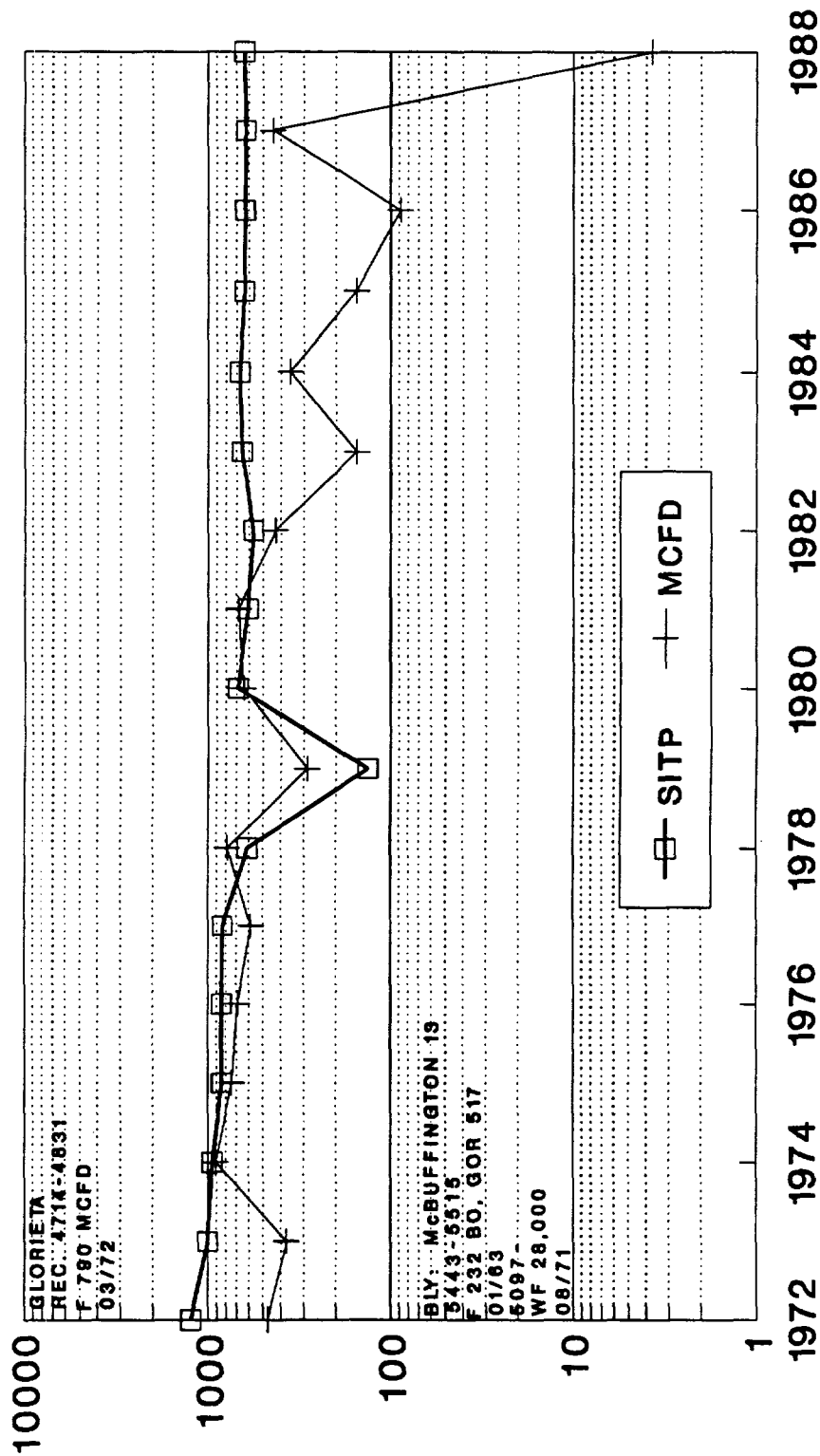


FIGURE 4B

2.8 BCF

JUSTIS GLORIETA GAS PRODUCTION

CHEVRON RAMSAY F #3

B-36

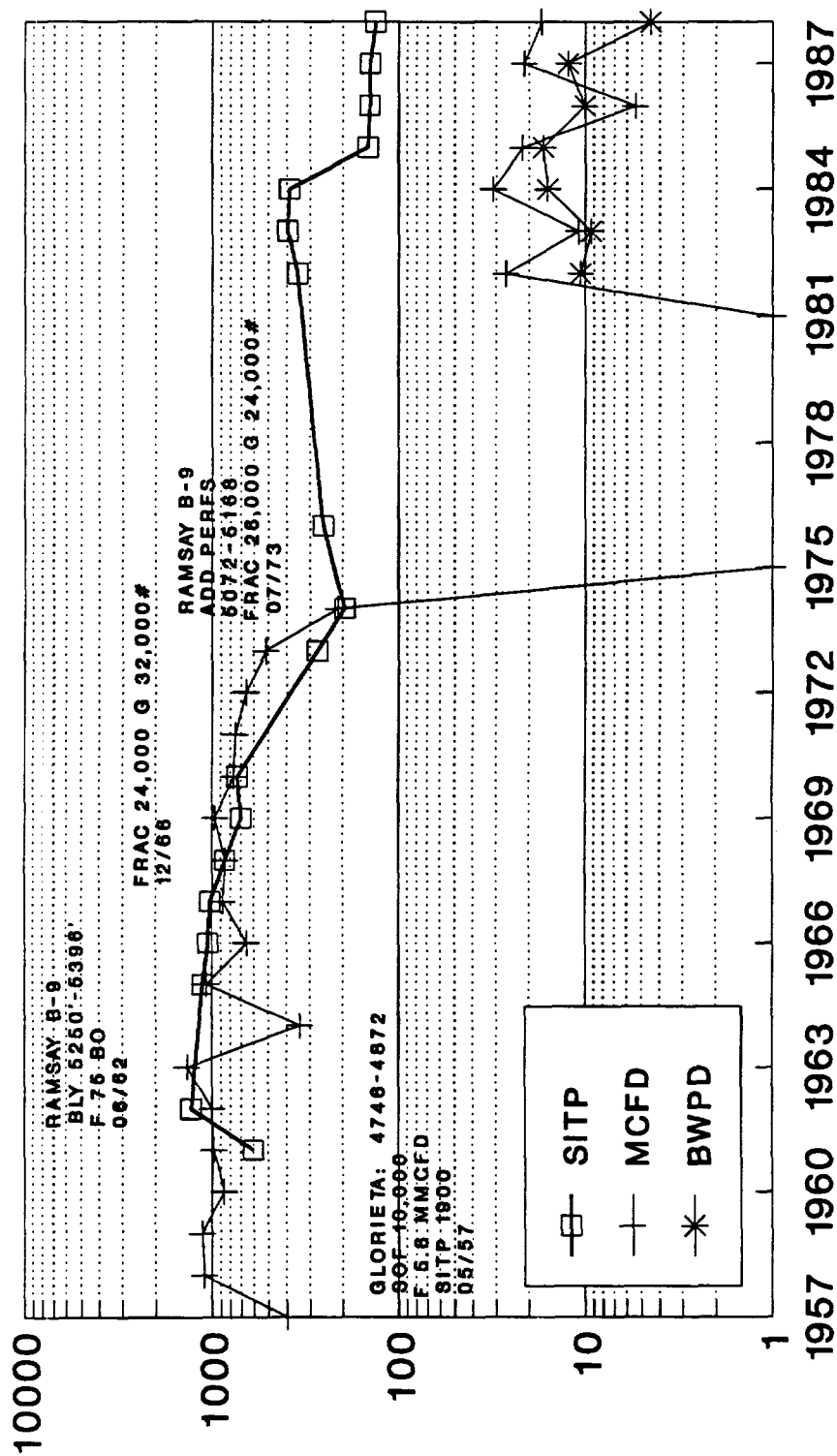


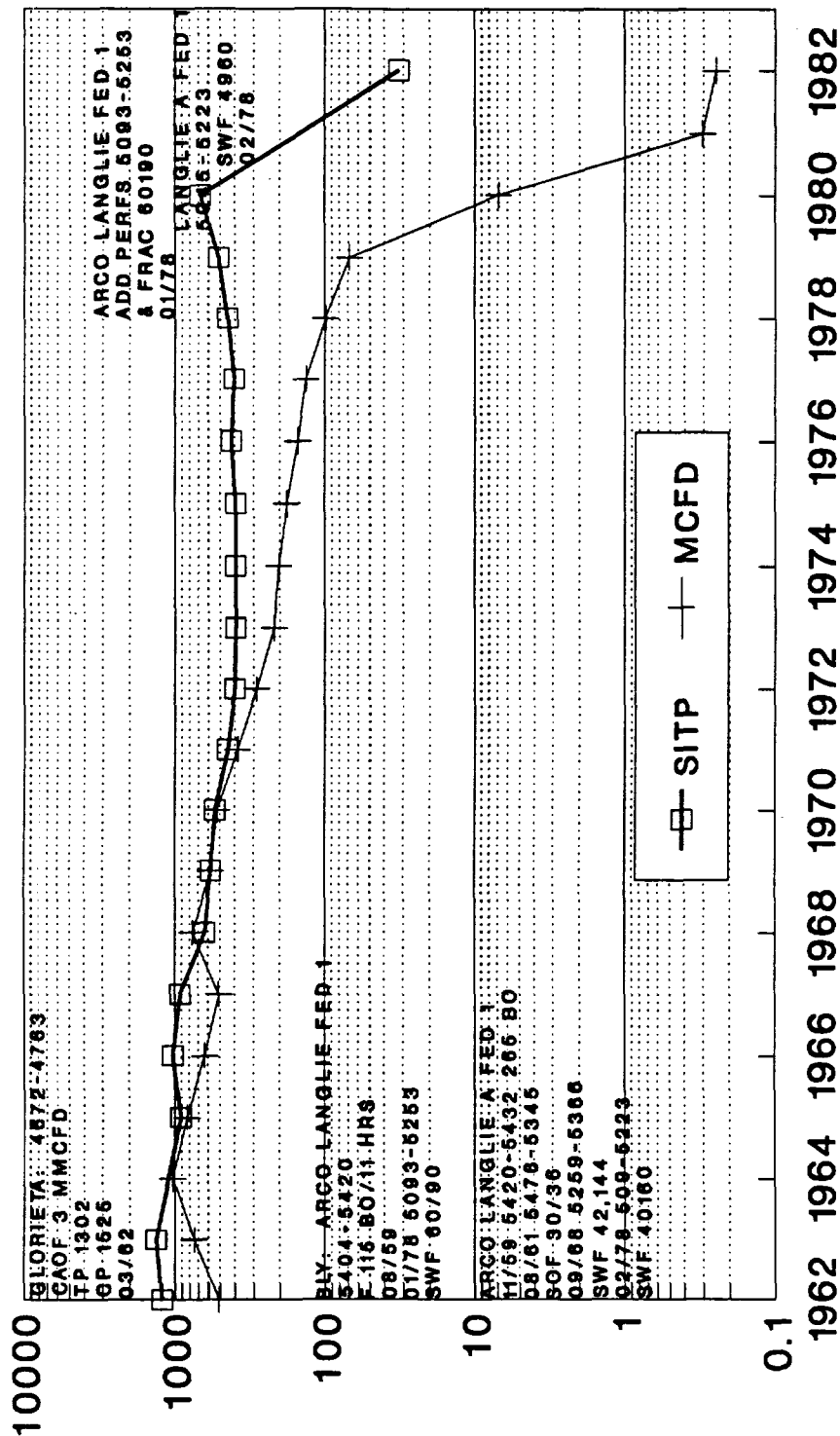
FIGURE 5B

RSP/EEG 10/23/89

JUSTIS GLORIETA GAS PRODUCTION

EL PASO LANGLEIE #1

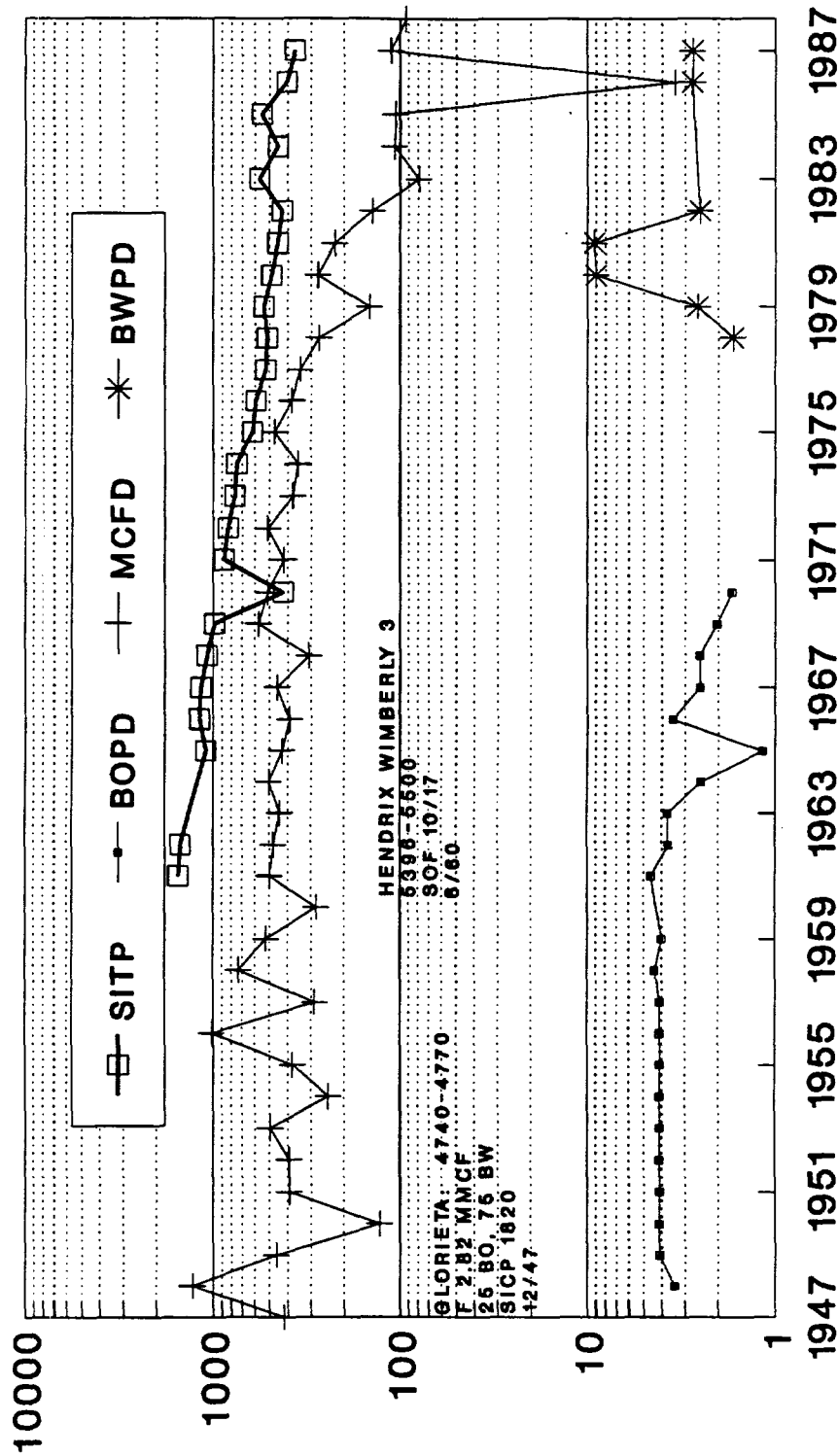
I-14



JUSTIS GLORIETA GAS PRODUCTION

HENDRIX WIMBERLY #1

H-23



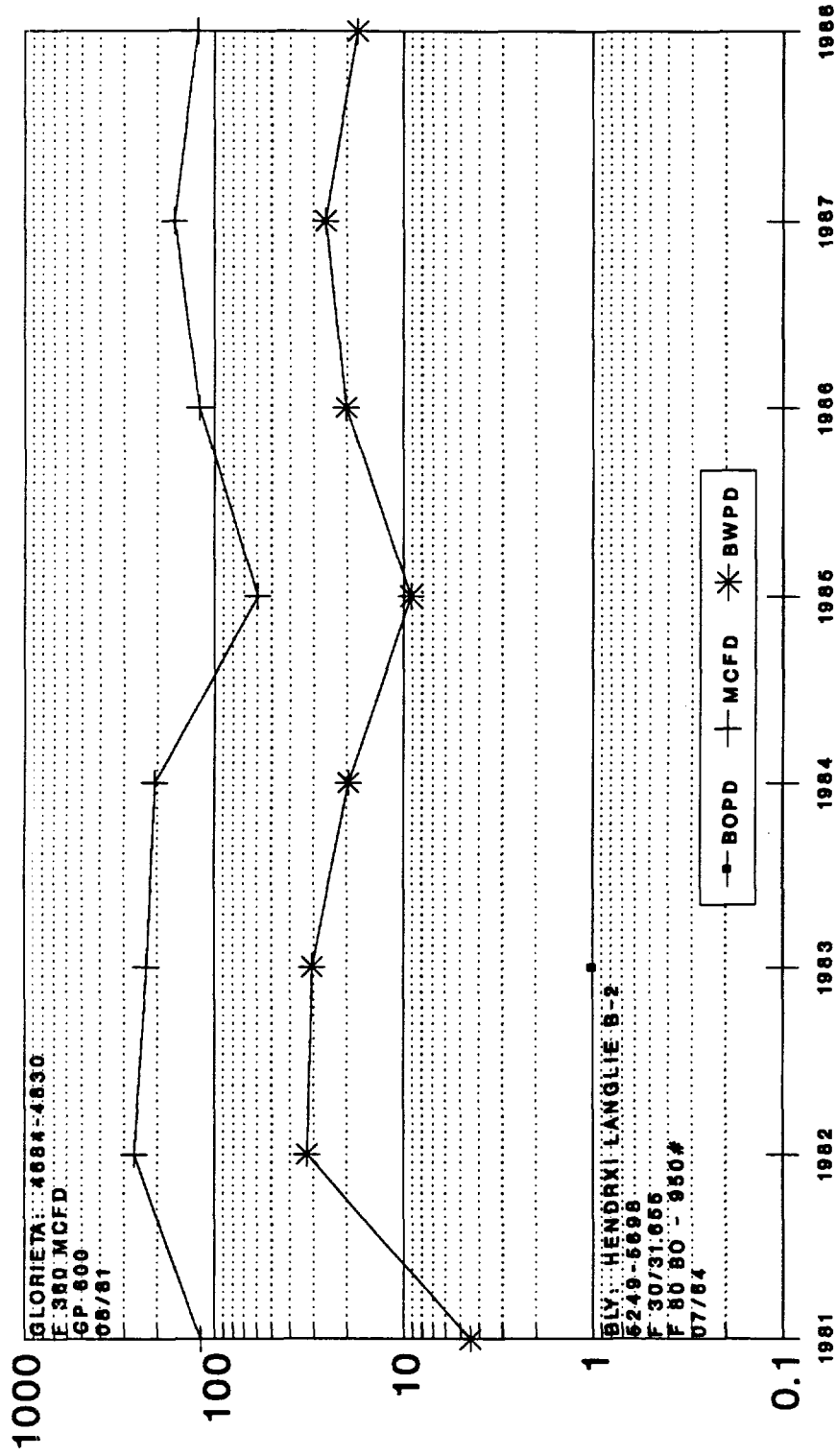
5.84 BCF

FIGURE 7B

JUSTIS GLORIETA GAS PRODUCTION

LANEXCO JUSTIS F #2

H-11



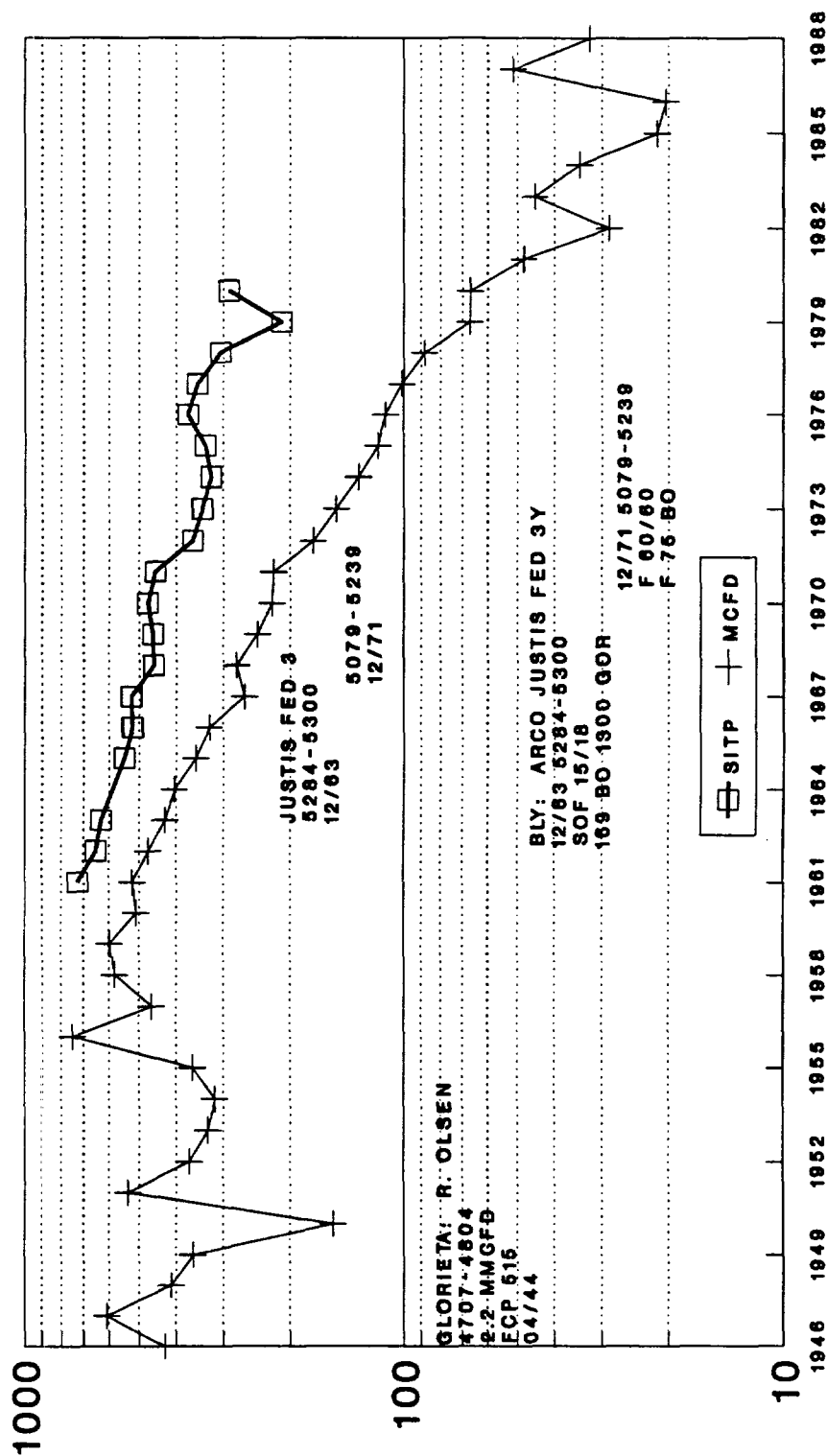
.5 BCF

FIGURE 8B

JUSTIS GLORIETA GAS PRODUCTION

LANEXCO JUSTIS F #3

P-11



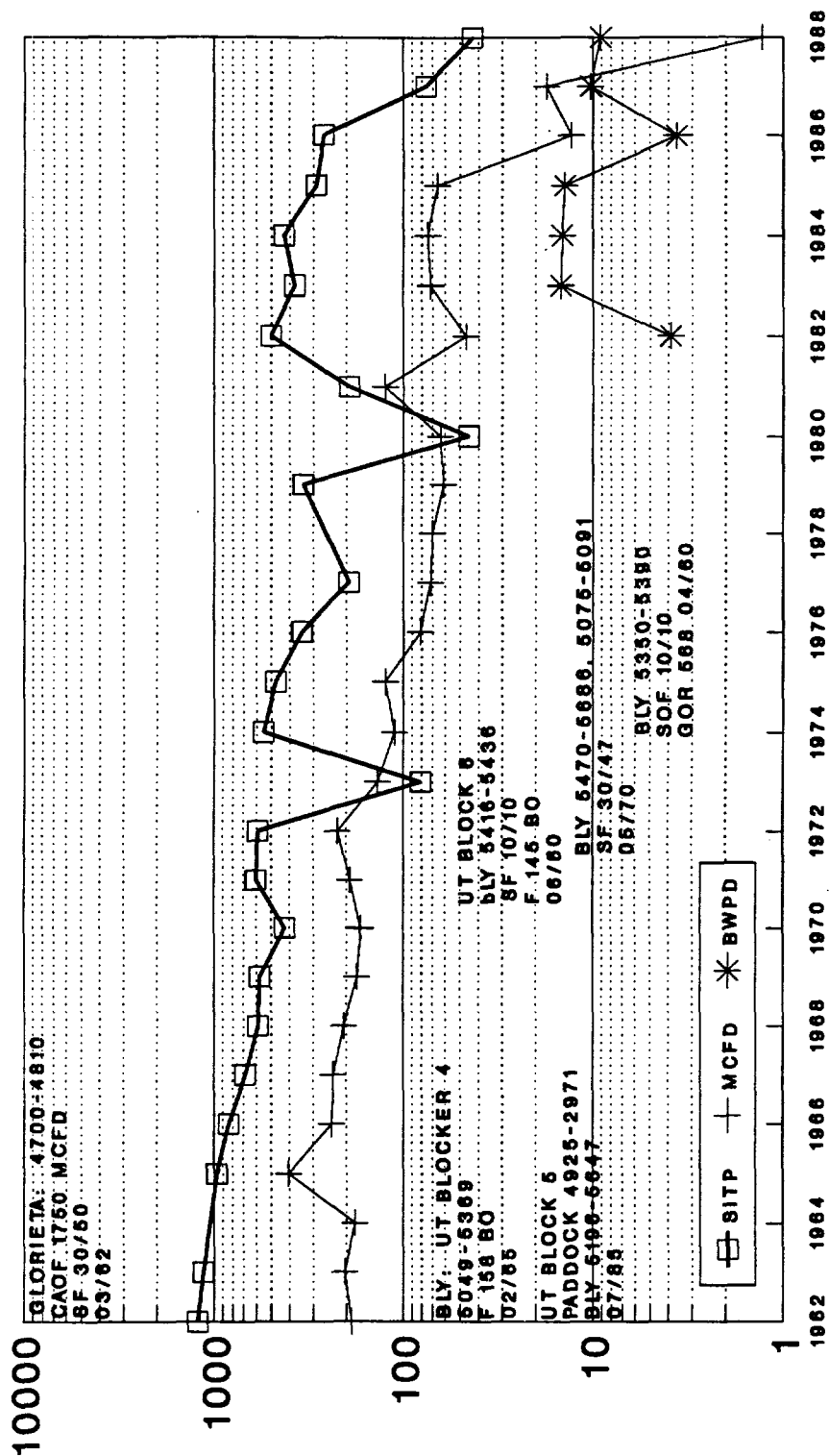
4.3 BCF

FIGURE 9B

JUSTIS GLORIETA GAS PRODUCTION

MERIDIAN CARLSON #1

F-13



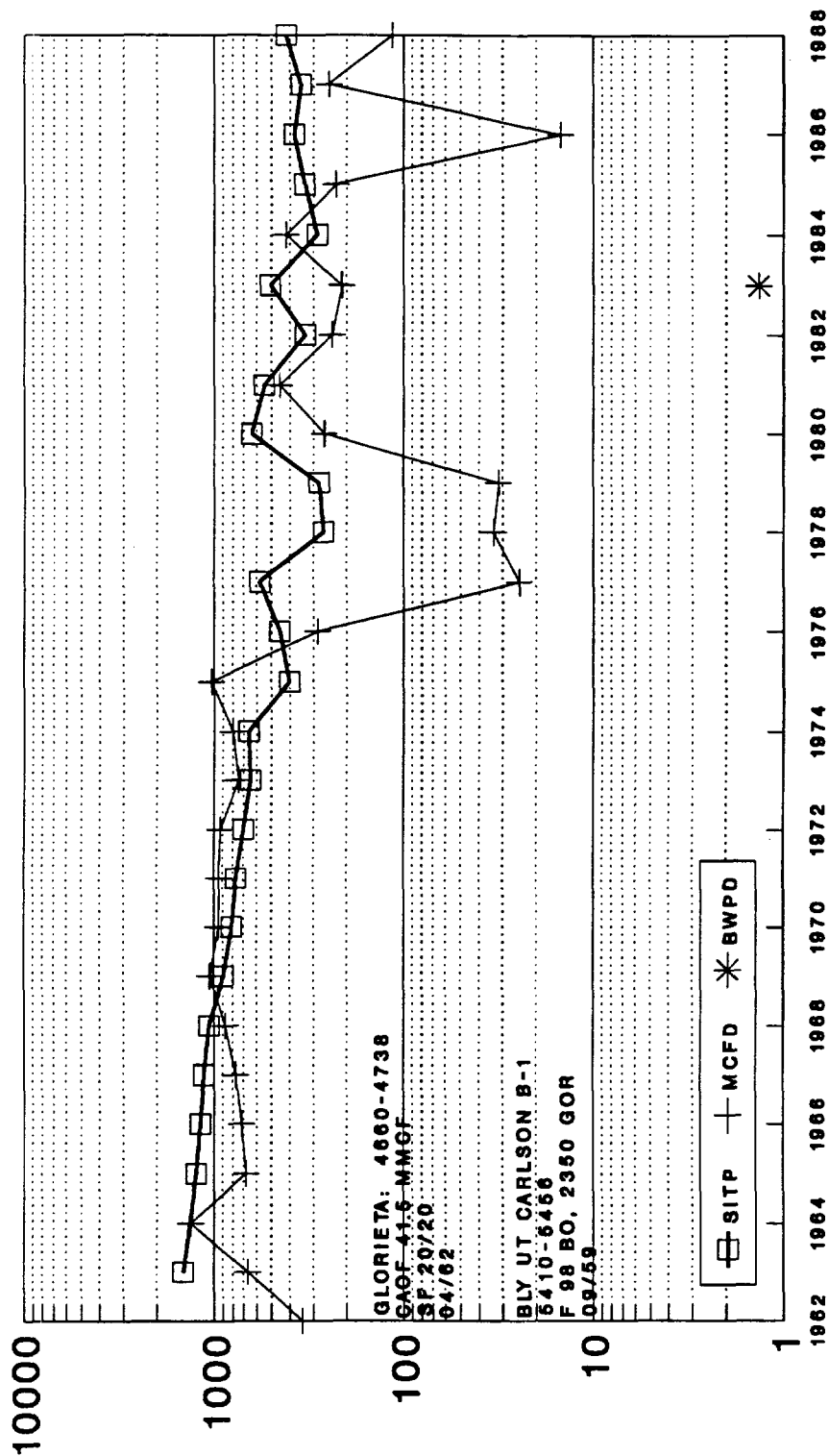
1.29 BCF

FIGURE 10B

JUSTIS GLORIETA GAS PRODUCTION

MERIDIAN CARLSON A #1

P-23



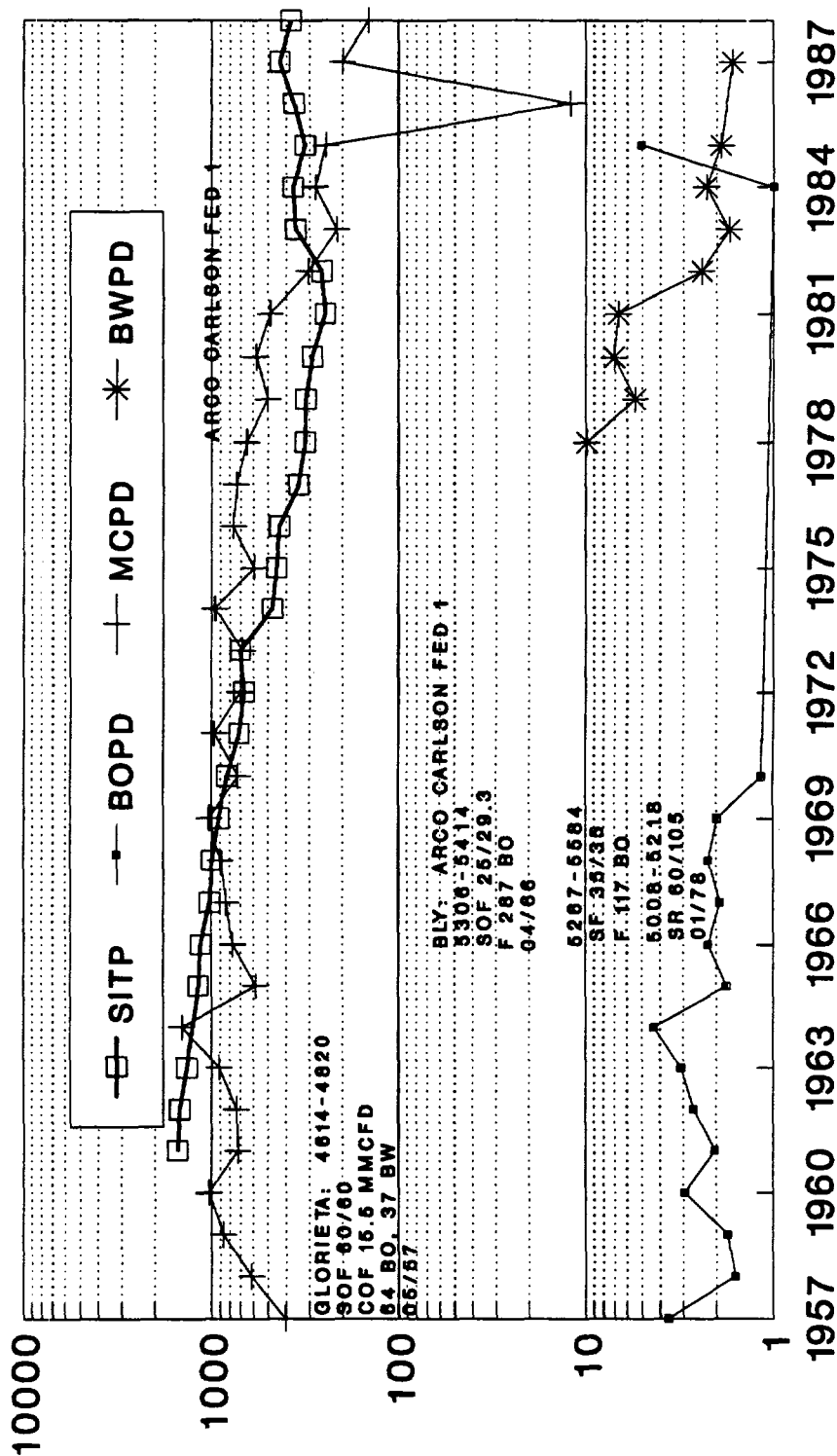
5.25 BCF

FIGURE 11B

JUSTIS GLORIETA GAS PRODUCTION

MERIDIAN CARLSON B #1

K-25



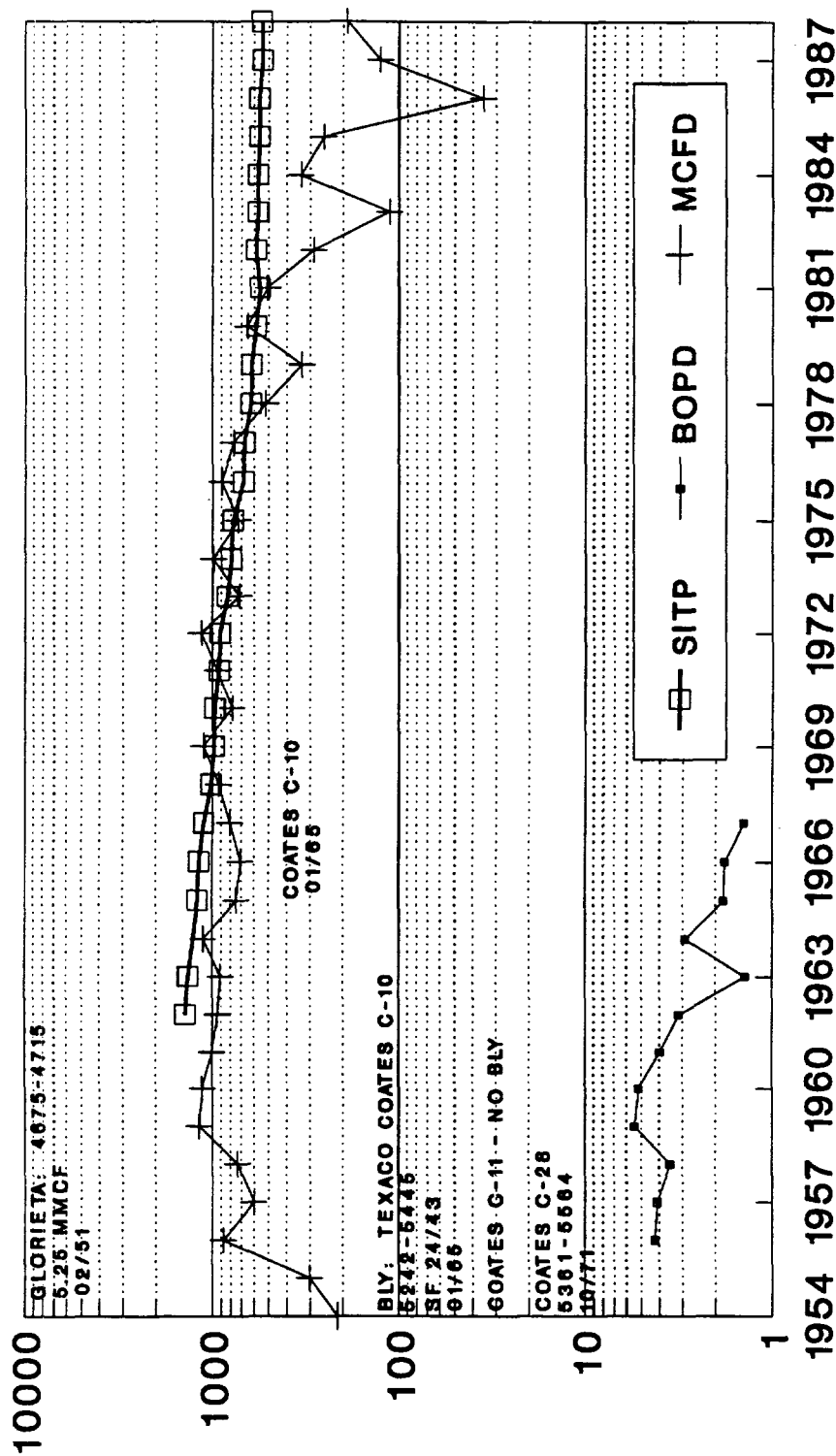
7.51 BCF

FIGURE 12B

JUSTIS GLORIETA GAS PRODUCTION

TEXACO COATES C #1

F-24



8.61 BCF

FIGURE 13B

JUSTIS GLORIETA GAS PRODUCTION

TEXACO COATES C #13

K-24

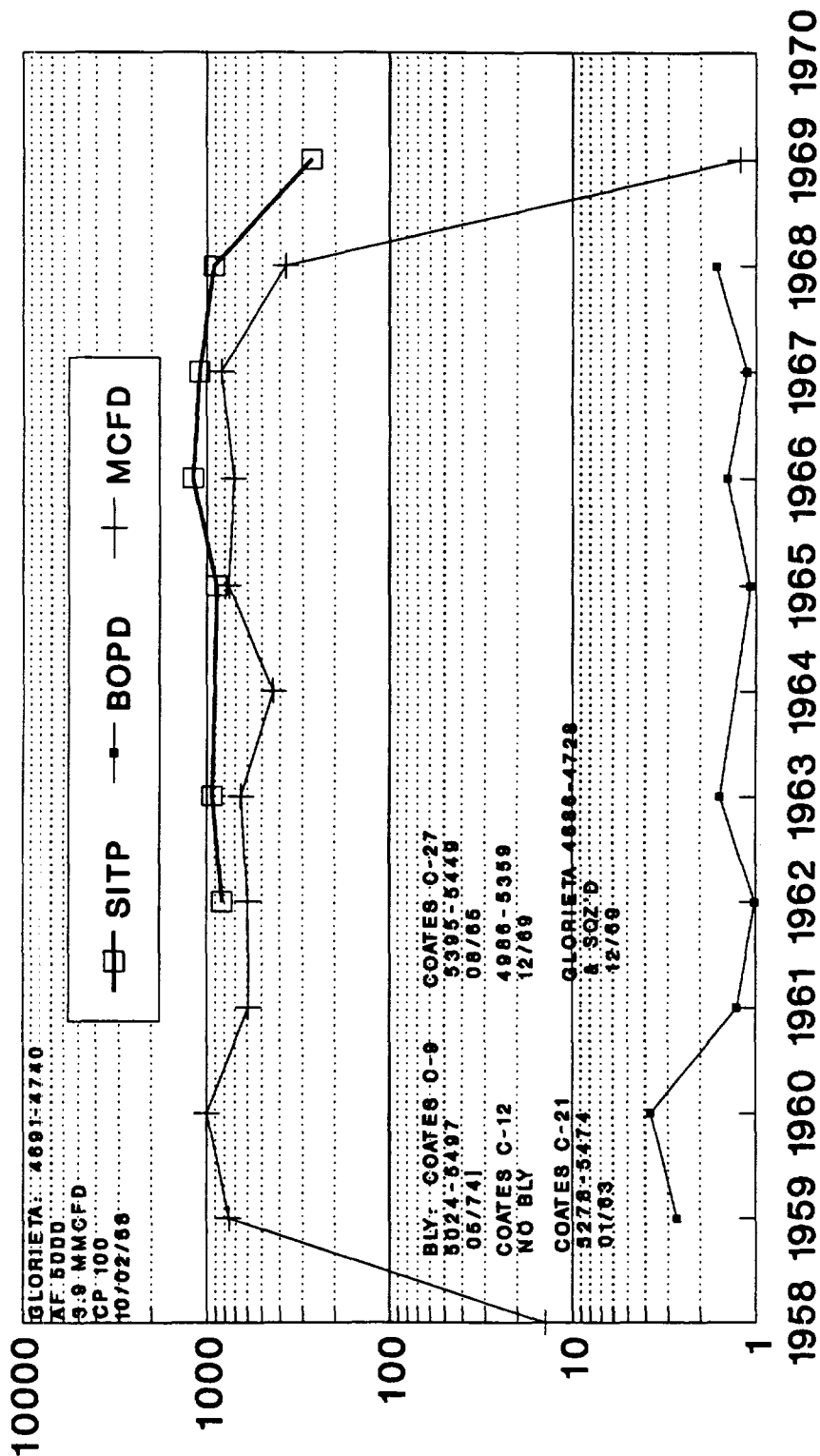


FIGURE 14B

JUSTIS GLORIETA GAS PRODUCTION

TX PAC SW EATON #1

M-12

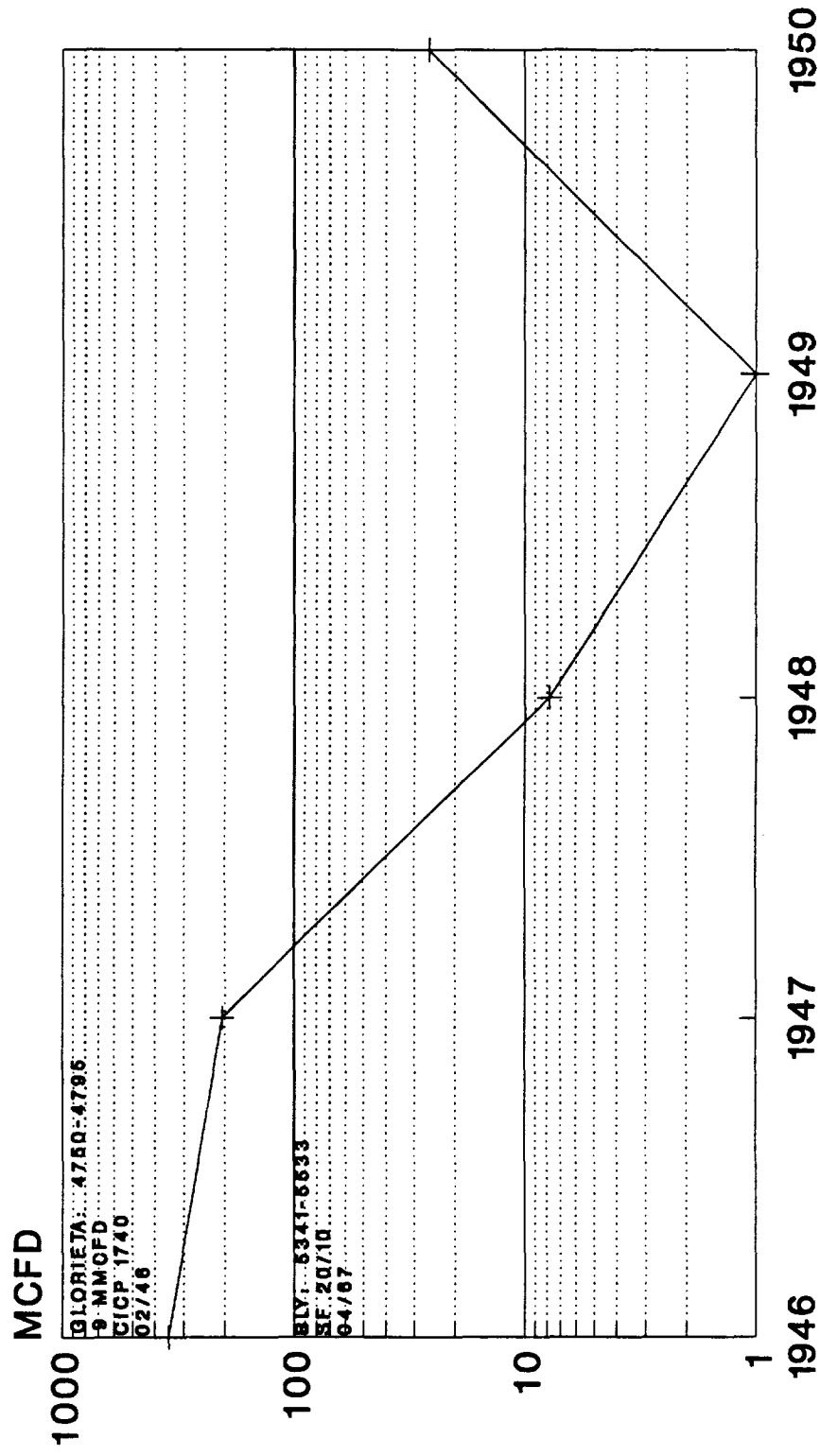


FIGURE 15B

APPENDIX C

Appendix C - Regional Clearfork Study

- Figure 1C - Map of Key Clearfork Projects
- Figure 2C - Reservoir Comparison, OOIP
- Figure 3C - Reservoir Comparison, Net Pay
- Figure 4C - Reservoir Comparison, Porosity
- Figure 5C - Reservoir Comparison, Permeability
- Figure 6C - Reservoir Comparison, Depth
- Figure 7C - Production Comparison, 40-Acre Primary Recovery Efficiency
- Figure 8C - Production Comparison, Recovery Per 40-Acre Well
- Figure 9C - Production Comparison, 40-Acre and 20-Acre Well Count
- Figure 10C - Production Comparison, Ultimate Recovery Efficiency
- Figure 11C - Dimensionless Project Performance
- Figure 12C - Performance Characterization - Robertson CF Unit
- Figure 13C - Performance Characterization - Russell CF Unit
- Figure 14C - Performance Characterization - Flanagan Unit
- Figure 15C - Performance Characterization - Fullerton CF Unit
- Figure 16C - Performance Characterization - Dollarhide Unit
- Figure 17C - Performance Characterization - N. E. Prentice Unit
- Figure 18C - Performance Characterization - C. A. Goldsmith Lease
- Figure 19C - Correlation Between Primary Recovery and S/P Ratio
- Figure 20C - Correlation Between 40-Acre and 20-Acre Primary Recovery
- Figure 21C - Time Rating South Justis Reserves

FIGURE 2C
REGIONAL CLEARFORK STUDY
COMPARITIVE ANALYSIS
ORIGINAL OIL IN PLACE, MMBO

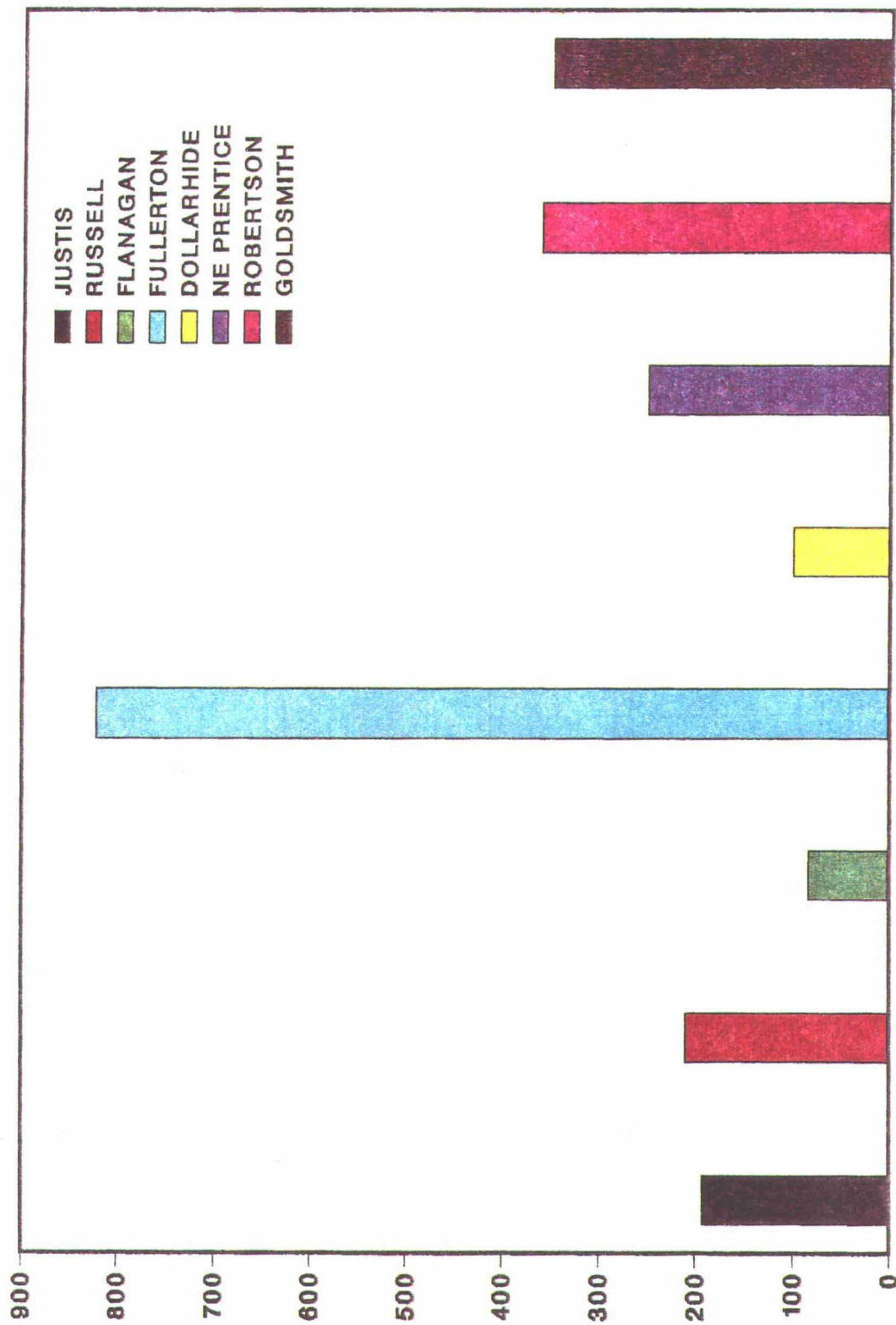


FIGURE 3C
REGIONAL CLEARFORK STUDY
COMPARITIVE ANALYSIS
NET PAY, FT.

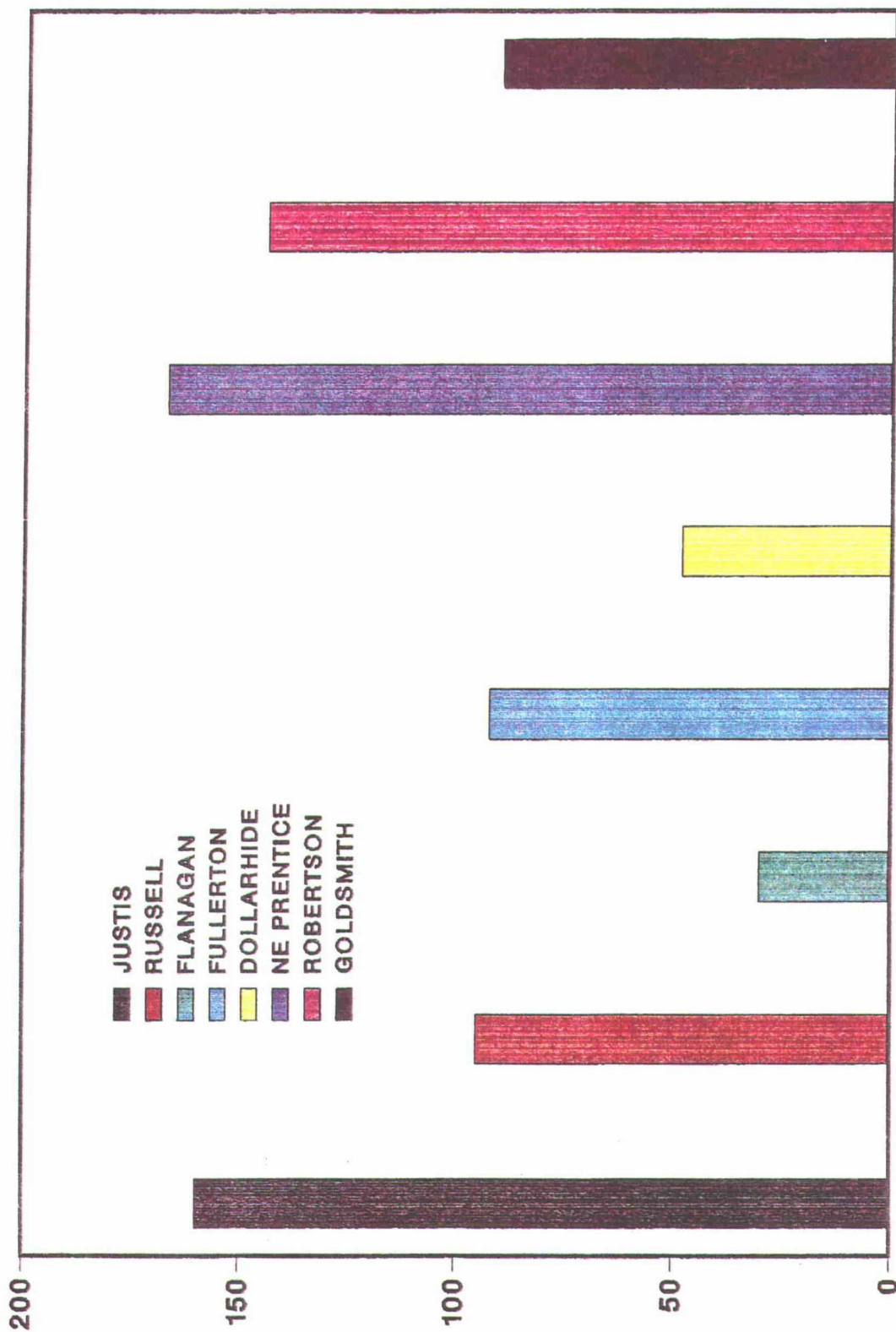


FIGURE 4C
REGIONAL CLEARFORK STUDY
COMPARITIVE ANALYSIS
POROSITY, %

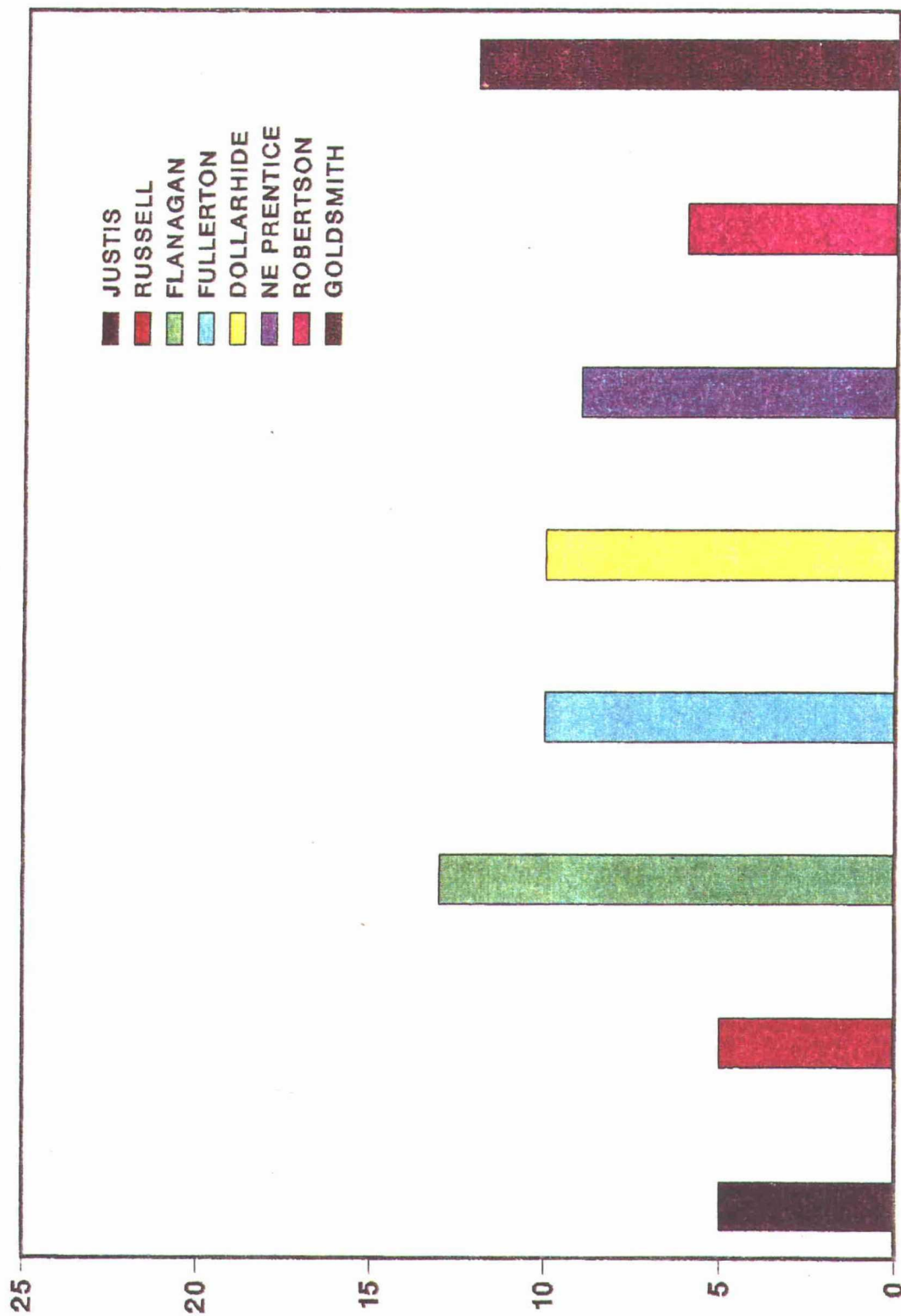


FIGURE 5C
 REGIONAL CLEARFORK STUDY
 COMPARITIVE ANALYSIS
 PERM, MD

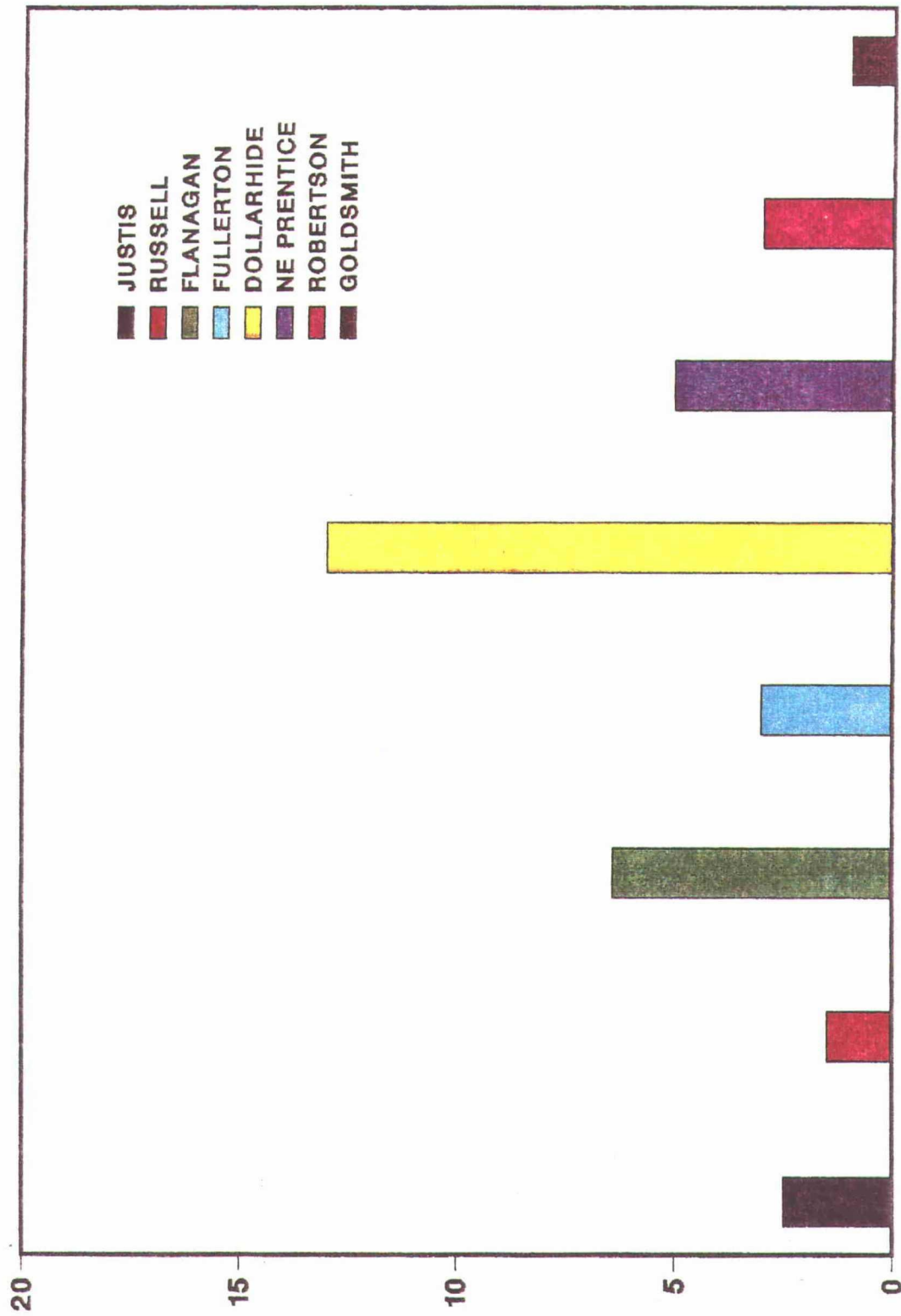


FIGURE 6C
 REGIONAL CLEARFORK STUDY
 COMPARITIVE ANALYSIS
 DEPTH, FT.

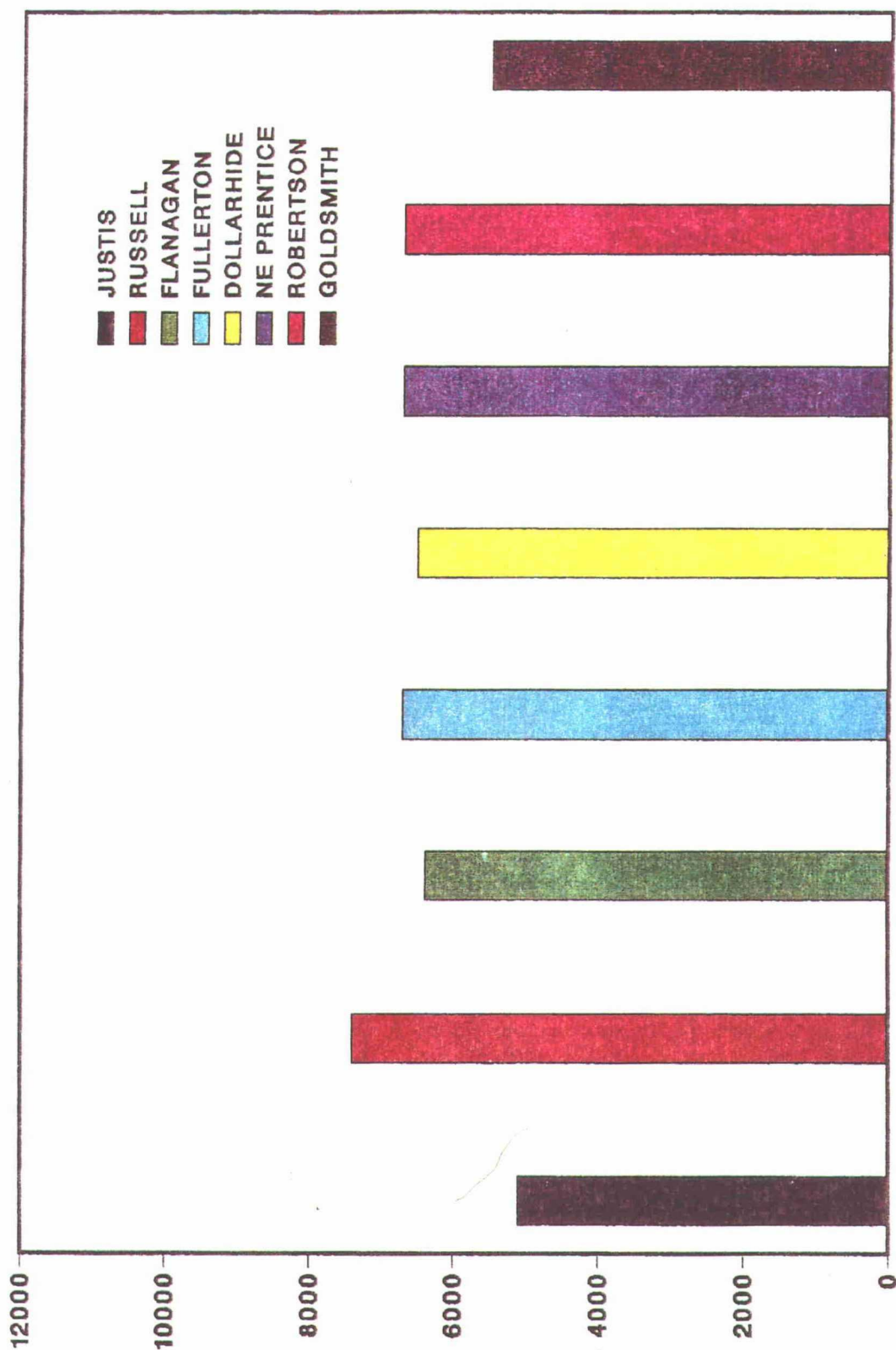


FIGURE 7C
REGIONAL CLEARFORK STUDY
COMPARITIVE ANALYSIS
40 ACRE PRIMARY RECOVERY EFFICIENCY, % OOIP

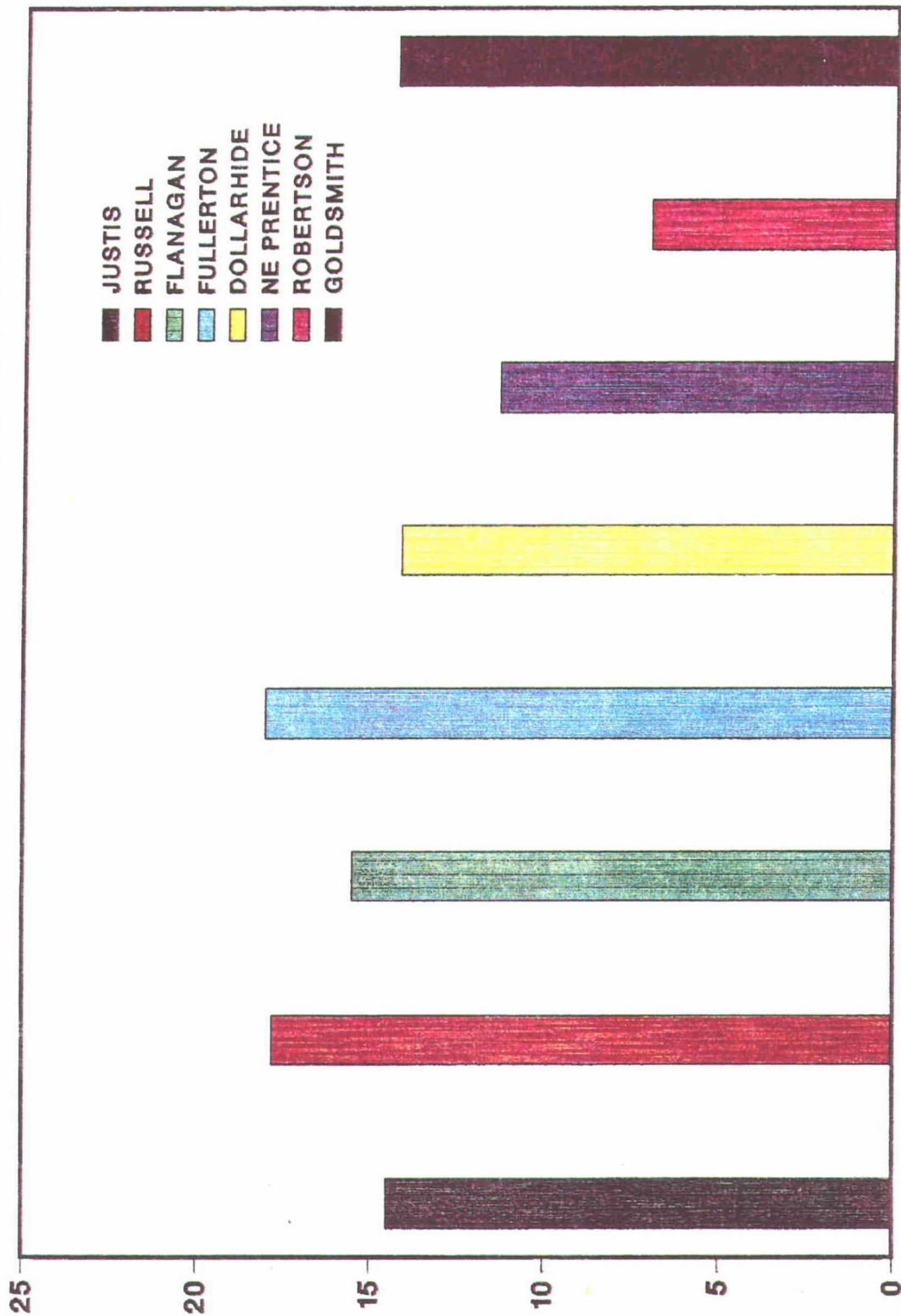


FIGURE 8C

REGIONAL CLEARFORK STUDY

COMPARITIVE ANALYSIS

PRIMARY RECOVERY PER 40 ACRE WELL, MBO

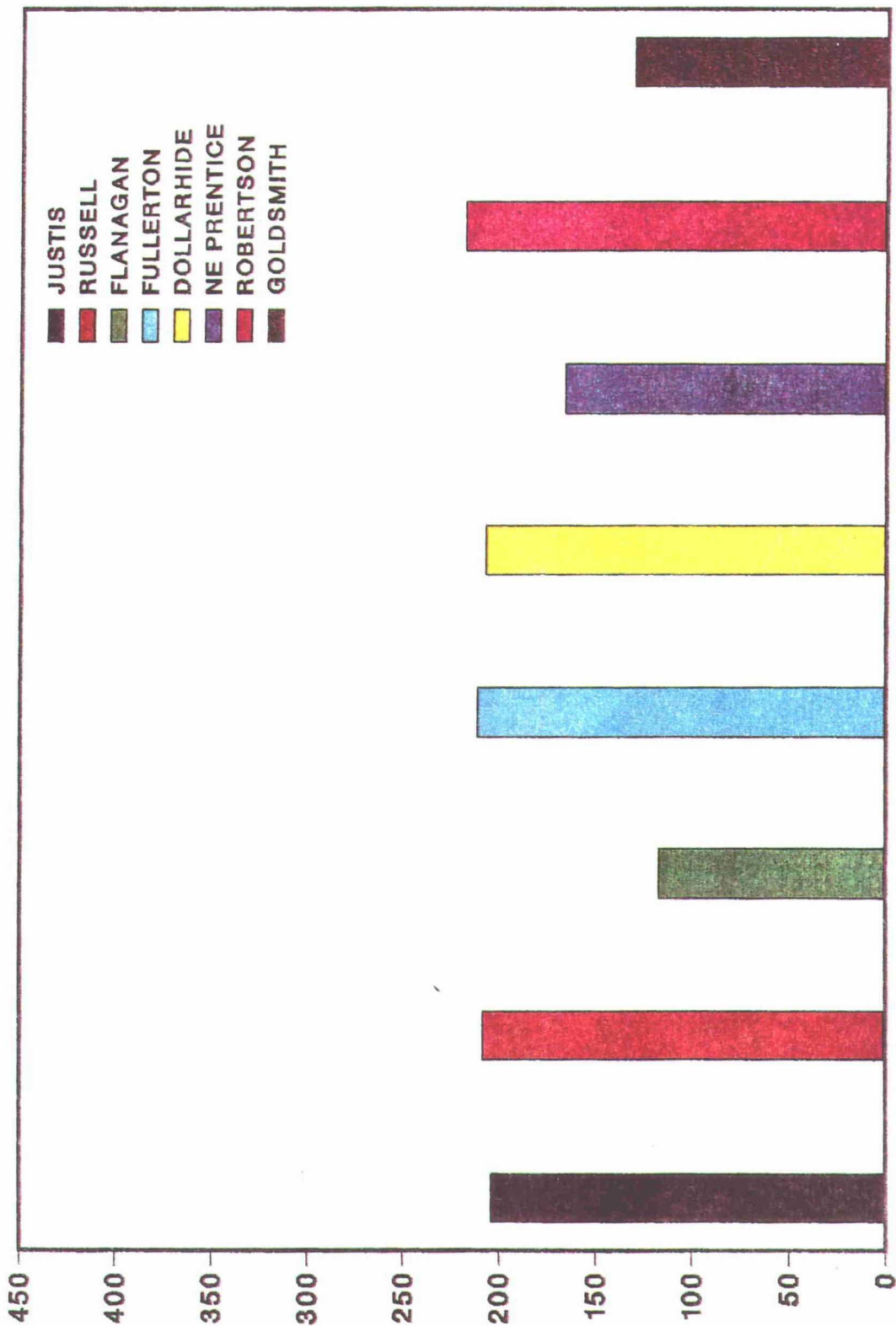


FIGURE 9C
REGIONAL CLEARFORK STUDY
 COMPARITIVE ANALYSIS
 40 ACRE WELL AND 20 ACRE WELL COUNT

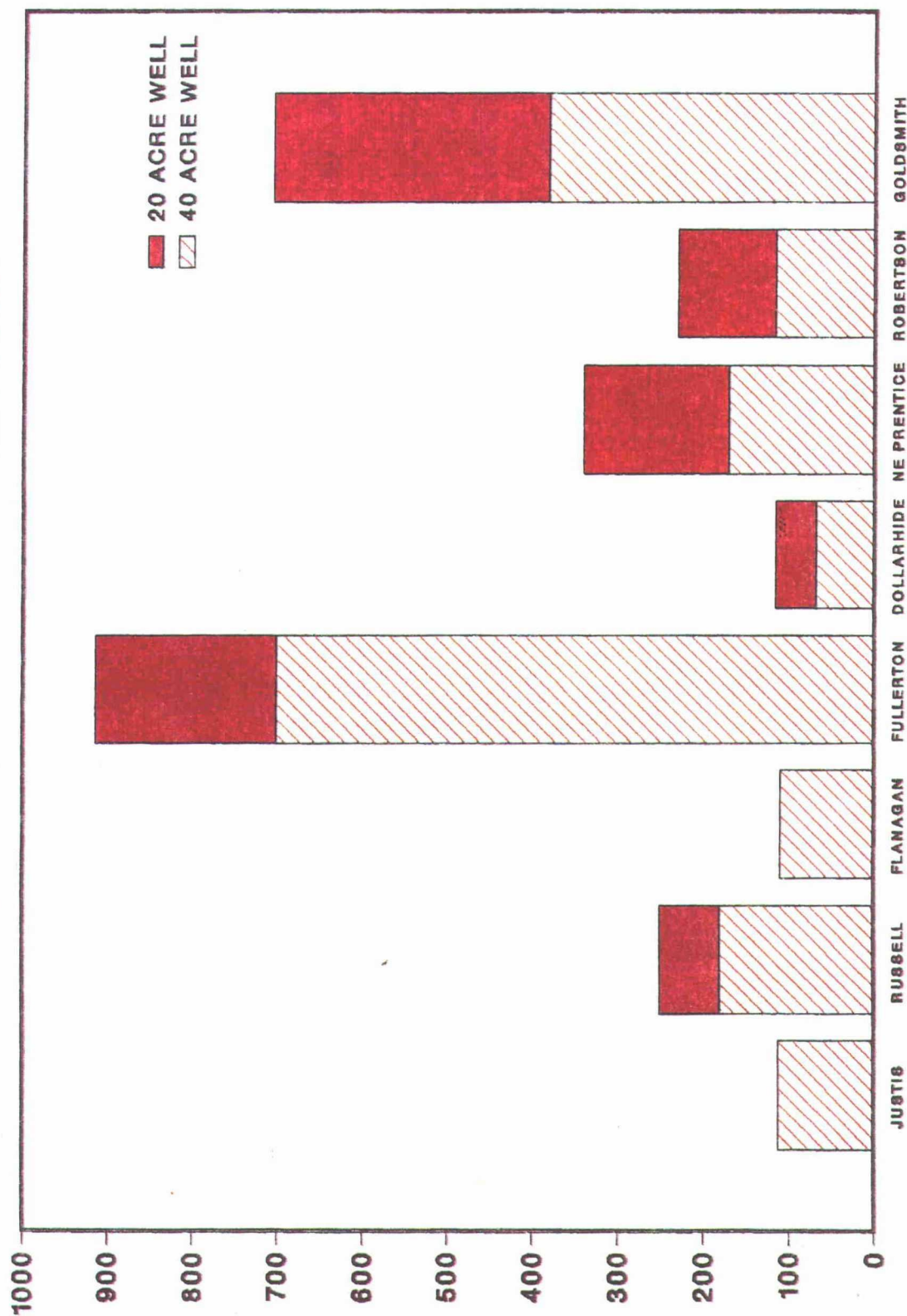


FIGURE 10C
 REGIONAL CLEARFORK STUDY
 COMPARITIVE ANALYSIS
 ULTIMATE RECOVERY EFFICIENCY, % OOIP
 (CURRENT OPERATIONS)

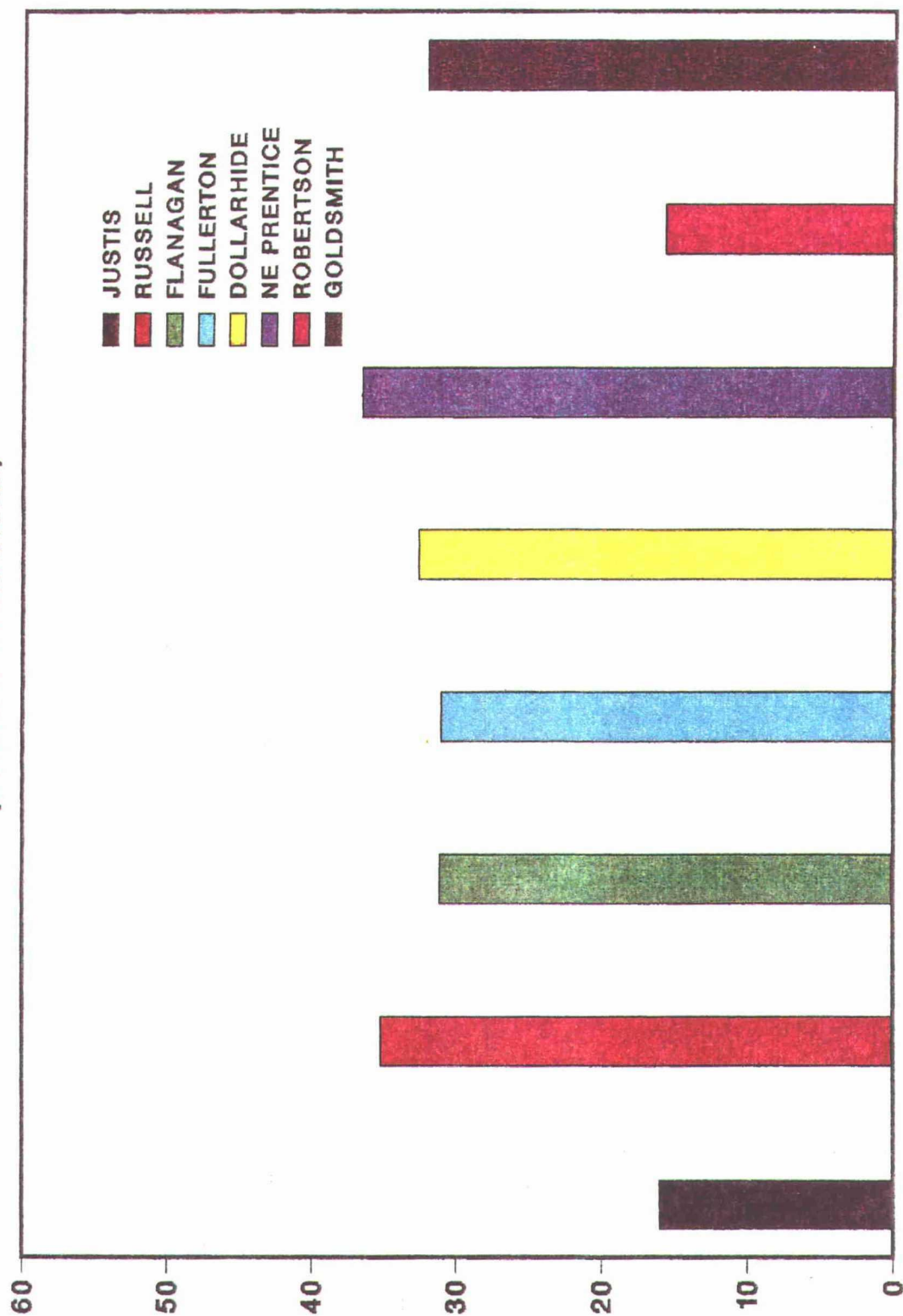


FIGURE 11C

REGIONAL CLEARFORK STUDY DIMENSIONLESS PROJECT PERFORMANCE

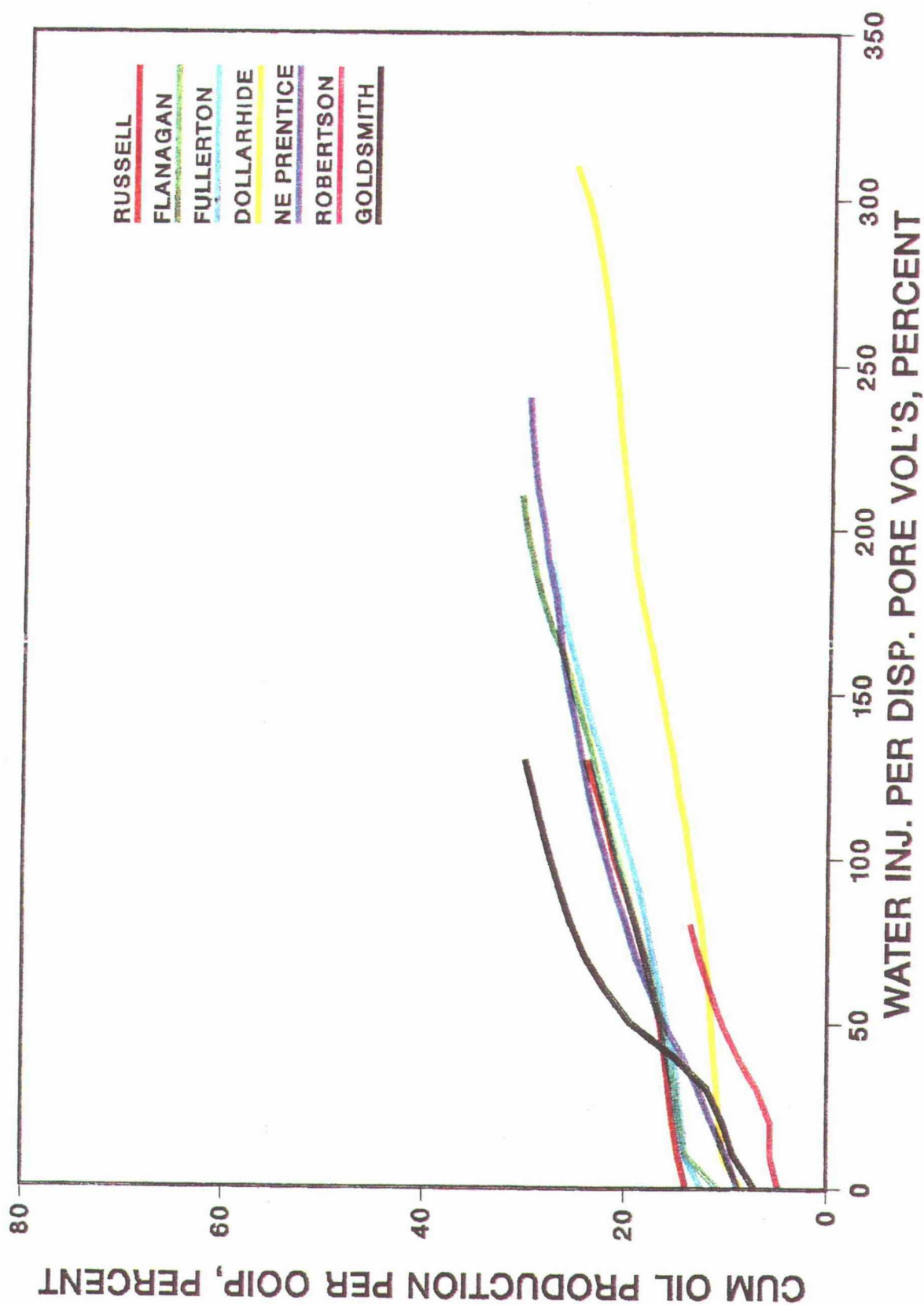


FIGURE 2C

REGIONAL CLEARFORK STUDY ROBERTSON CF UNIT CHARACTERIZATION

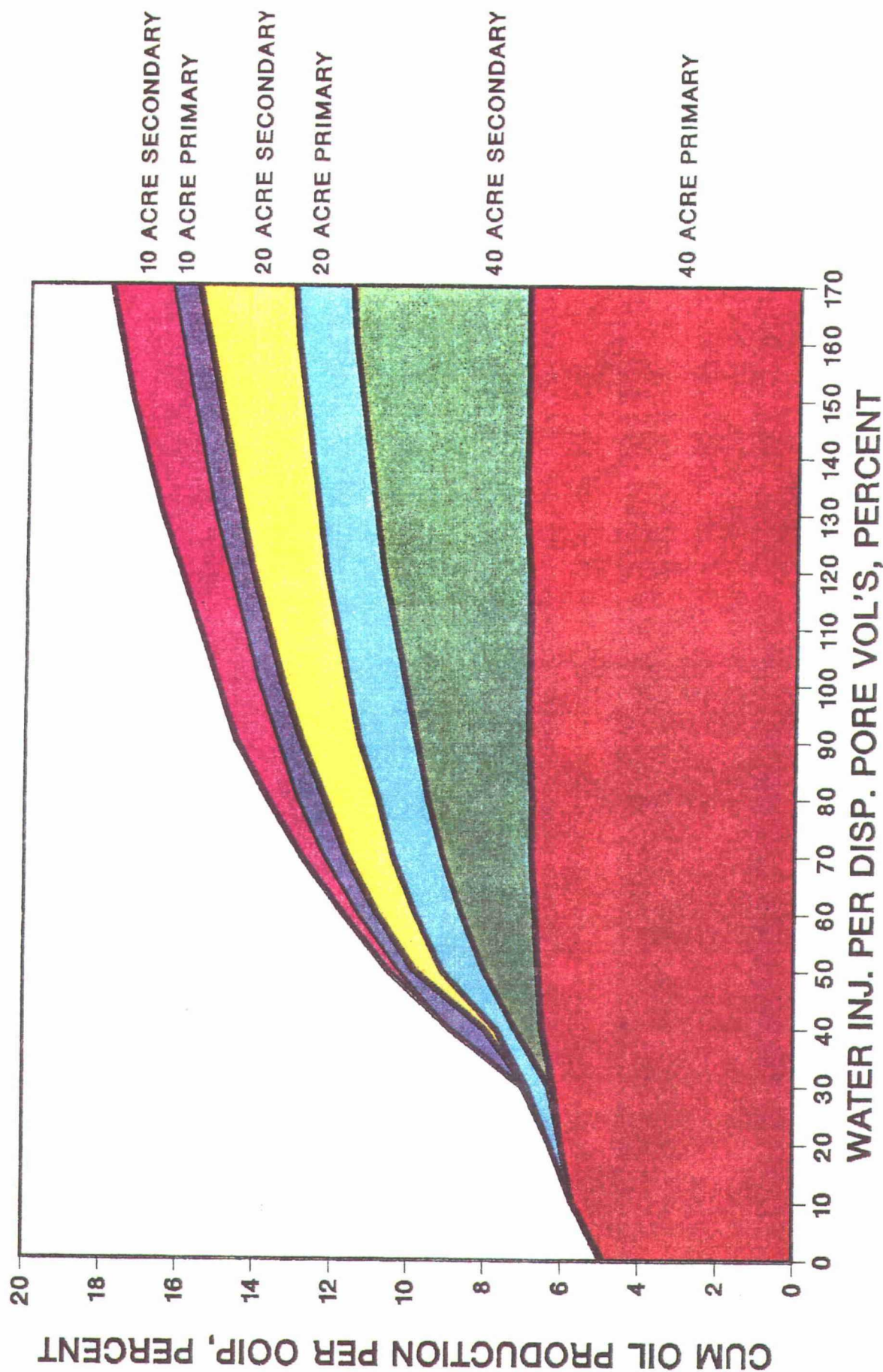


FIGURE 13C
 REGIONAL CLEARFORK STUDY
 RUSSELL CF UNIT CHARACTERIZATION

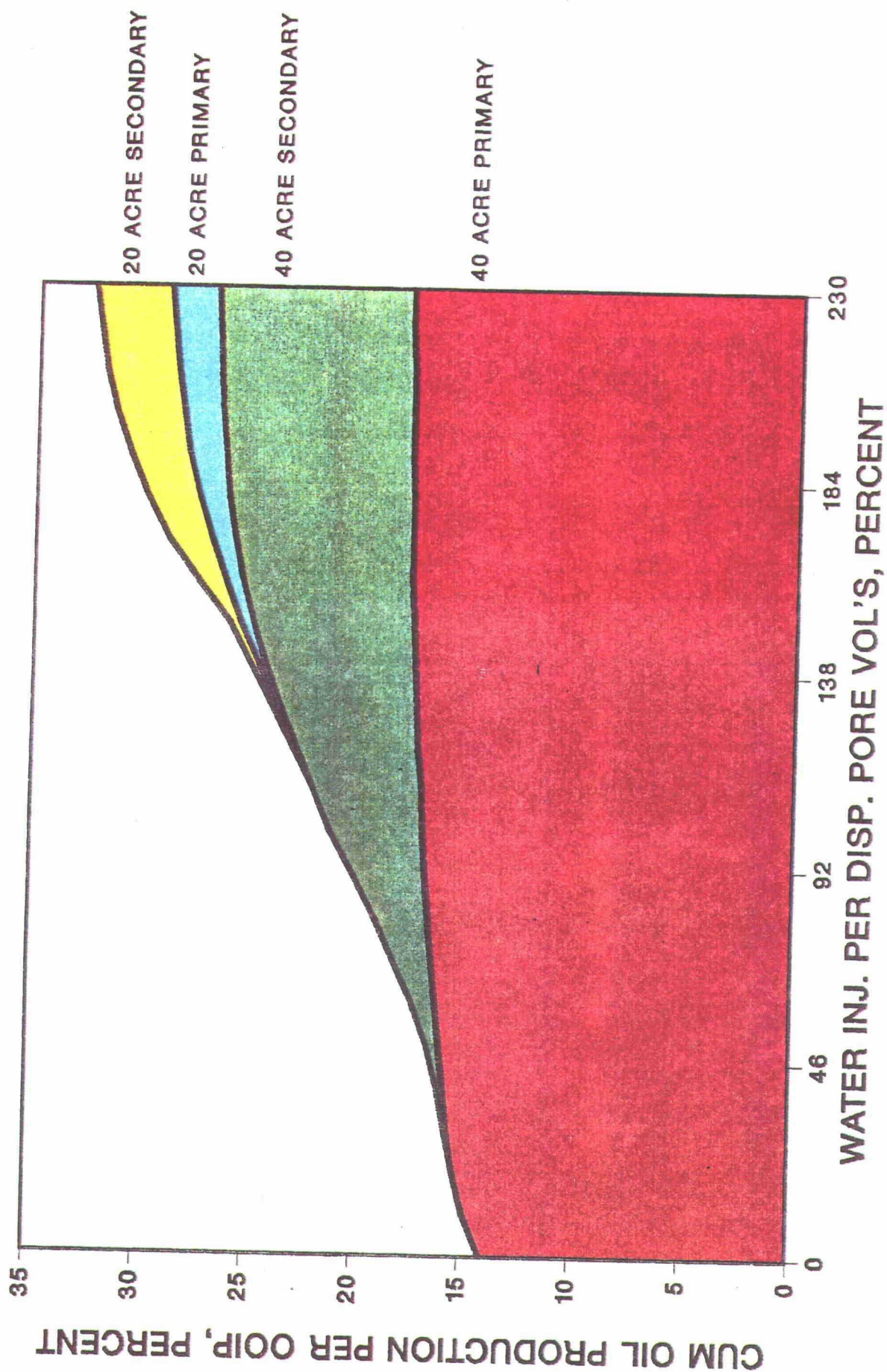


FIGURE C

REGIONAL CLEARFORK STUDY FLANAGAN UNIT CHARACTERIZATION

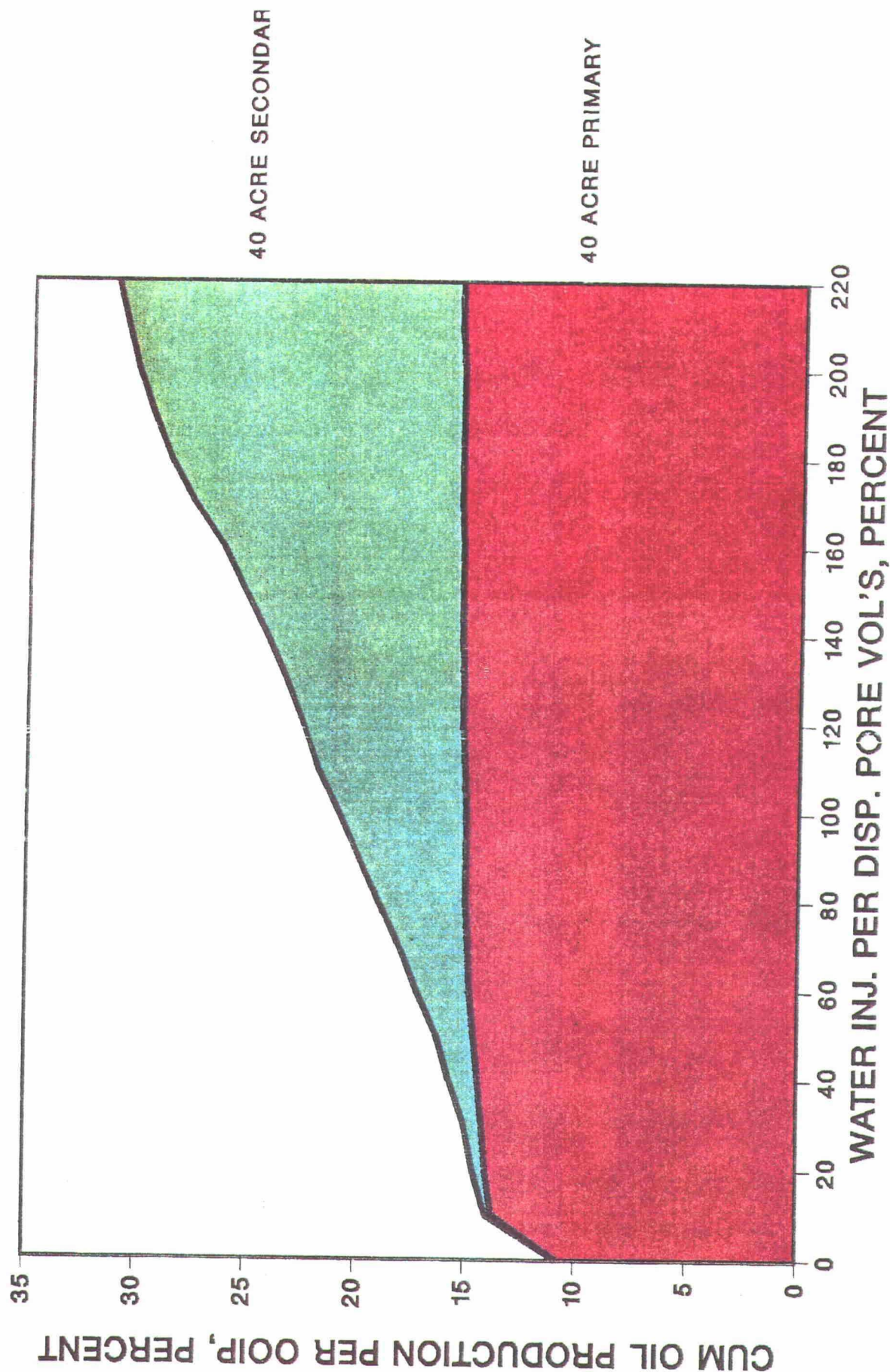


FIGURE 15C

REGIONAL CLEARFORK STUDY
FULLERTON CF UNIT CHARACTERIZATION

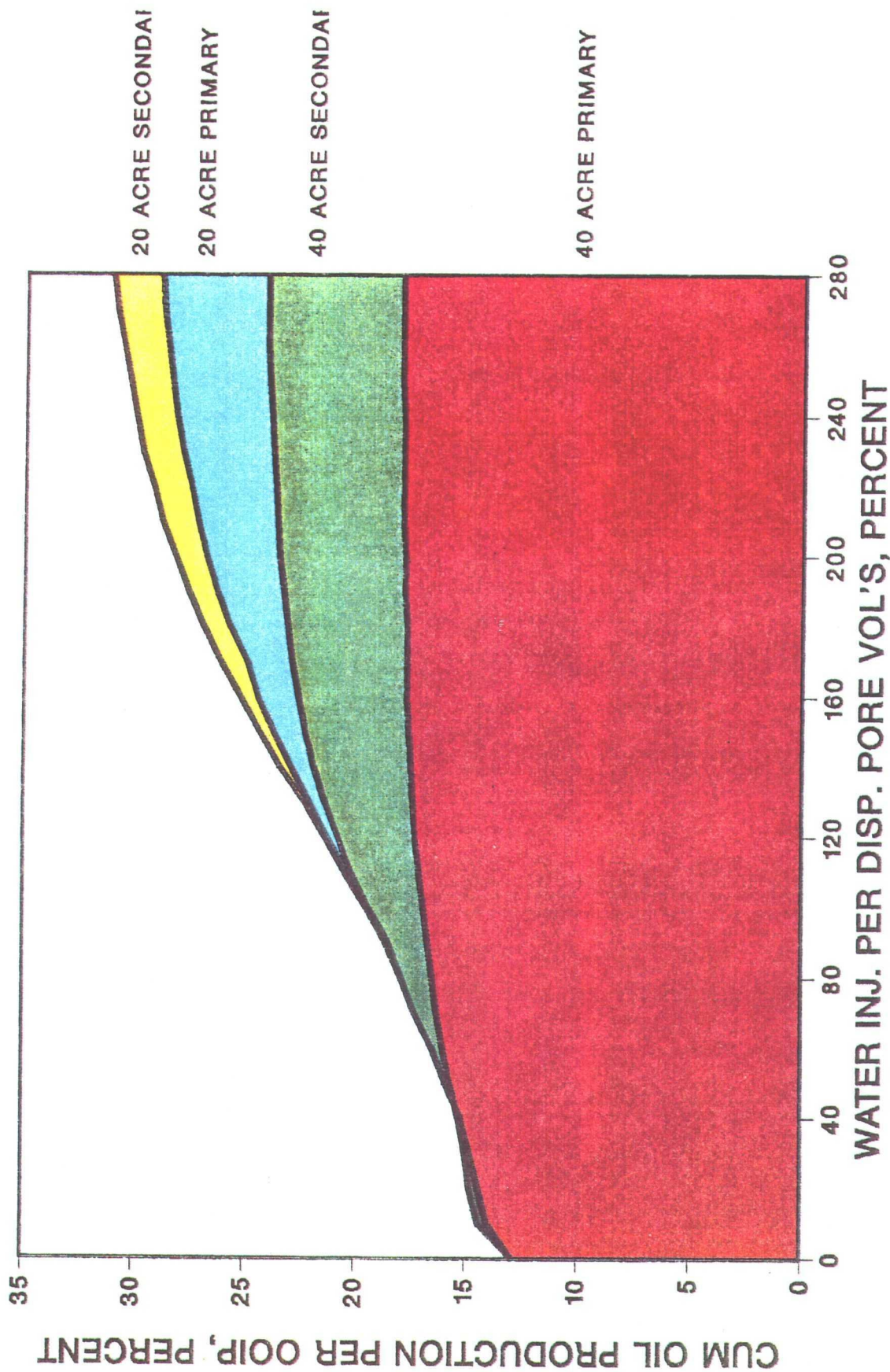


FIGURE 1

REGIONAL CLEARFORK STUDY DOLLARHIDE UNIT CHARACTERIZATION

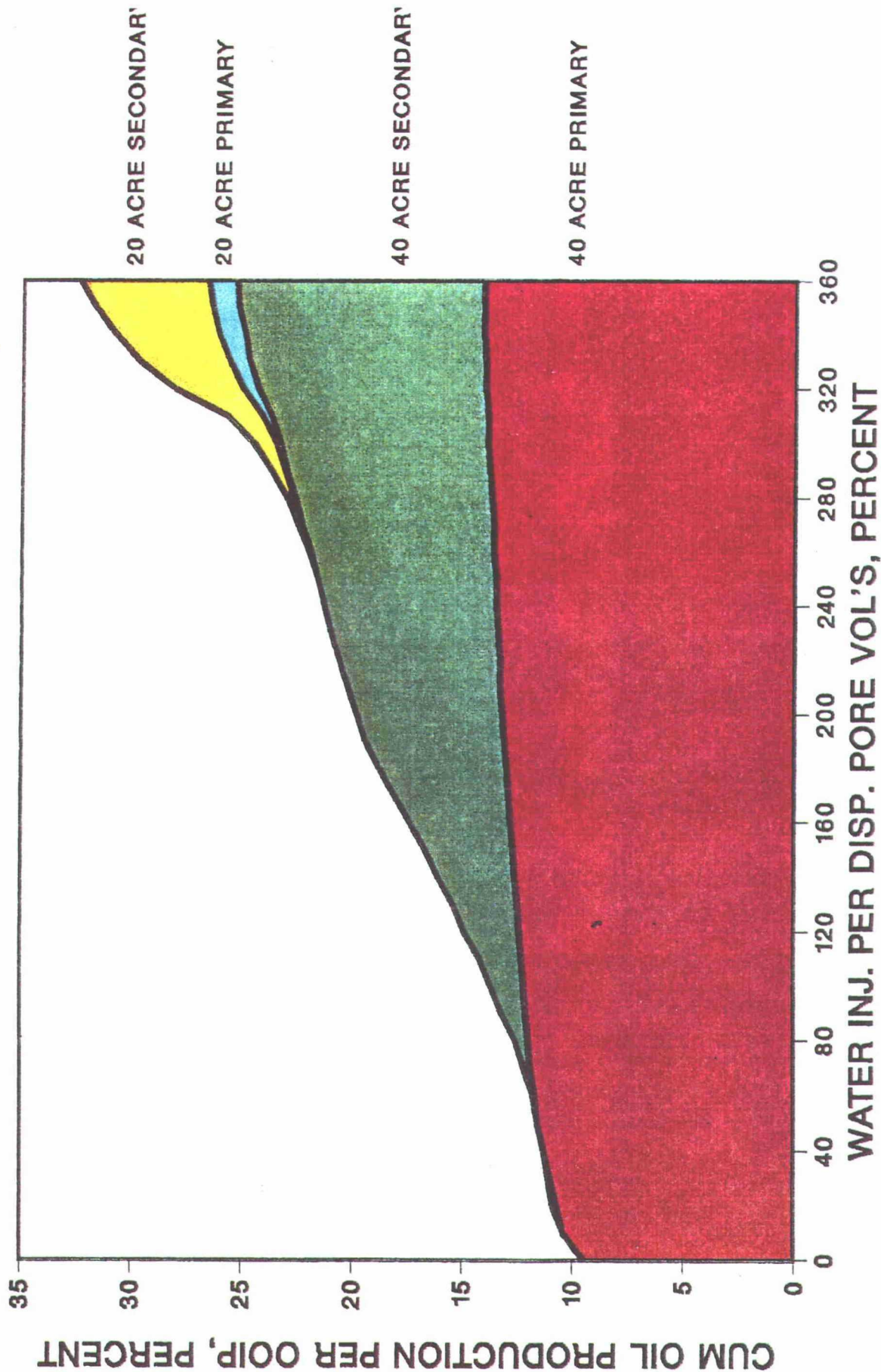


FIGURE 17 C

REGIONAL CLEARFORK STUDY
NE PRENTICE UNIT CHARACTERIZATION

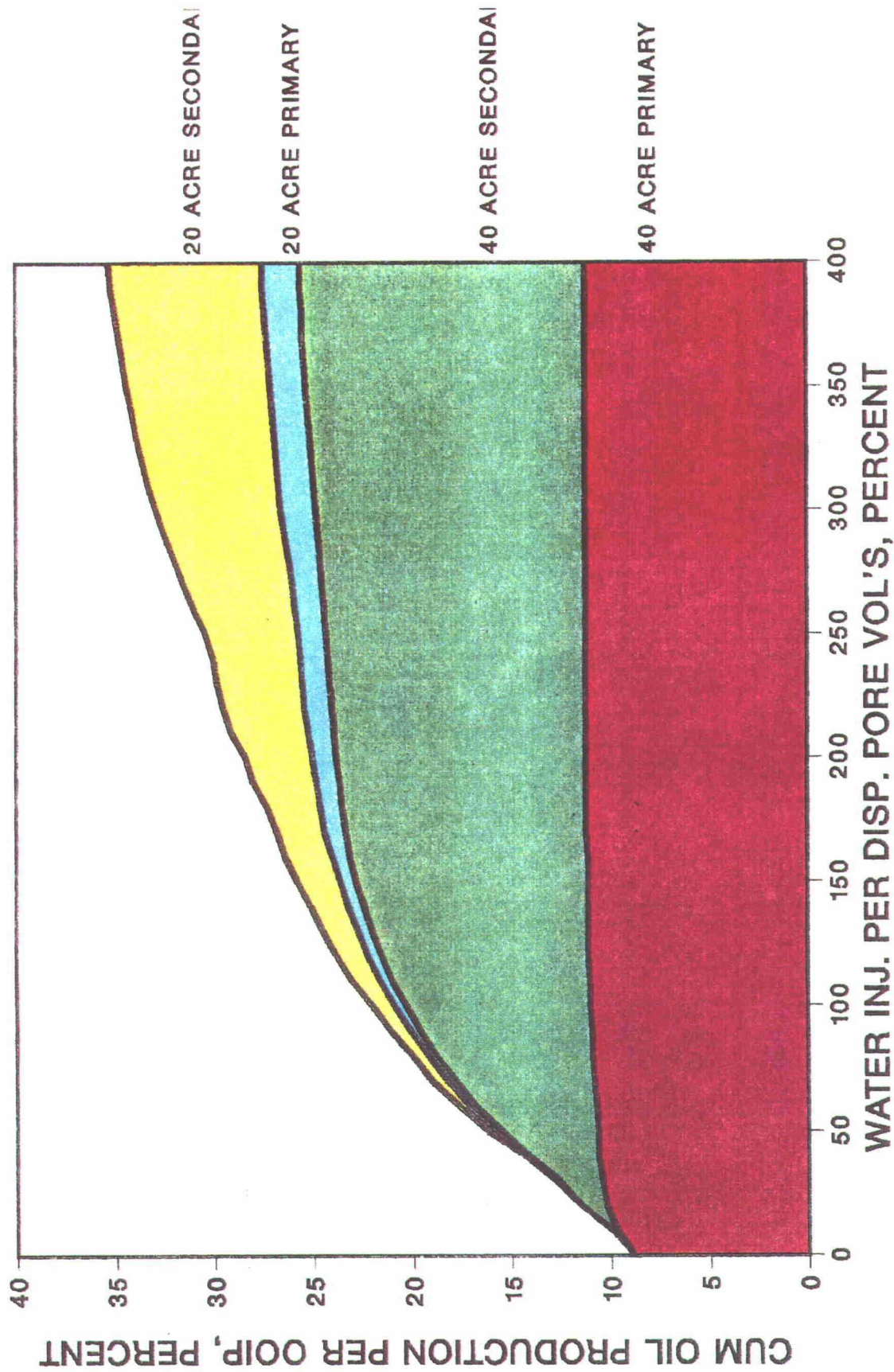


FIGURE 18C

REGIONAL CLEARFORK STUDY C.A. GOLDSMITH LEASE CHARACTERIZATION

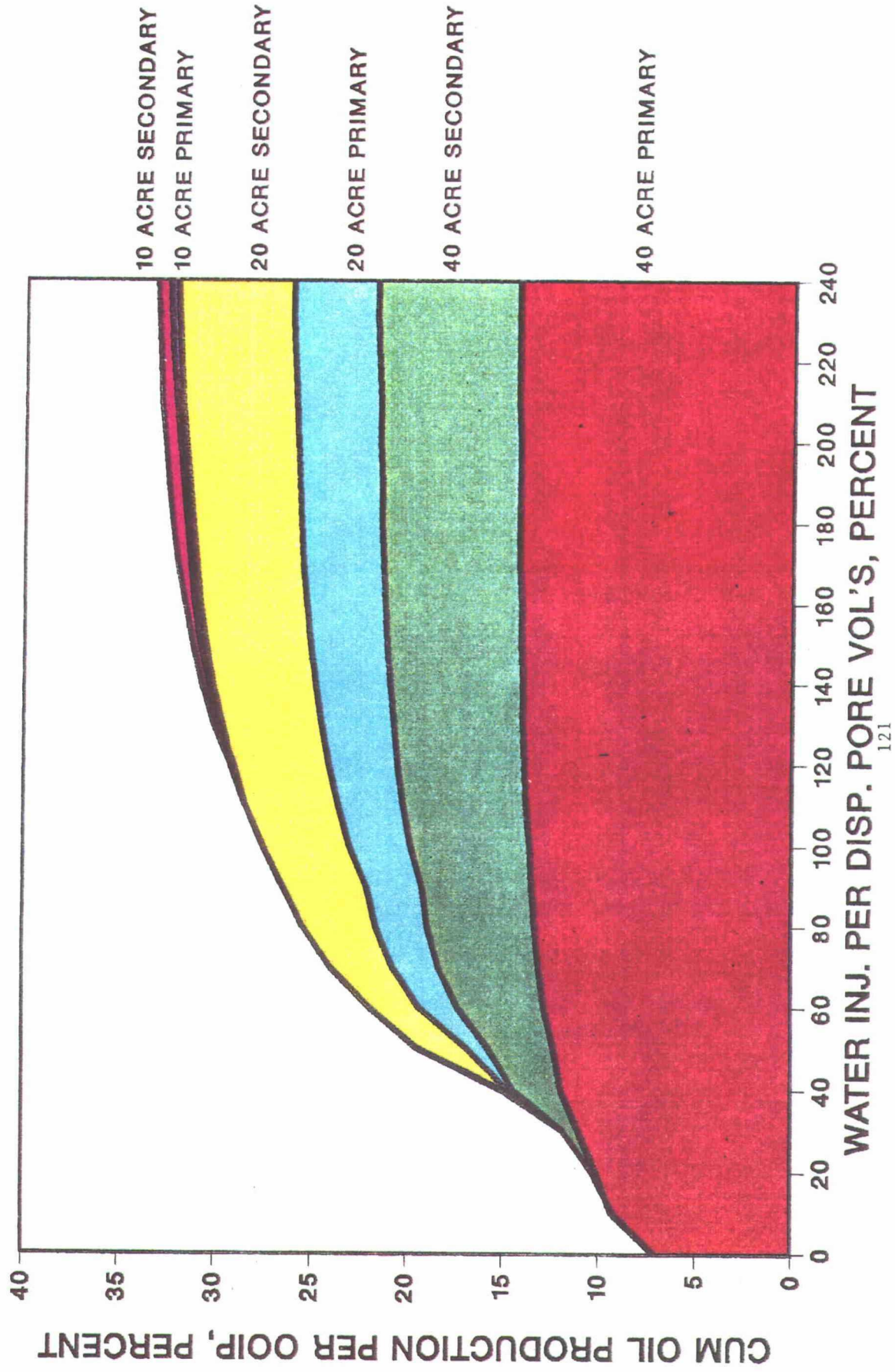


FIGURE 19C

REGIONAL CLEARFORK STUDY CORRELATION BETWEEN PRIMARY RECOVERY AND S/P RATIO

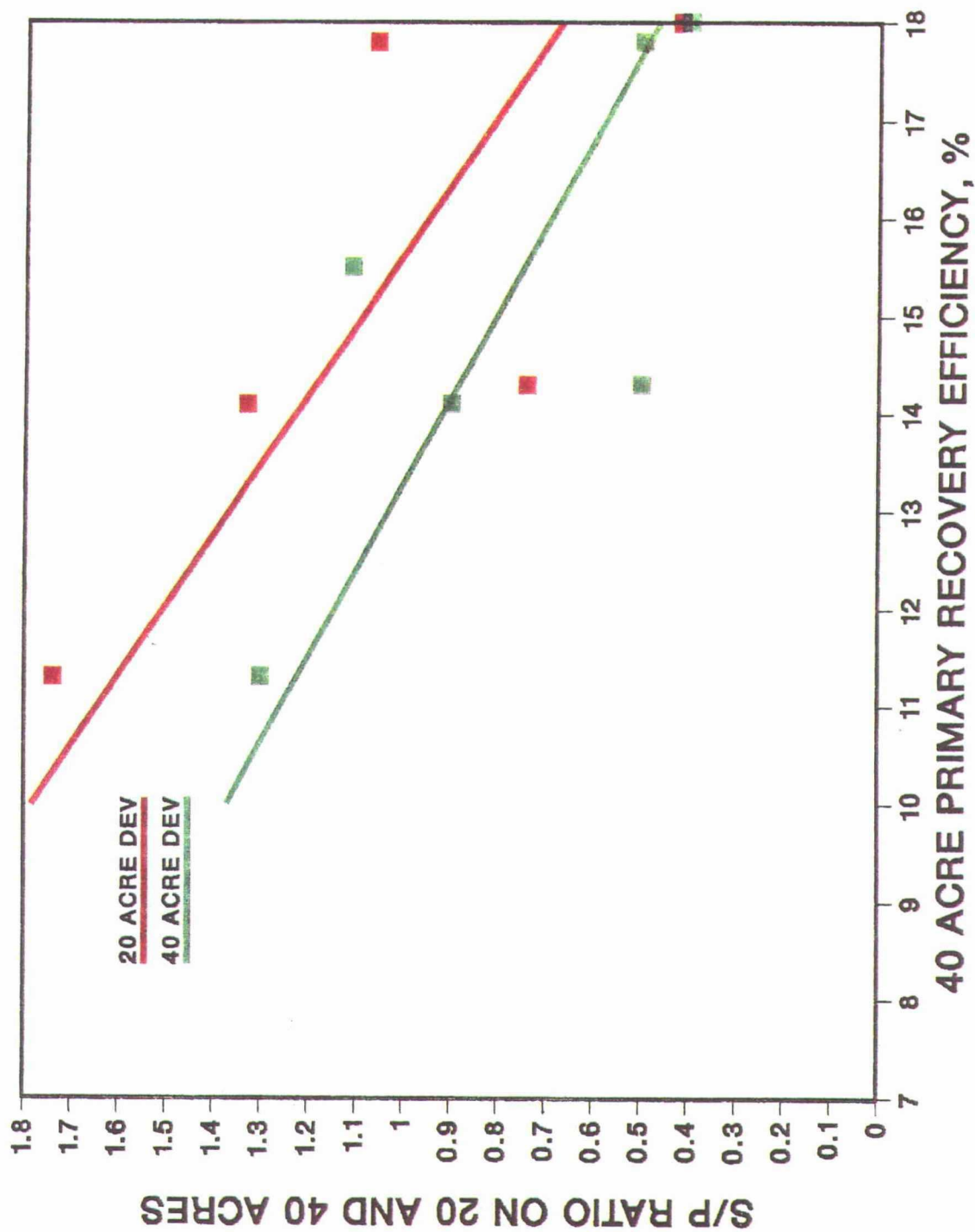


FIGURE 20 C
REGIONAL CLEARFORK STUDY
 CORRELATION BETWEEN
 40 AND 20 ACRE WELL PRIMARY RESERVES

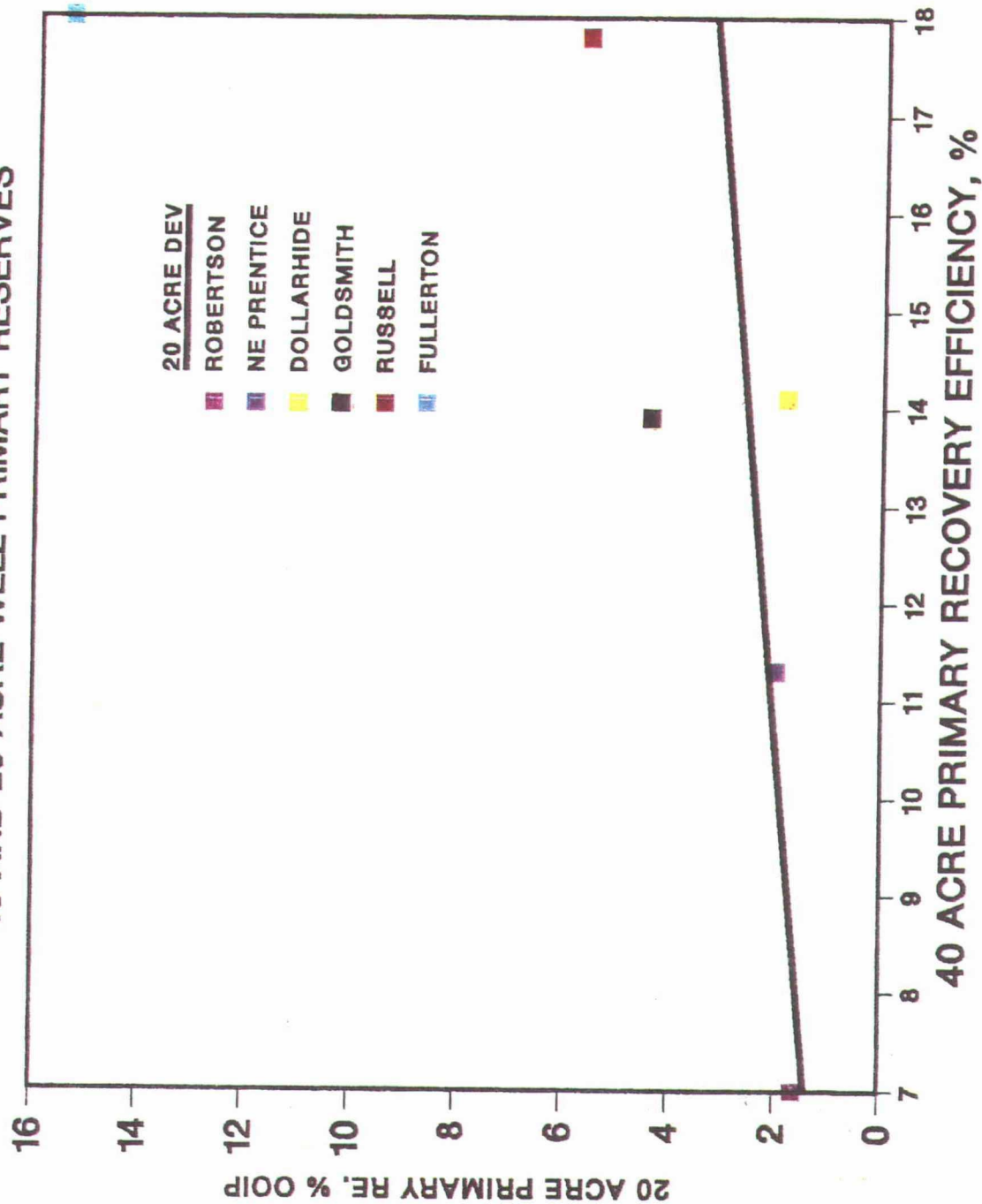
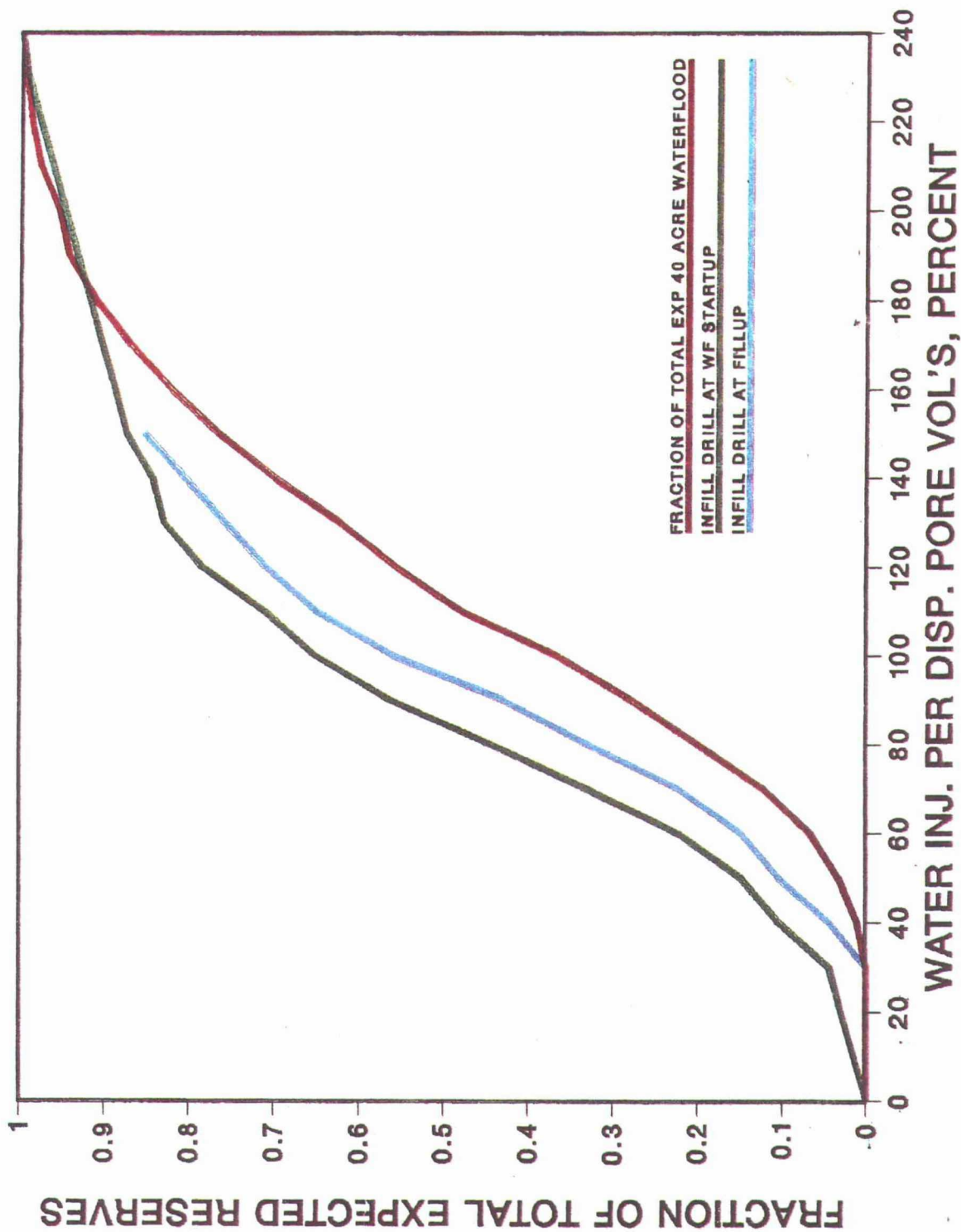
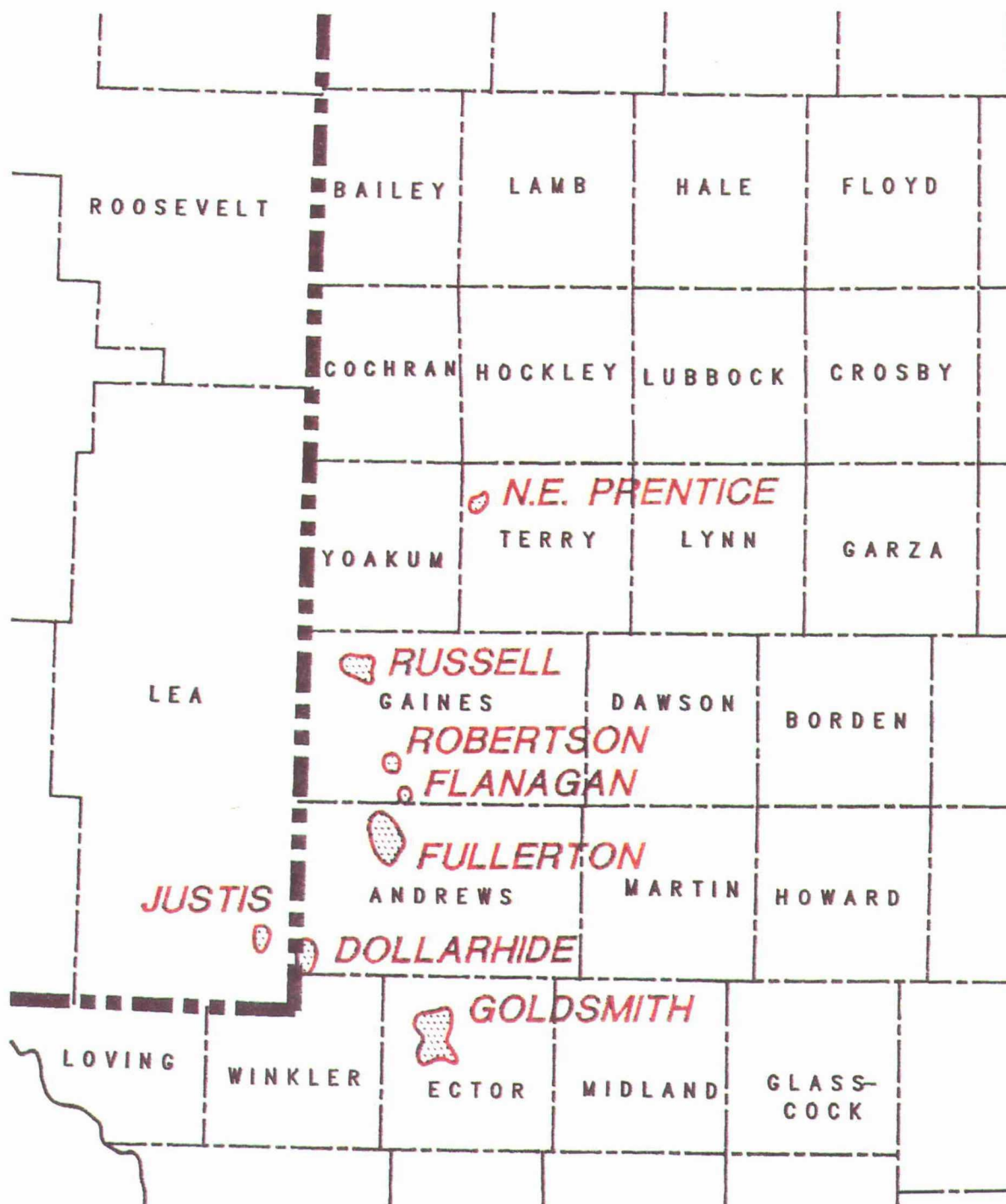


FIGURE 21C
REGIONAL CLEARFORK STUDY
TIME RATING SOUTH JUSTIS RESERVES





ARCO Oil and Gas Company
Division of Atlantic Richfield Company



Central District Midland, Texas

FIGURE 1C
REGIONAL CLEARFORK STUDY

BY:	RON RAY	DATE	12/88
DRAWN:	L.G. ABILA	DATE	12/88
REVISED:			

RESERVOIR ENGINEERING

DWG. NO. CLF101

1990

APPENDIX D

Appendix D - Economic Forecasts

- Part 1 - Incremental Economics - 80-Acre Line Drive
- Part 2 - Incremental Economics - 40-Acre Five-Spots

DATE: 01/04/91
 TIME: 16:32:57
 INCREMENTAL ECONOMICS: (80-ACRE LINE DRIVE)
 VALUE OF INITIALIZED OPERATIONS MINUS
 VALUE OF NON-INITIALIZED REMAINING PRIMARY
 ARCO RESERVES AND ECONOMIC SUPPORT GROUP

PROGRAM: 080390
 PAGE : 29

PROJECT SUMMARY - CO-OWNER OUTPUT CURRENT DOLLARS

AFE ECONOMIC SUMMARY	
ARCO RESERVES AND ECONOMIC SUPPORT GROUP	
BEFORE TAX	AFTER TAX
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CURRENT DOLLAR ECONOMICS:	
INVESTOR'S RATE OF RETURN, %	3.0
PROFIT/INVESTMENT RATIO	1.23
EXPECTED PAYOUT, YEARS	29.63
EXPECTED PRESENT WORTH, M\$	
AS OF 1/ 1/1991	
UNDISCOUNTED	62262.7
AT 6.0%	-23746.1
AT 10.0%	-34406.9
AT 15.0%	-36990.5
AT 25.0%	-35039.7
	41093.5
	-16802.2
	-24389.8
	-26628.1
	-26060.9

ASSUMPTIONS:

 0.0% ESCALATION OF PRODUCT PRICES PER YEAR
 0.0% INFLATION RATE FOR OPERATING AND OVERHEAD EXPENSES
 0.0% INFLATION RATE FOR CAPITAL INVESTMENT COSTS PER YEAR
 34% FEDERAL INCOME TAX RATE
 7-YEAR ACRS DEPRECIATION OF TANGIBLE INVESTMENTS
 COST DEPLETION ON A UNITS OF PRODUCTION BASIS
 NO STATUTORY DEPLETION DEDUCTION INCLUDED

DISCLAIMER:

 IN PREPARING THE FOREGOING ECONOMIC ANALYSIS, WE HAVE
 USED PRICES POSTED OR PAID BY PURCHASERS IN THE AREA.
 HYPOTHETICAL INFLATION FACTORS HAVE ALSO BEEN USED.
 AN INCOME TAX RATE OF 34% IS ASSUMED.

THE PRICES, INFLATION FACTORS, TAX RATES, AND OTHER
 ASSUMPTIONS USED HEREIN SHOULD NOT BE CONSTRUED AS ARCO
 FORECASTS, NOR SHOULD THE USE OF THE PRICES HEREIN BE
 INTERPRETED AS AN INDICATION THAT ARCO EXPECTS TO SELL
 ITS SHARE OF PRODUCTION AT THOSE LEVELS OR AT ANY OTHER
 LEVEL. IN REVIEWING THIS AFE, EACH RECIPIENT SHOULD USE
 ITS OWN ECONOMIC ANALYSIS, PRICE PROJECTIONS, AND INFLATION
 FACTORS TO DETERMINE WHETHER OR NOT IT APPROVES THE
 PROPOSAL.

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CO-OWNER	ECONOMICS	-	EXPECTED	VALUES	-	CURRENT	DOLLARS
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PERIOD	TOTAL REVENUE M\$	WINDFALL PROF TAX M\$	SEVRANCE TAX M\$	AD VAL TAX M\$	OPERATE COST M\$	OVERHEAD COST M\$	TOTAL COST M\$	INTANG. INVEST. M\$	TANGIBLE INVEST. M\$	LAND INVEST. M\$	TOTAL INVEST. M\$	DRY HOLE COST M\$	BEFORE TAX CASH FLOW M\$
1/91-12/91	-718.9	0.0	-27.0	-25.4	340.1	53.7	341.5	11639.8	19154.5	0.0	30794.2	0.0	-31854.6
1/92-12/92	-1539.7	0.0	-57.7	-54.5	1740.7	46.4	1674.8	0.0	0.0	0.0	0.0	0.0	-3214.5
1/93-12/93	-2108.7	0.0	-79.1	-74.6	1649.4	39.6	1535.3	0.0	0.0	0.0	0.0	0.0	-3644.0
1/94-12/94	-2038.5	0.0	-76.4	-72.2	1302.1	33.2	1186.6	0.0	0.0	0.0	0.0	0.0	-3225.1
1/95-12/95	-1412.1	0.0	-53.0	-50.0	984.5	27.0	908.5	0.0	0.0	0.0	0.0	0.0	-2320.6
1/96-12/96	-600.3	0.0	-22.5	-21.3	1278.0	21.2	1255.4	0.0	0.0	0.0	0.0	0.0	-1855.8
1/97-12/97	129.4	0.0	4.9	4.6	1225.4	15.9	1250.8	0.0	0.0	0.0	0.0	0.0	-1121.4
1/98-12/98	737.6	0.0	27.7	26.1	1191.4	11.0	1256.2	0.0	1458.4	0.0	1458.4	0.0	-1977.1
1/99-12/99	1319.1	0.0	49.5	46.7	1160.9	6.6	1263.6	0.0	1458.4	0.0	1458.4	0.0	-1403.0
1/ 0-12/ 0	1887.7	0.0	70.8	66.8	1130.5	2.3	1270.4	0.0	0.0	0.0	0.0	0.0	617.2
1/ 1-12/ 1	2363.3	0.0	88.6	83.7	1100.7	-1.6	1271.3	0.0	0.0	0.0	0.0	0.0	1092.0
1/ 2-12/ 2	2747.4	0.0	103.0	97.3	1071.2	-5.4	1266.1	0.0	0.0	0.0	0.0	0.0	1481.3
1/ 3-12/ 3	4503.8	0.0	168.9	159.4	2479.0	569.0	3376.3	0.0	0.0	0.0	0.0	0.0	1127.5
1/ 4-12/ 4	4592.4	0.0	172.2	162.6	2433.5	560.3	3328.6	0.0	0.0	0.0	0.0	0.0	1263.8
1/ 5-12/ 5	4730.7	0.0	177.4	167.5	2407.4	558.1	3310.4	0.0	0.0	0.0	0.0	0.0	1420.3
1/ 6-12/10	26412.2	0.0	990.5	935.0	11612.7	2754.1	16292.3	0.0	0.0	0.0	0.0	0.0	10119.9
1/11-12/15	30332.1	0.0	1137.5	1073.8	10893.7	2685.7	15790.7	0.0	0.0	0.0	0.0	0.0	14541.4
1/16-12/25	77044.6	0.0	2889.2	2727.4	19862.2	5109.2	30588.0	0.0	0.0	0.0	0.0	0.0	46456.5
1/26-12/31	48013.4	0.0	1800.5	1699.7	7750.3	2004.2	13254.7	0.0	0.0	0.0	0.0	0.0	34758.7
1/91-12/31	196395.4	0.0	7364.8	6952.4	71613.8	14490.5	100421.5	11639.8	22071.4	0.0	33711.1	0.0	62262.6

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INCREMENTAL ECONOMICS: (80-ACRE LINE DRIVE)
VALUE OF UNITIZED OPERATIONS MINUS
VALUE OF NON-UNITIZED REMAINING PRIMARY
ARCO RESERVES AND ECONOMIC SUPPORT GROUP

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CO-OWNER ECONOMICS - EXPECTED VALUES - AFTER TAX SUMMARY											
CURRENT DOLLARS											
PERIOD	BEFORE TAX CASH FLOW M\$	TAXABLE REVENUE M\$	TAX EXPENSES M\$	IDC WRITEOFF M\$	DEPREC- IATION M\$	COST DEPLETION M\$	TOTAL DEDUCTIONS M\$	TAXABLE INCOME M\$	STATE TAX M\$	FEDERAL TAX M\$	AFTER TAX CASH FLOW M\$
1/91-12/91	-31854.6	-718.9	8489.3	378.3	2739.2	0.0	11606.8	-12325.7	0.0	-4190.7	-27663.9
1/92-12/92	-3214.5	-1539.7	1674.8	698.4	4692.9	0.0	7066.1	-8605.8	0.0	-2926.0	-288.6
1/93-12/93	-3644.0	-2108.7	1535.3	698.4	3352.0	0.0	5585.6	-7694.3	0.0	-2616.1	-1027.9
1/94-12/94	-3225.1	-2038.5	1186.6	698.4	2394.4	0.0	4279.4	-6317.9	0.0	-2148.1	-1077.1
1/95-12/95	-2320.6	-1412.1	908.5	698.4	1704.8	0.0	3311.7	-4723.8	0.0	-1606.1	-714.5
1/96-12/96	-1855.8	-600.3	1255.4	320.1	1704.8	0.0	3280.4	-3880.7	0.0	-1319.4	-536.3
1/97-12/97	-1121.4	129.4	1250.8	0.0	1704.8	0.0	2955.6	-2826.2	0.0	-960.9	-160.5
1/98-12/98	-1977.1	737.6	1256.2	0.0	1070.5	0.0	2326.7	-1589.1	0.0	-540.3	-1436.8
1/99-12/99	-1403.0	1319.1	1263.6	0.0	565.9	0.0	1829.5	-510.4	0.0	-173.5	-1229.4
1/ 0-12/ 0	617.2	1887.7	1270.4	0.0	612.5	0.0	1883.0	4.7	0.0	1.6	615.6
1/ 1-12/ 1	1092.0	2363.3	1271.3	0.0	437.5	0.0	1708.9	654.5	0.0	222.5	869.5
1/ 2-12/ 2	1481.3	2747.4	1266.1	0.0	312.1	0.0	1578.2	1169.2	0.0	397.5	1083.8
1/ 3-12/ 3	1127.5	4503.8	3376.3	0.0	259.6	0.0	3635.9	867.9	0.0	295.1	832.4
1/ 4-12/ 4	1263.8	4592.4	3328.6	0.0	259.6	0.0	3588.2	1004.2	0.0	341.4	922.4
1/ 5-12/ 5	1420.3	4730.7	3310.4	0.0	195.4	0.0	3505.8	1224.9	0.0	416.5	1003.9
1/ 6-12/10	10119.9	26412.2	16292.3	0.0	65.6	0.0	16357.9	10054.3	0.0	3418.5	6701.4
1/11-12/15	14541.4	30332.1	15790.7	0.0	0.0	0.0	15790.7	14541.4	0.0	4944.1	9597.3
1/16-12/25	46456.5	77044.6	30588.0	0.0	0.0	0.0	30588.0	46456.5	0.0	15795.2	30661.3
1/26-12/31	34758.7	48013.4	13254.7	0.0	0.0	0.0	13254.7	34758.7	0.0	11817.9	22940.7
1/91-12/31	62262.6	196395.4	108569.4	3491.9	22071.7	0.0	134133.0	62262.4	0.0	21169.2	41093.4

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100% WORKING INTEREST
NON-UNITIZED REMAINING PRIMARY

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ARCO RESERVES AND ECONOMIC SUPPORT GROUP

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

CO-OWNER CONSTANT INFLATION RATES: INVESTMENTS=		0.0%/YR; OPERATING COST=		0.0%/YR; REVENUE=		0.0%/YR	
CHANCE FACTOR %	ZERO MONTH YEAR	TIME YEAR	OIL %	SEVERANCE OIL %	GAS %	TAX %	AD VAL %
100.00	1	1991	3.75	3.75	3.75	3.75	3.540
PERIOD		* * STRIPPER PRICE \$/STB		OIL NET INT. FRACTION		* * SALES GAS PRICE \$/MCF	
		PRODUCT. MSTB		NET INT. FRACTION		PRODUCT. MMSCF	
1/91-12/91		196.9	18.00	0.874999		2114.2	2.00
1/92-12/92		182.8	18.00	0.875000		1961.9	2.00
1/93-12/93		169.6	18.00	0.875000		1820.5	2.00
1/94-12/94		157.4	18.00	0.875000		1689.4	2.00
1/95-12/95		144.7	18.00	0.875000		1553.3	2.00
1/96-12/96		125.7	18.00	0.875000		1349.2	2.00
1/97-12/97		108.1	18.00	0.875000		1160.3	2.00
1/98-12/98		93.0	18.00	0.875000		997.8	2.00
1/99-12/99		79.9	18.00	0.875000		858.1	2.00
1/ 0-12/ 0		68.7	18.00	0.875000		738.0	2.00
1/ 1-12/ 1		59.1	18.00	0.875000		634.7	2.00
1/ 2-12/ 2		50.8	18.00	0.875000		545.8	2.00
1/91-12/ 2		1436.7				15423.2	
				DEPRE START PER. 1		PRESENT WORTH REFERENCE DATE MO. DAY YEAR 1 1 91	
						COST DEPLETION BASE, M\$ 0.000	
						DOMINANT PRODUCT 0.0%/YR	
						ECONOMIC LIMIT DISCOUNT RATE % 12.00	

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NON-UNITIZED REMAINING PRIMARY

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ARCO RESERVES AND ECONOMIC SUPPORT GROUP

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

PERIOD	TOTAL WELLS	WORKING INTEREST (OP CST)	FIXED OP COST M\$	** OVERHEAD ** M\$/W/M	** COSTS M\$/W/M	WELL ABANDONMENT M\$	PURC GAS NET COST M\$	FUEL GAS NET COST M\$	SHRNKAGE PROCESS M\$	NET OTHR REVENUE M\$
1/91-12/91	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/92-12/92	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/93-12/93	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/94-12/94	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/95-12/95	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/96-12/96	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/97-12/97	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/98-12/98	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/99-12/99	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/ 0-12/ 0	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/ 1-12/ 1	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/ 2-12/ 2	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0	0.0
1/91-12/ 2			0.00			0.0	0.0	0.0	0.0	0.0

PERIOD	WORK INT (OP CST)	** P R WELLS	O D U C T I O N M\$/W/M	W E L L S \$/MCF	W E L L S M\$/M	** I N WELLS	J E C T I O N M\$/W/M	M\$/M	W E L L S MUNIT	L S \$/UNIT	** W A T E R MSTBW	C O S T S \$/STB
1/91-12/91	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/92-12/92	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/93-12/93	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/94-12/94	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/95-12/95	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/96-12/96	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/97-12/97	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/98-12/98	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/99-12/99	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/ 0-12/ 0	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/ 1-12/ 1	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/ 2-12/ 2	1.000000	123.0	1.000	0.00	0.00	0.0	0.00	0.0	0.0	0.00	0.	0.00
1/91-12/ 2											0.	

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100% WORKING INTEREST
NON-UNITIZED REMAINING PRIMARY

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ARCO RESERVES AND ECONOMIC SUPPORT GROUP

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

PERIOD	GROSS GAS DISPOSITION			NET GAS DISPOSITION			SALES MMCF
	PRODUCTION MMCF	FUEL MMCF	SHRINKAGE MMCF	PRODUCTION MMCF	FUEL MMCF	SHRINKAGE MMCF	
1/91-12/91	2114.21	0.00	0.00	1849.93	0.00	0.00	1849.93
1/92-12/92	1961.88	0.00	0.00	1716.65	0.00	0.00	1716.65
1/93-12/93	1820.54	0.00	0.00	1592.97	0.00	0.00	1592.97
1/94-12/94	1689.38	0.00	0.00	1478.21	0.00	0.00	1478.21
1/95-12/95	1553.33	0.00	0.00	1359.17	0.00	0.00	1359.17
1/96-12/96	1349.16	0.00	0.00	1180.51	0.00	0.00	1180.51
1/97-12/97	1160.27	0.00	0.00	1015.24	0.00	0.00	1015.24
1/98-12/98	997.84	0.00	0.00	873.11	0.00	0.00	873.11
1/99-12/99	858.14	0.00	0.00	750.88	0.00	0.00	750.88
1/ 0-12/ 0	738.00	0.00	0.00	645.75	0.00	0.00	645.75
1/ 1-12/ 1	634.68	0.00	0.00	555.35	0.00	0.00	555.35
1/ 2-12/ 2	545.82	0.00	0.00	477.59	0.00	0.00	477.59
1/91-12/ 2	15423.25	0.00	0.00	13495.34	0.00	0.00	13495.34

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CURRENT DOLLARS

0.0%/YR

DOMINANT

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UNITIZED OPERATIONS
PROJECT SUCCEEDS
ARCO RESERVES AND ECONOMIC SUPPORT GROUP

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INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

PERIOD	NONTAX REVENUE M\$	WORKING INTEREST (CAPITL)	EXP DRY HOLE CST M\$	DEV DRY HOLE CST M\$	* * WELL INTANGBL M\$	* * WELL INVESTMENTS * * NEW TAN. OLD TAN. M\$ M\$	* * PLANT INVESTMENTS * * INTANGBL NEW TAN. OLD TAN. M\$ M\$	LAND INVESTMT M\$	TOTAL INVESTMT M\$
1/91-12/91	0.0	1.000000	0.0	0.0	11639.8	2082.5	0.0	0.0	30794.2
1/92-12/92	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/93-12/93	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/94-12/94	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/95-12/95	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/96-12/96	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/97-12/97	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/98-12/98	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/99-12/99	0.0	1.000000	0.0	0.0	0.0	0.0	0.0	0.0	1620.5
									1620.5
1/91-12/99	0.0		0.0	0.0	11639.8	2082.5	0.0	0.0	34035.2

PERIOD	TOTAL WELLS	WORKING INTEREST (OP CST)	FIXED OP COST M\$	** OVERHEAD ** COSTS M\$/W/M	WELL ABANDONMENT M\$	PURC GAS NET COST M\$	FUEL GAS NET COST M\$	SHRNKAGE PROCESS M\$	NET OTHR REVENUE M\$
1/91-12/91	134.8	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/92-12/92	134.5	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/93-12/93	134.2	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/94-12/94	133.9	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/95-12/95	133.6	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/96-12/96	133.2	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/97-12/97	132.9	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/98-12/98	132.5	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/99-12/99	132.1	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 0-12/ 0	131.6	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 1-12/ 1	131.2	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 2-12/ 2	130.7	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 3-12/ 3	130.2	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 4-12/ 4	129.7	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 5-12/ 5	129.2	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 6-12/ 6	128.7	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 7-12/ 7	128.1	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/ 8-12/12	126.3	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/13-12/17	123.0	1.000000	0.00	0.400	0.0	0.0	0.0	0.0	0.0
1/18-12/27	115.6	1.000000	0.00	0.398	0.0	0.0	0.0	0.0	0.0
1/28-12/31	89.4	1.000000	0.00	0.320	0.0	0.0	0.0	0.0	0.0
1/91-12/31			0.00		0.0	0.0	0.0	0.0	0.0

DATE: 01/04/91
TIME: 16:32:57

UNITIZED OPERATIONS
PROJECT SUCCEEDS

ARCO RESERVES AND ECONOMIC SUPPORT GROUP

PROGRAM: 080390
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INPUT DATA SUMMARY

CO-ONNER ECONOMICS -

CURRENT DOLLARS

PERIOD	WORK INT (OP CST)	**P R WELLS	O D U C T I O N M\$/W/M	I O N \$/STB	W E L L S ** \$/MCF	W E L L S ** M\$/M	**I N J E C T I O N M\$/W/M	WELLS	M\$/M	W E L L S ** MUNIT	W E L L S ** \$/UNIT	**W A T E R MSTBW	C O S T S ** \$/STB
1/91-12/91	1.000000	69.9	1.500	0.00	0.00	0.00	0.50	64.9	0.50	0.0	0.00	0.0	0.00
1/92-12/92	1.000000	69.8	1.500	0.00	0.00	0.00	0.50	64.8	0.50	0.0	0.08	0.0	0.00
1/93-12/93	1.000000	69.6	1.500	0.00	0.00	0.00	0.50	64.6	0.50	0.0	0.08	0.0	0.00
1/94-12/94	1.000000	69.5	1.500	0.00	0.00	0.00	0.50	64.5	0.50	0.0	0.08	0.0	0.00
1/95-12/95	1.000000	69.3	1.500	0.00	0.00	0.00	0.50	64.3	0.50	0.0	0.08	0.0	0.00
1/96-12/96	1.000000	69.1	2.000	0.00	0.00	0.00	0.50	64.1	0.50	0.0	0.08	0.0	0.00
1/97-12/97	1.000000	68.9	2.000	0.00	0.00	0.00	0.50	63.9	0.50	0.0	0.08	0.0	0.00
1/98-12/98	1.000000	68.7	2.000	0.00	0.00	0.00	0.50	63.7	0.50	0.0	0.08	0.0	0.00
1/99-12/99	1.000000	68.5	2.000	0.00	0.00	0.00	0.50	63.5	0.50	0.0	0.08	0.0	0.00
1/0-12/0	1.000000	68.3	2.000	0.00	0.00	0.00	0.50	63.3	0.50	0.0	0.08	0.0	0.00
1/1-12/1	1.000000	68.1	2.000	0.00	0.00	0.00	0.50	63.1	0.50	0.0	0.08	0.0	0.00
1/2-12/2	1.000000	67.8	2.000	0.00	0.00	0.00	0.50	62.8	0.50	0.0	0.08	0.0	0.00
1/3-12/3	1.000000	67.6	2.000	0.00	0.00	0.00	0.50	62.6	0.50	0.0	0.08	0.0	0.00
1/4-12/4	1.000000	67.4	2.000	0.00	0.00	0.00	0.50	62.4	0.50	0.0	0.08	0.0	0.00
1/5-12/5	1.000000	67.1	2.000	0.00	0.00	0.00	0.50	62.1	0.50	0.0	0.08	0.0	0.00
1/6-12/6	1.000000	66.8	2.000	0.00	0.00	0.00	0.50	61.8	0.50	0.0	0.08	0.0	0.00
1/7-12/7	1.000000	66.6	2.000	0.00	0.00	0.00	0.50	61.6	0.50	0.0	0.08	0.0	0.00
1/8-12/12	1.000000	65.6	2.000	0.00	0.00	0.00	0.50	60.6	0.50	0.0	0.08	0.0	0.00
1/13-12/17	1.000000	64.0	2.000	0.00	0.00	0.00	0.50	59.0	0.50	0.0	0.08	0.0	0.00
1/18-12/27	1.000000	60.3	1.991	0.00	0.00	0.00	0.50	55.2	0.50	0.0	0.08	0.0	0.00
1/28-12/31	1.000000	48.0	1.600	0.00	0.00	0.00	0.40	41.4	0.40	0.0	0.08	0.0	0.00
1/91-12/31										304645.		0.	

DATE: 01/07/91
 TIME: 13:57:33
 INCREMENTAL ECONOMICS: (40-ACRE FIVE SPOTS)
 VALUE OF UNITIZED OPERATIONS MINUS
 VALUE OF NON-UNITIZED REMAINING PRIMARY
 ARCO RESERVES AND ECONOMIC SUPPORT GROUP

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PROJECT SUMMARY - CO-OWNER OUTPUT CURRENT DOLLARS

A/E ECONOMIC SUMMARY

ARCO RESERVES AND ECONOMIC SUPPORT GROUP	BEFORE TAX	AFTER TAX
	-----	-----

CURRENT DOLLAR ECONOMICS:

INVESTOR'S RATE OF RETURN, %	16.6	15.5
PROFIT/INVESTMENT RATIO	4.90	3.81
EXPECTED PAYOUT, YEARS	8.13	8.15
EXPECTED PRESENT WORTH, M\$		
AS OF 1/ 1/1991		
UNDISCOUNTED	330627.3	218213.8
AT 6.0%	122148.7	78523.6
AT 10.0%	56374.6	34050.3
AT 15.0%	10019.1	2409.0
AT 25.0%	-30313.3	-25642.7

ASSUMPTIONS:

0.0% ESCALATION OF PRODUCT PRICES PER YEAR
 0.0% INFLATION RATE FOR OPERATING AND OVERHEAD EXPENSES
 0.0% INFLATION RATE FOR CAPITAL INVESTMENT COSTS PER YEAR
 34% FEDERAL INCOME TAX RATE
 7-YEAR ACRS DEPRECIATION OF TANGIBLE INVESTMENTS
 COST DEPLETION ON A UNITS OF PRODUCTION BASIS
 NO STATUTORY DEPLETION DEDUCTION INCLUDED

DISCLAIMER:

IN PREPARING THE FOREGOING ECONOMIC ANALYSIS, WE HAVE
 USED PRICES POSTED OR PAID BY PURCHASERS IN THE AREA.
 HYPOTHETICAL INFLATION FACTORS HAVE ALSO BEEN USED.
 AN INCOME TAX RATE OF 34% IS ASSUMED.

THE PRICES, INFLATION FACTORS, TAX RATES, AND OTHER
 ASSUMPTIONS USED HEREIN SHOULD NOT BE CONSTRUED AS ARCO
 FORECASTS, NOR SHOULD THE USE OF THE PRICES HEREIN BE
 INTERPRETED AS AN INDICATION THAT ARCO EXPECTS TO SELL
 ITS SHARE OF PRODUCTION AT THOSE LEVELS OR AT ANY OTHER
 LEVEL. IN REVIEWING THIS A/E, EACH RECIPIENT SHOULD USE
 ITS OWN ECONOMIC ANALYSIS, PRICE PROJECTIONS, AND INFLATION
 FACTORS TO DETERMINE WHETHER OR NOT IT APPROVES THE
 PROPOSAL.

DATE: 01/07/91
TIME: 13:57:33

INCREMENTAL ECONOMICS: (40-ACRE FIVE SPOTS)
VALUE OF UNITIZED OPERATIONS MINUS
VALUE OF NON-UNITIZED REMAINING PRIMARY
ARCO RESERVES AND ECONOMIC SUPPORT GROUP

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BEFORE TAX SUMMARY

CO-OWNER ECONOMICS - EXPECTED VALUES - CURRENT DOLLARS

PERIOD	* * * GROSS CRUDE OIL MSTB \$/STB	PRODUCTION NATURAL GAS MMSCF \$/MCF	AND AVERAGE CONDENSATE MSTB \$/STB	PRICES * * * NAT GAS LIQ MSTB \$/STB	* * * * * CRUDE OIL MSTB \$	* * * * * NET MMSCF	PRODUCTION NATURAL GAS M\$	AND CONDENSATE MSTB \$	NET CONDENSATE MSTB \$	REVENUE M\$	* * * * * NAT GAS MSTB \$	* * * * * LIQUIDS M\$
1/91-12/91	27.18.0	224.2.00	0.0.0.0	0.0.0.0	23.4	421.8	196.3	392.6	0.0	0.0	0.0	0.0
1/92-12/92	201.18.0	1732.2.00	0.0.0.0	0.0.0.0	176.2	3170.8	1515.3	3030.6	0.0	0.0	0.0	0.0
1/93-12/93	216.18.0	1478.2.00	0.0.0.0	0.0.0.0	189.3	3408.0	1293.6	2587.1	0.0	0.0	0.0	0.0
1/94-12/94	332.18.0	1875.2.00	0.0.0.0	0.0.0.0	290.6	5229.9	1640.6	3281.3	0.0	0.0	0.0	0.0
1/95-12/95	547.18.0	2272.2.00	0.0.0.0	0.0.0.0	478.2	8608.5	1988.1	3976.2	0.0	0.0	0.0	0.0
1/96-12/96	854.18.0	1618.2.00	0.0.0.0	0.0.0.0	747.1	13448.5	1416.0	2832.0	0.0	0.0	0.0	0.0
1/97-12/97	1313.18.0	437.2.00	0.0.0.0	0.0.0.0	1149.1	20684.7	382.3	764.6	0.0	0.0	0.0	0.0
1/98-12/98	1906.18.0	1035.2.00	0.0.0.0	0.0.0.0	1667.4	30012.4	905.7	1811.4	0.0	0.0	0.0	0.0
1/99-12/99	2451.18.0	1483.2.00	0.0.0.0	0.0.0.0	2144.2	38595.4	1297.6	2595.1	0.0	0.0	0.0	0.0
1/0-12/0	2698.18.0	1552.2.00	0.0.0.0	0.0.0.0	2360.3	42486.0	1357.8	2715.6	0.0	0.0	0.0	0.0
1/1-12/1	2706.18.0	1382.2.00	0.0.0.0	0.0.0.0	2367.9	42622.5	1209.6	2419.2	0.0	0.0	0.0	0.0
1/2-12/2	2408.18.0	1025.2.00	0.0.0.0	0.0.0.0	2106.8	37922.3	897.3	1794.5	0.0	0.0	0.0	0.0
1/3-12/3	1934.18.0	1083.2.00	0.0.0.0	0.0.0.0	1692.0	30456.3	947.8	1895.6	0.0	0.0	0.0	0.0
1/4-12/4	1576.18.0	789.2.00	0.0.0.0	0.0.0.0	1378.7	24815.8	690.4	1380.9	0.0	0.0	0.0	0.0
1/5-12/5	1337.18.0	669.2.00	0.0.0.0	0.0.0.0	1170.3	21065.2	585.1	1170.3	0.0	0.0	0.0	0.0
1/6-12/6	4453.18.0	2227.2.00	0.0.0.0	0.0.0.0	3896.6	70138.9	1948.3	3896.6	0.0	0.0	0.0	0.0
1/11-12/15	2824.18.0	1412.2.00	0.0.0.0	0.0.0.0	2470.9	44476.1	1235.4	2470.9	0.0	0.0	0.0	0.0
1/16-12/24	2851.18.0	1426.2.00	0.0.0.0	0.0.0.0	2494.7	44904.4	1247.3	2494.7	0.0	0.0	0.0	0.0
1/91-12/24	30633.	23720.	0.	0.	26803.7	482467.2	20754.6	41509.2	0.0	0.0	0.0	0.0

PERIOD	TOTAL REVENUE M\$	WINDFALL PROF TAX M\$	SEVRANCE TAX M\$	AD VAL TAX M\$	OPERATE COST M\$	OVERHEAD COST M\$	TOTAL COST M\$	INTANG. INVEST. M\$	TANGIBLE INVEST. M\$	LAND INVEST. M\$	TOTAL INVEST. M\$	DRY HOLE COST M\$	BEFORE CASH FLOW M\$	TAX M\$
1/91-12/91	814.4	0.0	30.5	28.8	1533.9	46.3	1639.5	32695.4	33756.7	0.0	66452.0	0.0	-67277.1	0.0
1/92-12/92	6201.4	0.0	232.6	219.5	5172.4	507.6	6132.0	0.0	0.0	0.0	0.0	0.0	69.3	0.0
1/93-12/93	5995.1	0.0	224.8	212.2	4935.8	497.7	5870.6	0.0	0.0	0.0	0.0	0.0	124.6	0.0
1/94-12/94	8511.2	0.0	319.2	301.3	4150.0	486.2	5256.6	0.0	0.0	0.0	0.0	0.0	3254.6	0.0
1/95-12/95	12584.7	0.0	471.9	445.5	3329.7	475.5	4722.6	0.0	0.0	0.0	0.0	0.0	7862.1	0.0
1/96-12/96	16280.5	0.0	610.5	576.3	3141.1	465.9	4793.8	0.0	2687.8	0.0	2687.8	0.0	8798.9	0.0
1/97-12/97	21449.2	0.0	804.3	759.3	3045.9	457.6	5067.2	0.0	0.0	0.0	0.0	0.0	16382.0	0.0
1/98-12/98	31823.8	0.0	1193.4	1126.6	2948.9	450.6	5719.4	0.0	0.0	0.0	0.0	0.0	26104.3	0.0
1/99-12/99	41190.5	0.0	1544.6	1600.1	2801.8	444.5	6249.0	0.0	0.0	0.0	0.0	0.0	34941.5	0.0
1/0-12/0	45201.6	0.0	1695.1	1594.5	2629.6	439.2	6364.0	0.0	0.0	0.0	0.0	0.0	38837.6	0.0
1/1-12/1	45041.7	0.0	1689.1	1594.5	2436.9	434.7	6155.1	0.0	0.0	0.0	0.0	0.0	38886.5	0.0
1/2-12/2	39716.8	0.0	1489.4	1406.0	2186.7	430.8	5512.9	0.0	0.0	0.0	0.0	0.0	34203.9	0.0
1/3-12/3	32352.0	0.0	1213.2	1145.3	2505.9	771.3	5635.6	0.0	0.0	0.0	0.0	0.0	26716.4	0.0
1/4-12/4	26196.7	0.0	982.4	927.4	2403.0	756.0	5068.7	0.0	0.0	0.0	0.0	0.0	21128.0	0.0
1/5-12/5	22235.5	0.0	833.8	787.1	2403.0	756.0	4780.0	0.0	0.0	0.0	0.0	0.0	17455.5	0.0
1/6-12/6	74035.5	0.0	2776.3	2620.9	12015.0	3780.0	21192.2	0.0	0.0	0.0	0.0	0.0	52843.4	0.0
1/11-12/15	46947.0	0.0	1760.5	1661.9	6480.0	1944.0	11846.4	0.0	0.0	0.0	0.0	0.0	35100.6	0.0
1/16-12/24	47399.1	0.0	1777.5	1677.9	6804.0	1944.0	12203.4	0.0	0.0	0.0	0.0	0.0	35195.7	0.0
1/91-12/24	523976.4	0.0	19649.1	18548.8	70923.3	15087.8	124208.9	32695.4	36444.5	0.0	69139.7	0.0	330627.6	0.0

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TIME: 13:57:33

100% WORKING INTEREST
NON-UNITIZED REMAINING PRIMARY

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ARCO RESERVES AND ECONOMIC SUPPORT GROUP

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

CO-OWNER CONSTANT INFLATION RATES: INVESTMENTS= 0.0%/YR; OPERATING COST= 0.0%/YR; REVENUE= 0.0%/YR												
CHANCE FACTOR %	ZERO MONTH YEAR	TIME YEAR	SEVERANCE OIL %	GAS %	TAXES NGL %	AD VAL TAX %	OPTIONAL DISCOUNT FACTOR-%	DEPRE START PER.	PRESENT WORTH REFERENCE DATE MO. DAY YEAR	COST DEPLETION BASE, M\$	DOMINANT PRODUCT	ECONOMIC LIMIT DISCOUNT RATE %
100.00	1	1991	3.75	3.75	3.75	3.540	6.00	1	1 1 91	0.000		12.00
PERIOD	* * STRIPPER PRODUCT. MSTB		* * PRICE \$/STB		* * OIL NET INT. FRACTION		* * PRODUCT. MMSCF		* * SALES GAS PRICE \$/MCF		* * (ONE) NET INT. FRACTION	
1/91-12/91	196.9		18.00		0.874999		2114.2		2.00		0.875000	
1/92-12/92	182.8		18.00		0.875000		1961.9		2.00		0.875000	
1/93-12/93	169.6		18.00		0.875000		1820.5		2.00		0.875000	
1/94-12/94	157.4		18.00		0.875000		1689.4		2.00		0.875000	
1/95-12/95	144.7		18.00		0.875000		1553.3		2.00		0.875000	
1/96-12/96	125.7		18.00		0.875000		1349.2		2.00		0.875000	
1/97-12/97	108.1		18.00		0.875000		1160.3		2.00		0.875000	
1/98-12/98	93.0		18.00		0.875000		997.8		2.00		0.875000	
1/99-12/99	79.9		18.00		0.875000		858.1		2.00		0.875000	
1/ 0-12/ 0	68.7		18.00		0.875000		738.0		2.00		0.875000	
1/ 1-12/ 1	59.1		18.00		0.875000		634.7		2.00		0.875000	
1/ 2-12/ 2	50.8		18.00		0.875000		545.8		2.00		0.875000	
1/91-12/ 2	1436.7						15423.2					

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100% WORKING INTEREST
NON-UNITIZED REMAINING PRIMARY

PROGRAM: 080390
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ARCO RESERVES AND ECONOMIC SUPPORT GROUP

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

PERIOD	GROSS GAS DISPOSITION			SALES MMCF	NET GAS DISPOSITION			SALES MMCF
	PRODUCTION MMCF	FUEL MMCF	SHRINKAGE MMCF		PRODUCTION MMCF	FUEL MMCF	SHRINKAGE MMCF	
1/91-12/91	2114.21	0.00	0.00	2114.21	1849.93	0.00	0.00	1849.93
1/92-12/92	1961.88	0.00	0.00	1961.88	1716.65	0.00	0.00	1716.65
1/93-12/93	1820.54	0.00	0.00	1820.54	1592.97	0.00	0.00	1592.97
1/94-12/94	1689.38	0.00	0.00	1689.38	1478.21	0.00	0.00	1478.21
1/95-12/95	1553.33	0.00	0.00	1553.33	1359.17	0.00	0.00	1359.17
1/96-12/96	1349.16	0.00	0.00	1349.16	1180.51	0.00	0.00	1180.51
1/97-12/97	1160.27	0.00	0.00	1160.27	1015.24	0.00	0.00	1015.24
1/98-12/98	997.84	0.00	0.00	997.84	873.11	0.00	0.00	873.11
1/99-12/99	858.14	0.00	0.00	858.14	750.88	0.00	0.00	750.88
1/ 0-12/ 0	738.00	0.00	0.00	738.00	645.75	0.00	0.00	645.75
1/ 1-12/ 1	634.68	0.00	0.00	634.68	555.35	0.00	0.00	555.35
1/ 2-12/ 2	545.82	0.00	0.00	545.82	477.59	0.00	0.00	477.59
1/91-12/ 2	15423.25	0.00	0.00	15423.25	13495.34	0.00	0.00	13495.34

DATE: 01/07/91
TIME: 13:57:33

UNITIZED OPERATIONS
PROJECT SUCCEEDS

ARCO RESERVES AND ECONOMIC SUPPORT GROUP

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INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

CO-OWNER CONSTANT INFLATION RATES: INVESTMENTS= 0.0%/YR; OPERATING COST= 0.0%/YR; REVENUE= 0.0%/YR												
CHANCE FACTOR %	ZERO MONTH	TIME YEAR	SEVERANCE OIL %	GAS %	TAXES NGL %	AD VAL TAX %	OPTIONAL DISCOUNT FACTOR-%	DEPRE START PER.	PRESENT WORTH REFERENCE DATE MO. DAY YEAR	COST DEPLETION BASE, M\$	DOMINANT PRODUCT	ECONOMIC LIMIT DISCOUNT RATE %
100.00	1	1991	3.75	3.75	3.75	3.540	6.00	1	1 1 91	0.000		12.00
PERIOD												
			* * STRIPPER		OIL * *		* SALES GAS		* (ONE) *			
			PRODUCT. MSIB		PRICE \$/STB		PRODUCT. MMSCF		NET INT. FRACTION			
1/91-12/91			226.7	18.00	0.874999	2363.5	2.00	0.875000				
1/92-12/92			406.4	18.00	0.875001	3886.1	2.00	0.875000				
1/93-12/93			410.0	18.00	0.875000	3463.1	2.00	0.875000				
1/94-12/94			526.3	18.00	0.875000	3772.7	2.00	0.875000				
1/95-12/95			752.0	18.00	0.874999	4077.9	2.00	0.875000				
1/96-12/96			1074.4	18.00	0.875000	3147.3	2.00	0.875000				
1/97-12/97			1567.3	18.00	0.875000	1645.7	2.00	0.875000				
1/98-12/98			2210.2	18.00	0.875000	2147.9	2.00	0.875000				
1/99-12/99			2802.7	18.00	0.875000	2505.8	2.00	0.875000				
1/ 0-12/ 0			3066.0	18.00	0.875000	2462.2	2.00	0.875000				
1/ 1-12/ 1			3066.0	18.00	0.875000	2170.7	2.00	0.875000				
1/ 2-12/ 2			2726.1	18.00	0.875000	1685.2	2.00	0.875000				
1/ 3-12/ 3			2144.9	18.00	0.875000	1163.9	2.00	0.875000				
1/ 4-12/ 4			1750.7	18.00	0.875000	876.8	2.00	0.875000				
1/ 5-12/ 5			1486.1	18.00	0.875000	743.0	2.00	0.875000				
1/ 6-12/ 6			1261.5	18.00	0.875000	630.7	2.00	0.875000				
1/ 7-12/ 7			1070.8	18.00	0.875000	535.4	2.00	0.875000				
1/ 8-12/12			4029.4	18.00	0.875000	2014.7	2.00	0.875000				
1/13-12/17			2655.7	18.00	0.875000	1327.9	2.00	0.875000				
1/18-12/24			2236.1	18.00	0.875000	1118.1	2.00	0.875000				
1/91-12/24			35469.5			41738.6						

DATE: 01/07/91
TIME: 13:57:33

UNITIZED OPERATIONS
PROJECT SUCCEEDS

ARCO RESERVES AND ECONOMIC SUPPORT GROUP

PROGRAM: 080390
PAGE: 21

INPUT DATA SUMMARY

CO-OWNER ECONOMICS -

CURRENT DOLLARS

PERIOD	NONTAX REVENUE M\$	WORKING INTEREST (CAPITL)	EXP DRY HOLE CST M\$	DEV DRY HOLE CST M\$	** OVERHEAD ** M\$/M	** WELL INVESTMENTS * * INTANGBL NEW TAN. M\$	** PLANT INVESTMENTS * * INTANGBL NEW TAN. M\$	SHRNKAGE PROCESS M\$	NET OTHR REVENUE M\$	LAND INVESTMT M\$	TOTAL INVESTMT M\$
1/91-12/91	0.0	1.000000	0.0	0.0	0.000	9849.1	0.0	24206.3	0.0	0.0	66750.7
1/92-12/92	0.0	1.000000	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0
1/93-12/93	0.0	1.000000	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0
1/94-12/94	0.0	1.000000	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0
1/95-12/95	0.0	1.000000	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0
1/96-12/96	0.0	1.000000	0.0	0.0	0.000	0.0	0.0	2986.4	0.0	0.0	2986.4
1/91-12/96	0.0		0.0	0.0	32695.4	9849.1	0.0	27192.7	0.0	0.0	69737.1

PERIOD	TOTAL WELLS	WORKING INTEREST (OP CST)	FIXED OP COST M\$	** OVERHEAD ** M\$/M	ABANDONMENT M\$	PURC GAS NET COST M\$	FUEL GAS NET COST M\$	SHRNKAGE PROCESS M\$	NET OTHR REVENUE M\$
1/91-12/91	123.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/92-12/92	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/93-12/93	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/94-12/94	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/95-12/95	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/96-12/96	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/97-12/97	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/98-12/98	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/99-12/99	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 0-12/ 0	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 1-12/ 1	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 2-12/ 2	231.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 3-12/ 3	175.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 4-12/ 4	175.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 5-12/ 5	175.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 6-12/ 6	175.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 7-12/ 7	175.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/ 8-12/ 8	141.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/13-12/17	74.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/18-12/24	50.0	1.000000	0.00	0.400	0.000	0.0	0.0	0.0	0.0
1/91-12/24			0.00		0.000	0.0	0.0	0.0	0.0

DATE: 01/07/91
TIME: 13:57:33

UNITIZED OPERATIONS
PROJECT SUCCEEDS
ARCO RESERVES AND ECONOMIC SUPPORT GROUP

PROGRAM: 080390
PAGE : 22

CO-OWNER ECONOMICS -

INPUT DATA SUMMARY

CURRENT DOLLARS

PERIOD	WORK INT (OP CST)	** P R O D U C T I O N M\$/M/M	** P R O D U C T I O N \$/STB	W E L L S \$/MCF	W E L L S M\$/M	** I N J E C T I O N M\$/M/M	W E L L S M\$/M	W E L L S MUNIT	W E L L S \$/UNIT	** W A T E R MSTBW	C O S T S \$/STB
1/91-12/91	1.000000	123.0	2.000	0.00	0.00	0.00	0.00	0.0	0.00	0.	0.00
1/92-12/92	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	38694.	0.08	0.	0.00
1/93-12/93	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	36590.	0.08	0.	0.00
1/94-12/94	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	26936.	0.08	0.	0.00
1/95-12/95	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	16712.	0.08	0.	0.00
1/96-12/96	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	14980.	0.08	0.	0.00
1/97-12/97	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	14083.	0.08	0.	0.00
1/98-12/98	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	13089.	0.08	0.	0.00
1/99-12/99	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	11348.	0.08	0.	0.00
1/0-12/0	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	9218.	0.08	0.	0.00
1/1-12/1	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	6766.	0.08	0.	0.00
1/2-12/2	1.000000	129.0	2.000	0.00	0.00	0.50	102.0	3484.	0.08	0.	0.00
1/3-12/3	1.000000	90.0	2.000	0.00	0.00	0.50	85.0	761.	0.08	0.	0.00
1/4-12/4	1.000000	90.0	2.000	0.00	0.00	0.50	85.0	0.	0.00	0.	0.00
1/5-12/5	1.000000	90.0	2.000	0.00	0.00	0.50	85.0	0.	0.00	0.	0.00
1/6-12/6	1.000000	90.0	2.000	0.00	0.00	0.50	85.0	0.	0.00	0.	0.00
1/7-12/7	1.000000	90.0	2.000	0.00	0.00	0.50	85.0	0.	0.00	0.	0.00
1/8-12/12	1.000000	74.0	2.000	0.00	0.00	0.50	67.0	0.	0.00	0.	0.00
1/13-12/17	1.000000	42.0	2.000	0.00	0.00	0.50	32.0	0.	0.00	0.	0.00
1/18-12/24	1.000000	30.0	2.000	0.00	0.00	0.50	20.0	0.	0.00	0.	0.00
1/91-12/24								192659.		0.	

APPENDIX E

Appendix E - Drilling and Completion Cost Estimates

Figure 1E - Drill and Complete New Producer - Prognosis and Cost Estimate

Figure 2E - Drill and Complete New Injector - Prognosis and Cost Estimate

Figure 3E - Core New Well - Prognosis and Cost Estimate

Figure 4E - Work Over Old Producer - Procedure and Cost Estimate

Figure 5E - Convert Well to Injector - Procedure and Cost Estimate

Drilling Prognosis



Well name		Date	
Justis Field Water Flood			
Authorization numbers			
New Drill Producer			
District or province			
North Area - Central District			
Location			
T25S, R37E,			
Lea, New Mexico			
Objectives			
Blinebry and Tubb/Drinkard			
Total vertical depth		Total measured depth	
6200'		6200'	
Elevation			
Record RKB and GL elevation on 1st Daily Drilling Report			
Estimated formation tops			
TOS	900'	Queen	3090'
Yates	2375'	Glorietta	4886'
		Blinebry	5069'
		Tubb	5771'
		Drinkard	5975'
Well design			
Conductor			
17-1/2" hole 13-3/8" conductor pre-set @ 50' below GL and cemented w/redi-mix. To be furnished by Contractor.			
Surface casing			
Hole Size			
11"	8-5/8" 24# K-55 STC 0-1000'. FS, FC, 3 cents on 160' spacing. Circ cmt.		
Protective casings and liners			
None			
Production casing			
7-7/8"	5-1/2" 15.5# K-55 LTC 0-6200' FS, FC, cents on 80' spacing thru prod intervals. Circ Cmt.		
Production liner			
None			
Casinghead			
8-5/8" SOW x 11" 3M Csg hd		7-1/16" 3M x 2-7/8" KTH	
11" 3M x 7-1/16" 3M Tbg hd			
Mud program			
0-1000' FW Spud mud / Native		Vis 35/40	
1000-5000' 10 ppg brine		WL 15 or less	
5000-PTD Salt Gel and Starch			
Logging program			
Open Hole:			
GR-CNL-LTD, DLL, MSFL		TD-3000'	

Coring program

NA

Drill stem tests

NA

Samples

NA

Fluid samples

1 qt circulated mud sample to be obtained before POH for logs

Mud logging

NA

Evaluation

Drill well to TD. Run open hole logs as indicated. Run and cement production casing. Perf Blinbry w/approx 50 shots and Tubb/Drinkard w/approx 20 shots. Acidize Blinbry down tubing w/5000 gals 15% NEA @4 BPM (3000#). Frac well down tbg @ 20 BPM w/50,000 gal X-link gel and 100,000 # sand (including 20,000# resin coated sd). Acidize Tubb/Drinkard w/2000 gal 15% NEA @4BPM (3000#). Frac w/30,000 gal X-link gel 60,000# sand (including 10,000# resin coated sd). Tag w/RA material and run before and after surveys.

Completion

2-7/8" 6.5# J-55 EUE 8rd tbg,
MA, PS, SN, TAC, rods and pump

Cost		Drilling	Evaluation	Completion
Expected		147,200		201,100
Range	Low	132,820		180,990
	High	161,920		221,210

Signed (District Drilling Superintendent)

Endorsed

District Operations Manager

Date

District Engineering Manager

Date

District Exploration Manager or Area Geologist

Date

Approved

District Manager or Exploration Province Manager

Date

Well name

Justis Field

Water Flood

Estimated by

Alan E. Burdick

Call

Data Processing Information

- Original/Revision Indicator
1 = Original
2 = Revision

Update Code
1 = Delete
3 = Add
6 = Change

Trans. ident.			
1	2	3	4
A	F	E	E

A.F.E. number					
5	6	7	8	9	10

11

[illegible]

Drilling Prognosis

Well name		Date	
Justis Field Water Flood			
Authorization numbers			
New Drill Injector			
District or province			
North Area - Central District			
Location			
T25S, R37E,			
Lea, New Mexico			
Objectives			
Blinebry and Tubb/Drinkard			
Total vertical depth		Total measured depth	
6200'		6200'	
Elevation			
Record RKB and GL elevation on 1st Daily Drilling Report			
Estimated formation tops			
TOS	900'	Queen	3090'
Yates	2375'	Glorietta	4886'
		Blinebry	5069'
		Tubb	5771'
		Drinkard	5975'
Well design			
Conductor			
17-1/2" hole 13-3/8" conductor pre-set @ 50' below GL and cemented w/redi- mix. To be furnished by Contractor.			
Surface casing			
Hole Size			
11"	8-5/8" 24# K-55 STC	0-1000'.	FS, FC, 3 cents on 160' spacing. Circ cmt.
Protective casings and liners			
None			
Production casing			
7-7/8"	5-1/2" 15.5# K-55 LTC	0-6200'	FS, FC, cents on 80' spacing thru prod intervals. Circ Cmt.
Production liner			
None			
Casinghead			
8-5/8" SOW x 11" 3M Csg hd	7-1/16" 3M x 2-7/8" KTH		
11" 3M x 7-1/16" 3M Tbg hd			
Mud program			
0-1000'	FW Spud mud / Native	Vis 35/40	
1000-5000'	10 ppg brine	WL 15 or less	
5000-PTD	Salt Gel and Starch		
Logging program			
Open Hole:			
GR-CNL-LTD, DLL, MSFL		TD-3000'	

Coring program

NA

Drill stem tests

NA

Samples

NA

Fluid samples

1 qt circulated mud sample to be obtained before POH for logs

Mud logging

NA

Evaluation

Drill well to TD. Run open hole logs as indicated. Run and cement production casing. Perf Blinebry w/approx 50 shots and Tubb/Drinkard w/approx 20 shots. Acidize Blinebry w/10,000 gal 15% NEA @5BPM (3000#). Acidize Tubb/Drinkard interval w/5000 gal NEA @5BPM (3000#)

Completion

2-3/8" 4.7# J-55 IPC EUE 8rd tbq,
NP LOC-SET packer (or equivalent), on/off tool

Cost		Drilling	Evaluation	Completion
Expected		147,200		151,800
Range	Low	132,480		136,620
	High	161,920		166,980

Signed (District Drilling Superintendent)

Endorsed

District Operations Manager

Date

District Engineering Manager

Date

District Exploration Manager or Area Geologist

Date

Approved

District Manager or Exploration Province Manager

Date

FIGURE 2E

ARCO Oil and Gas Company

☐ Original☐ Supplement

Drilling Cost Estimate - Page 1

Well name

T D

Justis Field Water Flood

Location

New Injector - Blinebrv & Tubbs/Drinkard

District

Area or Group

Field

Central

North

Justis

Objective

Blinebrv

@ 5100

ft.

Tubbs @ 5771

Drinkard @ 5975

ft.

☐ DevelopmentGEN
9171☐ Single☐ Exploratory

9172

☐ Dual☐ Workover/
Recompletion

9171

☐ Multiple

Data Processing Information

Trans. ident.

1 2 3 4

A F E E

A.F.E. number

5 6 7 8 9 10

Original/Revision Indicator

1 = Original

2 = Revision

Update Code

1 = Delete

3 = Add

5 = Change

Tangible Costs - SUB 500 and 550

1 Tubular goods

8 5/8" CD from 0 to 1000'

5 1/2" CD from 0 to 6200'

2 3/8" CD from 0 to 4900'

Drilling

Evaluation

Completion

Elmt.

Total gross dollars

12 13 14 15 16 17 18 19 20 21 22 23

11,300

47,000

14,100

1 1 3 0 0

4 7 0 0 0

1 4 1 0 0

2. Casinghead, Tubinghead, Christmas Tree

1,000

2,000

5 0 4

3 0 0 0

3. Tubing Accessories Plastic coating &

12,200

5 0 6

1 2 0 0 0

4 Artificial Lift Accessories

5 0 7

5. Well Protective Structures

5 0 8

6. Unclassified 7.3%

1,000

5,500

0 0 0

6 5 0 0

7 Additional Basis (Sub 550)

Casinghead, Tubinghead, Christmas Tree

5 0 4

Tubing Accessories

5 0 6

Artificial Lift Accessories

5 0 7

Well Protective Structures

5 0 8

TOTAL TANGIBLES

13,300

80,800

9 4 1 0 0

Intangible Costs - SUB 600

8 Contract Engineering Technical

0 1 3

9 Boat Operations

0 5 3

10. Minor Supplies

0 7 8

11 Electric Power and Light

2 4 1

12 Diesel Fuel

2 4 2

13 Natural Gas

2 4 3

14 Water

3,000

2,000

2 4 6

5 0 0 0

15 Property and Equipment Rentals

2 4 8

16 Security, Safety, and Firefighting

2 5 0

17 Tubular Testing and Inspection

1,500

4,000

5 0 3

5 5 0 0

18 Trucking Tubulars

2,000

6,000

5 0 9

8 0 0 0

19. Casing Accessories

2,000

2,000

5 1 2

4 0 0 0

20. Site Preparation and Maintenance

12,000

2,000

5 1 4

1 4 0 0 0

21. Permits, Insurance, and Damages

5,000

5 1 5

5 0 0 0

22. Rig Moving Expense

5 1 7

23. Shorebases

5 2 1

24. Camp Housekeeping

1,000

2,000

5 2 2

3 0 0 0

25. Reclamation

2,500

2,000

5 2 5

4 5 0 0

26. Air Freight and Transportation

5 2 8

27. Disposal and Cleanup

1,000

2,000

5 3 1

3 0 0 0

Well name

Data Processing Information

Justis Field

Water Flood

Estimated by

Alan E. Burdick

Date

Trans. ident.

1 2 3 4

A F E E

A.F.E. number

5 6 7 8 9 10

Original/Revision Indicator

1 = Original

2 = Revision

Update Code

1 = Delete

3 = Add

6 = Change

Intangible Costs (Continued) - Sub 600	Drilling	Evaluation	Completion	Elmt.			Total gross dollars									
				12	13	14	15	16	17	18	19	20	21	22	23	
28. Contract Footage Drilling 6200 ft. @ \$ 12.00 ft.	74,400			5	3	2	7	4	0	0	0					
29. Contract Drilling Daywork Drilling 1 days @ \$ 3500 day	3,500			5	3	3				3	5	0	0			
30. Mobilization, Demobilization & Rig Mod.				5	3	4										
31. Roads and Airstrips				5	3	6										
32. Completion/Workover Daywork 6 days @ \$ 1300 day			7,800	5	4	2				7	8	0	0			
33. Drill String & BHA Rental				5	4	3										
34. Well Control Equipment			700	5	4	7				7	0	0				
35. Bits, Underreamers, & Hole Openers 4 3/4 " MT-			1,000	5	4	8				1	0	0	0			
36. Drilling Mud and Transportation	6,000			5	5	1				6	0	0	0			
37. Drilling Mud Equipment and Services	1,000			5	5	2				1	0	0	0			
38. Completion Fluids			3,000	5	5	3				3	0	0	0			
39. Open Hole Surveys	12,000			5	5	7				1	2	0	0	0		
Wireline Work			1,000	5	5	9				1	0	0	0			
Formation Monitoring				5	6	0										
42. Cased Hole Surveys and Perf. Fees			6,000	5	6	1				6	0	0	0			
43. Surface Well Test Equipment	1,000		1,000	6	5	3				2	0	0	0			
44. Coring and Analysis				5	6	8										
45. Drill Stem Test Equipment				5	7	2										
46. Fracturing, Acidizing, and Gravel Pack Acid Blinbry & T/D			13,500	5	7	7				1	3	5	0	0		
47. Divers				5	7	8										
48. Fishing Tool Rental				5	8	0										
49. Directional Drilling Tool Rental				5	8	1										
50. Telecommunications & Navigational Aids				5	8	2										
51. Material Losses				5	8	8										
52. Capitalized Overhead				6	0	4										
53. Cement Running Fees for Casing & Tubing																
8 5/8" OD Circ sacks																
4,000										4	0	0	0			
5 1/2" OD Circ sacks																
12,000										1	2	0	0	0		
54. Cementing - Squeezes and Plugs				6	9	9										
55. Unclassified	2,000		3,000	0	0	0				5	0	0	0			
TOTAL INTANGIBLES	133,900		71,000							2	0	4	9	0	0	
TOTAL COST (TANGIBLES & INTANGIBLES)	147,200		151,800							2	9	9	0	0	0	
EVALUATED COST																
COMPLETED WELL COST	299,000															

Drilling Prognosis

Well name		Date	
Justis Field Water Flood			
Authorization numbers			
New Drill w/core from 5000' to PTD			
District or province			
North Area - Central District			
Location			
T25S, R37E,			
Lea, New Mexico			
Objectives			
Blinebry and Tubb/Drinkard			
Total vertical depth		Total measured depth	
6200'		6200'	
Elevation			
Record RKB and GL elevation on 1st Daily Drilling Report			
Estimated formation tops			
TOS	900'	Queen	3090'
Yates	2375'	Glorietta	4886'
		Blinebry	5069'
		Tubb	5771'
		Drinkard	5975'
Well design			
Conductor			
17-1/2" hole 13-3/8" conductor pre-set @ 50' below GL and cemented w/redi- mix. To be furnished by Contractor.			
Surface casing			
Hole Size			
11"	8-5/8" 24# K-55 STC 0-1000'. FS, FC, 3 cents on 160' spacing. Circ cmt.		
Protective casings and liners			
None			
Production casing			
7-7/8"	5-1/2" 15.5# K-55 LTC	0-6200'	FS, FC, cents on 80' spacing thru prod intervals. Circ Cmt.
Production liner			
None			
Casinghead			
8-5/8" SOW x 11" 3M Csg hd		7-1/16" 3M x 2-7/8" KTH	
11" 3M x 7-1/16" 3M Tbg hd			
Mud program			
0-1000' FW Spud mud / Native		Vis 35/40	
1000-5000' 10 ppg brine		WL 10 or less	
5000-PTD Salt Gel and Starch,		Bland coring fluid	
Logging program			
Open Hole:			
GR-CNL-LTD, DLL, MSFL		TD-3000'	

Coring program

Core from 5000' to 6200', run full core analysis & waterflood susceptibility test.

Drill stem tests

NA

Samples

NA

Fluid samples

1 qt circulated mud sample to be obtained before POH for logs

Mud logging

NA

Evaluation

Complete as per instructions for injector or producer.

Completion

Cost		Drilling	Evaluation	Completion
Expected		245,300		
Range	Low	220,770		
	High	269,830		

Signed (District Drilling Superintendent)

Endorsed

District Operations Manager

Date

District Engineering Manager

Date

District Exploration Manager or Area Geologist

Date

Approved

District Manager or Exploration Province Manager

Date



Well name

Justis Field Waterflood

TD

6200'

Location

New Drill w/Coring From 5000' to PTD

District

Central

Area or Group

North

Field

Justus

Objective

Blinebry

@ 5100 ft.

Tubb @ 5771'

Drinkard @ 5975 ft.

☐ Development

GEN

9171

☐ Single☐ Exploratory

9172

☐ Dual☐ Workover/
Recompletion

9171

☐ Multiple

Data Processing Information

Trans. ident.

1 2 3 4

A F E E

A.F.E. number

5 6 7 8 9 10

Original/Revision Indicat

1 = Original

2 = Revision

Update Code

1 = Delete

3 = Add

6 = Change

Tangible Costs - SUB 500 and 550

1. Tubular goods

8-5/8

OD from 0 to 1000'

Drilling

Evaluation

Completion

Elmt.

Total gross dollars

12 13 14 15 16 17 18 19 20 21 22

11,300

2. Casinghead, Tubinghead, Christmas Tree

1,000

5 0 4

3. Tubing Accessories

5 0 6

4. Artificial Lift Accessories

5 0 7

5. Well Protective Structures

5 0 8

6. Unclassified 7.3%

1,000

0 0 0

7. Additional Basis (Sub 550)

Casinghead, Tubinghead, Christmas Tree

5 0 4

Tubing Accessories

5 0 6

Artificial Lift Accessories

5 0 7

Well Protective Structures

5 0 8

TOTAL TANGIBLES

13,300

Intangible Costs - SUB 600

8. Contract Engineering Technical

0 1 3

9. Boat Operations

0 5 3

10. Minor Supplies

0 7 8

11. Electric Power and Light

2 4 1

12. Diesel Fuel

2 4 2

13. Natural Gas

2 4 3

14. Water

3,000

2 4 6

15. Property and Equipment Rentals

2 4 8

16. Security, Safety, and Firefighting

2 5 0

17. Tubular Testing and Inspection

1,500

5 0 3

18. Trucking Tubulars

2,000

5 0 9

19. Casing Accessories

2,000

5 1 2

20. Site Preparation and Maintenance

12,000

5 1 4

21. Permits, Insurance, and Damages

5,000

5 1 5

22. Rig Moving Expense

5 1 7

23. Shorebases

5 2 1

24. Camp Housekeeping

1,000

5 2 2

25. Reclamation

2,500

5 2 5

26. Air Freight and Transportation

5 2 8

27. Disposal and Cleanup

1,000

5 3 1

Well name

Justis Field

Data Processing Information

Waterflood

Estimated by

Alan E. Burdick

Date

Trans. ident.

1	2	3	4
A	F	E	E

A.F.E. number

5	6	7	8	9	10

Original/Revision Indicator
1 = Original
2 = RevisionUpdate Code
1 = Delete
3 = Add
6 = Change

Intangible Costs (Continued) - Sub 600	Drilling	Evaluation	Completion	Elmt.			Total gross dollars															
				12	13	14	15	16	17	18	19	20	21	22	23							
28. Contract Footage Drilling 5000 ft @ \$ 12.00 ft	60,000			5	3	2																
29. Contract Drilling Daywork Drilling 16 days @ \$ 3500 day	56,000			5	3	3																
30. Mobilization, Demobilization, & Rig Mod				5	3	4																
31. Roads and Airstrips				5	3	6																
32. Completion/Workover Daywork days @ \$ day				5	4	2																
33. Drill String & BHA Rental				5	4	3																
34. Well Control Equipment				5	4	7																
35. Bits, Underreamers, & Hole Openers " " " " " "				5	4	8																
36. Drilling Mud and Transportation	14,000			5	5	1																
37. Drilling Mud Equipment and Services	1,000			5	5	2																
38. Completion Fluids				5	5	3																
Open Hole Surveys	12,000			5	5	7																
Wireline Work				5	5	9																
41. Formation Monitoring				5	6	0																
42. Cased Hole Surveys and Perf. Fees				5	6	1																
43. Surface Well Test Equipment	1,000			6	5	3																
44. Coring and Analysis	52,000			5	6	8																
45. Drill Stem Test Equipment				5	7	2																
46. Fracturing, Acidizing, and Gravel Pack				5	7	7																
47. Divers				5	7	8																
48. Fishing Tool Rental				5	8	0																
49. Directional Drilling Tool Rental				5	8	1																
50. Telecommunications & Navigational Aids				5	8	2																
51. Material Losses				5	8	8																
52. Capitalized Overhead				6	0	4																
53. Cement Running Fees for Casing & Tubing 8-5/8 OD circ sacks	4,000																					
OD sacks																						
OD sacks																						
OD sacks																						
54. Cementing - Squeezes and Plugs				6	9	9																
55. Unclassified	2,000			0	0	0																
TOTAL INTANGIBLES	232,000																					
TOTAL COST (TANGIBLES & INTANGIBLES)	245,300																					
EVALUATED COST																						
COMPLETED WELL COST																						
Dry Hole Cost	245,300																					

Producing Well Workover Procedure
Both Blinebry And Tubbs/Drinkard Zones

1. Hot -Oil down casing w/35 bbls oil +/- 24 hrs prior to MIPU and pump well to retrieve oil.
2. MI and RUPU. Check for pressure and bleed off as necessary.
3. ND wellhead, NU BOP
4. POH with rods, pump and tubing. Visually inspect tubing and LD or prepare to pressure test any that looks bad. (replace any bad tubing)
5. RIH w/bit and scraper on production string to +/- 6050 ft.

NOTE: If a BP has been set above the Tubbs/Drinkard, POH and LD scraper. TIH w/ bit (or mill) and drill out BP.

6. POH w/bit & scraper. RIH w/ Packer to +/- 50 ft above top of perfs and set packer. Load backside w/ 9.0 ppg brine and pressure up to 500 psi, hold for 30 minutes.
7. If casing holds pressure, proceed to step 8. If casing will not hold pressure, release packer, POH and run VERTILOG. Repair casing as needed, ie, squeeze cement and attempt to circ to surface or cut, pull and replace bad casing.
8. Release packer and POH.
9. R.U. Perforators and perf Tubbs/Drinkard and Blinebry intervals w/ +/- 10 shots each (total +/- 20 shots as per O/A specifications).

Monitor surface conditions while perforating.

10. P.U. RBP and treating packer on 2-7/8" production string and TIH to +/- 6050' (below bottom Tubbs/Drinkard perfs) Set RPB. P.U. to +/- 5750' (between Tubbs/Drinkard and Blinebry perfs) and set packer. Acidize Tubbs/Drinkard interval w/ 20,000 gals of 70 quality foamed mix of 15% NEA and xylene. Divert w/ three 1000 # rock salt blocks.
11. SI for 1 hr. Swab test.
12. Release packer, TIH and retrieve RBP, P.U. and set RBP @ +/- 5750' and pressure test. P.U. to +/- 5000' (above top of Blinebry perfs), and set packer.
13. Acidize Blinebry interval w/ 5000 gals 15% NEA. (+/- 5100'- 5400')
14. Frac Blinebry perfs w/ +/- 24,000 gal 70 quality foam w/ 50,000 # sand (including +/- 15,000 # resin coated sand)

Frac down 2-7/8" tbg @ 20 BPM. Tag sand with radio active material and run before after surveys.
15. S.I. for 1 hr. R.U. and flowback.
16. Release packer, TIH and retrieve RBP. TOH.
17. RIH w/ production string per production department recommendations. N.D. BOPE. N.U. production equipment, run pump and rods, as per prod dept recommendations.
18. RD & MOPU TOTPS

FIGURE 4E
WORKOVER COST ESTIMATE

Well: Work Over Producing Well
Blinebry and Tubbs/Drinkard

Project: Justis Field
waterflood

TANGIBLES		\$
Casing		
Tubing		4400
Liner		
Well Head Equip.		
Surface Equip.		
Subsurface Equip.		
Misc. Tangibles		
TOTAL TANGIBLES		\$ 4400

INTANGIBLES		
Hot oil well		100
Loc. Prep. & Dirt Work		500
Unit Time	15 days @ \$1300/day	19,500
Trucking		
Cmtg & squeezing		7,500
Logging & Surveys	TS-GR, Vertilog	6,000
Testing		1,000
Perforating		1,300
Treating		42,000
Bits		700
Mud & Drayage		
FW & BW		1,200

RENTALS		
Well Control Equipment		600
Tbg DP & DC		2,200
Drlg & Circ Equip		1,800
Fishing Tools		
Pkr, BP, etc.		1,300
Special Tools		1,200

OVERHEAD & SUPERVISION	7.3%	6,350
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Misc Intangibles		
Contingencies		

TOTAL INTANGIBLES		\$ 93,250
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TOTAL COST		\$ 97,650
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Upper Limit - 127,400

Lower Limit - 68,000

**Injector Well Workover Procedure
Both Blinebry And Tubbs/Drinkard Zones**

1. Hot -Oil down casing w/35 bbls oil +/- 24 hrs prior to MIPU and pump well to retrieve oil.
2. MI and RUPU. Check for pressure and bleed off as necessary.
3. ND wellhead, NU BOP
4. POH and LD rods, pump and tubing.
5. RIH w/bit and scraper on 2-7/8" WS to +/- 6050 ft.

NOTE: If a BP has been set above the Tubbs/Drinkard, POH and LD scraper. TIH w/bit (or mill) and drlg out BP.

6. POH w/bit & scraper. RIH w/packer to +/- 50 ft above top of perfs and set packer. Load backside w/ 9.0 ppg brine and pressure up to 500 psi, hold for 30 minutes.
7. If casing holds pressure, proceed to step 8. If casing will not hold pressure, release packer, POH and run VERTILOG. Repair casing as needed, ie, squeeze cement and attempt to circ to surface or cut, pull and replace bad casing.
8. Release packer and POH.
9. R.U. Perforators and perf Tubbs/Drinkard and Blinebry intervals w/ +/- 10 shots each (total +/- 20 shots as per O/A specifications).

Monitor surface conditions while perforating.

10. P.U. RBP and treating packer on 2-7/8" WS and TIH to +/- 6050' (below bottom Tubbs/Drinkard perfs) Set RPB. P.U. to +/- 5750' (between Tubbs/Drinkard and Blinefry erfs) and set packer. Acidize Tubbs/Drinkard interval w/ 10,000 gals of 15% NEA and xylene mix. Divert w/3 1000 # rock salt blocks.
11. SI for 1 hr. Swab test.
12. Release packer, TIH and retrieve RBP, P.U. and set RBP @ +/- 5750' and pressure test psi. P.U. to +/- 5000' (above top of Blinebry perfs), and set packer.
13. Acidize Blinebry interval w/ +/- 15,000 gals 15% - xylene mix. Divert w/4 1000 # rock salt blocks.
14. S.I. for 1 hr. R.U. and flowback.
15. Release packer, TIH and retrieve RBP. TOH.
16. RIH w/ 2-3/8" plastic coated tbg, NP LOC-Set packer (or equivalent) and on/off tool. Set packer @ +/- 4900 ft. N.D. BOPE. N.U. injection equipment, wellhead, etc. as per prod dept recommendations.
17. RD & MOPU TOTPS

FIGURE 5E
WORKOVER COST ESTIMATE

Well: Convert to Injector
Blinebry and Tubbs/Drinkard

Project: Justis Field
water flood

TANGIBLES		\$
Casing		
Tubing	2-3/8" plastic coated tbq	22,000
Liner		
Well Head Equip.		
Surface Equip.		
Subsurface Equip.	NP packer w/on-off tool	4,800
Misc. Tangibles		500
TOTAL TANGIBLES		\$ 27,300

INTANGIBLES		
Hot oil well		100
Loc. Prep. & Dirt Work		500
Unit Time	12 days @ \$1300/day	15,600
Trucking		400
Cmtg & squeezing		7,500
Logging & Surveys	TS-GR, Vertilog	6,000
Testing		1,000
Perforating		1,300
Treating		32,000
Bits		700
Mud & Drayage		
FW & BW		1,100

RENTALS		
Well Control Equipment		600
Tbq DP & DC		2,200
Drlg & Circ Equip		1,800
Fishing Tools		
Pkr, BP, etc.		1,300
Special Tools		1,200

OVERHEAD & SUPERVISION		5,350
Misc Intangibles		
Contingencies		
TOTAL INTANGIBLES		\$ 78,650

TOTAL COST		\$ 105,950
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Upper Limit - 136,500

Lower Limit - 75,350

APPENDIX F

Appendix F - Facilities Design and Cost Estimates

- Figure 1F - Cost Summaries
- Figure 2F - Optional Cost Summaries
- Figure 3F - Pumping Well Equipment Cost Estimate
- Figure 4F - PERT Diagram

FIGURE 1F
SOUTH JUSTIS WATERFLOOD ESTIMATE SUMMARIES (\$M)

	<u>80-ACRE LINE DRIVE</u>	<u>40-ACRE FIVE SPOT</u>
1. Field Office and Laydown Area	250	250
2. Electrical Power Distribution System	1,100	1,590
3. Injection Water Supply	350	350
4. Injection Plant	2,400	2,620
5. Injection Water Distribution System	3,350	4,610
6. Injection Well Hook-up	100	170
7. Central Battery	2,400	2,530
8. Satellite Batteries	2,400	3,260
9. Production Gathering System	1,900	2,580
10. Automation	2,342	2,780
11. Cleanup	<u>480</u>	<u>480</u>
TOTAL	17,072	21,220

FIGURE 2F
SOUTH JUSTIS WATERFLOOD
OPTION SUMMARIES (M\$)
40-ACRE FIVE SPOT

<u>Alternate 1</u> Option for P/D Pumps	<u>Add</u>	2000
<u>Alternate 2</u> filtration system	<u>Add</u>	85
<u>Alternate 3</u> rotor for pump Spare	<u>Add</u>	65

FIGURE 3F

Well Name: General Justis
 Well Location: Justis Waterflood
 Well Type: Pumping
 AFE Type: Drill & Complete
 AIGC Wt: 100.00000%

Prepared By: B.G. AndersonDate: 08/31/89

COPAS FACILITY COST ESTIMATE

GENERAL 1730
 SUB. 590

Element	Line Item	Sub Total \$	Element Total \$
5522	WELLHEAD AND SUBSURFACE EQUIP.		
	Pump	\$1,500	
	Rods		
	(1) 0.875 ID Grade 7S	\$0.97	\$1,819
	(2) 0.750 ID 145	\$0.76	\$2,755
	(3) 0.900 C	\$0.00	\$0
	(4) 0.900	\$0.00	\$0
	Rod Boxes		
	Qty \$/Box		
	0 \$0.00		\$0
	Pony Rod Set	\$250	
	Valves/KTH/Vetc.	\$1,000	
	Trucking	\$750	
	Miscellaneous	\$0	\$8,074
5523	PUMPING UNITS		
	Description	\$30,000	
	Trucking	\$2,000	
	Miscellaneous	\$0	\$32,000
5524	PRESSURE VESSELS		
	Qty Size \$/Vessel		
	Separator 0 1 \$0	\$0	
	Separator 0 1 \$0	\$0	
	Heater 0 1 \$0	\$0	
	Heater 0 1 \$0	\$0	
	MSU 0 1 \$0	\$0	
	Trucking	\$0	
	Miscellaneous	\$0	\$0
5525	ENGINES,PUMPS,&POWER EQUIP		
	Transfer Pumps	\$0	
	PU Prime Mover	\$2,000	
	Miscellaneous	\$0	\$2,000
5526	SPECIALITY EQUIPMENT PACKAGES		
	LACT Unit	\$0	
	Dehydration	\$0	
	SO2 Remover Equip.	\$0	
	Filter Units	\$0	
	Injection Plant	\$0	
	Miscellaneous	\$0	\$0

FIGURE 3F

Well Name: Generic Justis
 Well Location: Justis Waterflood
 Well Type: Pumping
 AFE Type: Drill & Complete
 ADGC Mt: 100.00000%

Prepared By: E.G. AndersonDate: 08/31/89

COPAS FACILITY COST ESTIMATE

GENERAL 1730
 SUB 500

Element	Line Item	Sub Total \$	Element Total \$
5235	INSTRUMENTS AND CONTROLS		
	Metering Equip	\$0	
	Controllers/Valves	\$0	
	Automation	\$0	
	Regulators	\$0	
	Miscellaneous	\$0	\$0
5237	ELECTRICAL		
	Lines	\$0	
	Trans/Wiring	\$0	
	Electrician	\$0	
	Miscellaneous	\$0	\$0
5238	FOUNDATION		
	Pads	\$0	
	Sand/Gravel	\$0	
	Miscellaneous	\$0	\$0
5239	HEAT EXCHANGERS		
	Description	\$0	\$0
5243	LAND/ROW/ACQUISITION & DAMAGES		
	Surface Damages	\$0.00	\$0
	Permit/Archaeological/Survey	\$0.00	\$0
	Miscellaneous	\$0	\$0

ELEMENT SUMMARY:**\$42,074**CONTINGENCY COST: 10.0%**\$4,207**

GROSS EXPECTED AFE COST:

\$46,281

NET ADGC SHARE:

\$46,281

GROSS AFE UPPER LIMIT:

\$81,281

NET ADGC UPPER LIMIT:

\$81,281

PROJECT ACTIVITIES

Figure 4E



APPENDIX G

Appendix G - Participation Parameters

Table 1G - Tract Participation Parameters

SOUTH JUSTIS WATERFLOOD
PARAMETER TABLE

ARCO TRACT	OPERATOR	LEASE	ACTIVE WELLS	BLY-T/D	CUM			CUM			CUM			CUM			CUM								
					%	TOTAL	ACRES	%	TOTAL	MBO	(1/89)	%	TOTAL	MMCF	(1/89)	%	TOTAL	MBO	(1/90)	%	TOTAL				
1	CHEVRON	STUART	0		0.00	40	0.75	105	0.37	203	0.12	126	0.27	105	0.37	203	0.11	126	0.27	105	0.37	203	0.11	126	0.27
2	UN TEX	STUART	3		2.44	120	2.24	942	3.31	2,391	1.37	1,181	2.57	951	3.32	2,428	1.38	1,194	2.58	951	3.32	2,428	1.38	1,194	2.58
3	UN TEX	OLSEN STUART	1		0.81	40	0.75	111	0.39	354	0.20	146	0.32	112	0.39	361	0.20	148	0.32	112	0.39	361	0.20	148	0.32
4	ARCO	STUART	1		0.81	40	0.75	116	0.41	351	0.20	151	0.33	118	0.41	357	0.20	154	0.33	118	0.41	357	0.20	154	0.33
5	ARCO	JAL	2		1.63	80	1.49	608	2.13	4,496	2.58	1,058	2.31	617	2.15	4,643	2.63	1,081	2.33	617	2.15	4,643	2.63	1,081	2.33
6	ARCO	LANGLIE B JH FED	2		1.63	80	1.49	481	1.69	4,418	2.54	923	2.01	486	1.69	4,465	2.53	932	2.01	486	1.69	4,465	2.53	932	2.01
7	UN TEX	JUSTIS	2		1.63	80	1.49	397	1.39	1,612	0.93	558	1.22	401	1.40	1,626	0.92	563	1.22	401	1.40	1,626	0.92	563	1.22
8	ARCO	JUSTIS FED	2		1.63	80	1.49	278	0.98	1,131	0.65	391	0.85	281	0.98	1,150	0.65	396	0.85	281	0.98	1,150	0.65	396	0.85
9A	ARCO	EATON NW JH 15, 16, 17 (BLY)	1		0.81	60	1.12	337	1.18	1,364	0.78	473	1.03	341	1.19	1,381	0.78	479	1.03	341	1.19	1,381	0.78	479	1.03
9B	ARCO	EATON NW JH 15, 16, 17 (T/D)	0		0.00	60	1.12	14	0.05	20	0.01	16	0.03	14	0.05	20	0.01	16	0.03	14	0.05	20	0.01	16	0.03
10A	ARCO	EATON NW JH 14 (BLY)	0		0.00	20	0.37	158	0.55	415	0.24	199	0.43	158	0.55	418	0.24	200	0.43	158	0.55	418	0.24	200	0.43
10B	ARCO	EATON NW JH 14 (T/D)	0		0.00	20	0.37	23	0.08	149	0.09	38	0.08	23	0.08	149	0.08	38	0.08	23	0.08	149	0.08	38	0.08
11	ARCO	EATON SW JH 9, 7, 11	1		0.81	80	1.49	472	1.66	2,947	1.69	767	1.67	478	1.67	3,041	1.72	782	1.69	478	1.67	3,041	1.72	782	1.69
12A	ARCO	EATON SW JH 8 (BLY)	1		0.81	20	0.37	194	0.68	1,405	0.81	334	0.73	198	0.69	1,426	0.81	340	0.73	198	0.69	1,426	0.81	340	0.73
12B	ARCO	EATON SW JH 8 (T/D)	1		0.81	20	0.37	75	0.26	300	0.17	105	0.23	76	0.26	305	0.17	107	0.23	76	0.26	305	0.17	107	0.23
13	ARCO	EATON SW JH 10	0		0.00	40	0.75	273	0.96	1,475	0.85	420	0.92	273	0.95	1,475	0.84	420	0.91	273	0.95	1,475	0.84	420	0.91
14	ARCO	EATON SE JH 13	0		0.00	40	0.75	26	0.09	136	0.08	40	0.09	26	0.09	136	0.08	40	0.09	26	0.09	136	0.08	40	0.09
15	ARCO	EATON SE JH 12	1		0.81	40	0.75	106	0.37	366	0.21	143	0.31	107	0.37	369	0.21	143	0.31	107	0.37	369	0.21	143	0.31
16	ARCO	STUART A WN	1		0.81	40	0.75	161	0.57	541	0.31	215	0.47	163	0.57	549	0.31	218	0.47	163	0.57	549	0.31	218	0.47
17	AMER HESS	STUART	1		0.81	40	0.75	215	0.76	1,173	0.67	333	0.72	217	0.76	1,190	0.67	336	0.73	217	0.76	1,190	0.67	336	0.73
18	UN TEX	LANGLIE D	2		1.63	80	1.49	378	1.33	1,116	0.64	489	1.07	379	1.32	1,122	0.64	492	1.06	379	1.32	1,122	0.64	492	1.06
19	ARCO	LANGLIE B FED	2		1.63	80	1.49	252	0.89	976	0.56	350	0.76	254	0.89	996	0.56	354	0.76	254	0.89	996	0.56	354	0.76
20	ARCO	LANGLIE A FEDERAL	2		1.63	80	1.49	560	1.97	2,542	1.46	814	1.77	563	1.96	2,592	1.47	823	1.78	563	1.96	2,592	1.47	823	1.78
21	ARCO	LANGLIE FED	2		1.63	80	1.49	583	2.05	3,737	2.15	957	2.09	588	2.05	3,783	2.14	966	2.08	588	2.05	3,783	2.14	966	2.08
22	UN TEX	LANGLIE B	2		1.63	80	1.49	848	2.98	5,229	3.00	1,371	2.99	852	2.97	5,268	2.99	1,379	2.98	852	2.97	5,268	2.99	1,379	2.98
23	UN TEX	BLOCKER	4		3.25	160	2.99	846	2.97	6,373	3.66	1,484	3.23	854	2.98	6,451	3.66	1,499	3.24	854	2.98	6,451	3.66	1,499	3.24
24	CHEVRON	L McBRUFFINGTON	10		8.13	320	5.97	1,419	4.98	14,657	8.42	2,884	6.29	1,430	4.98	14,875	8.43	2,917	6.30	1,430	4.98	14,875	8.43	2,917	6.30
25	PACIFIC E	CARLSON B-13	3		2.44	160	2.99	393	1.38	2,287	1.31	621	1.35	396	1.38	2,312	1.31	627	1.35	396	1.38	2,312	1.31	627	1.35
26	ARCO	WIMBERLY WN	8		6.50	240	4.48	1,548	5.43	10,292	5.91	2,577	5.62	1,567	5.46	10,484	5.94	2,615	5.64	1,567	5.46	10,484	5.94	2,615	5.64
27	PACIFIC E	CARLSON A-23	0		0.00	40	0.75	21	0.07	70	0.04	28	0.06	21	0.07	70	0.04	28	0.06	21	0.07	70	0.04	28	0.06
28	TEXACO	LAS CRUCES C	1		0.81	40	0.75	396	1.39	1,780	1.02	574	1.25	397	1.38	1,793	1.02	577	1.24	397	1.38	1,793	1.02	577	1.24
29	ARCO	WIMBERLY JH 2	1		0.81	40	0.75	291	1.02	3,008	1.73	592	1.29	292	1.02	3,016	1.71	594	1.28	292	1.02	3,016	1.71	594	1.28
30	ARCO	WIMBERLY JH 3	1		0.81	40	0.75	365	1.28	3,182	1.83	683	1.49	370	1.29	3,237	1.84	694	1.50	370	1.29	3,237	1.84	694	1.50

TRACT	ARCO	OPERATOR	LEASE	ACTIVE WELLS	BLY-T/D	CUM			CUM			CUM			CUM			CUM				
						%	TOTAL	ACRES	%	TOTAL	%	TOTAL	%	TOTAL	%	TOTAL	%	TOTAL	%	TOTAL	%	TOTAL
31	ARCO		CARLSON A FED	2	1.63	80	1.49	271	0.95	1,105	0.64	381	0.83	273	0.95	1138	0.65	387	0.84			
32	AMER EXPL		EL PASO FED 1	1	0.81	40	0.75	154	0.54	526	0.30	207	0.45	160	0.56	542	0.31	214	0.46			
33	UN TEX		CARLSON B	2	1.63	80	1.49	713	2.50	3,592	2.06	1,072	2.34	716	2.50	3,624	2.05	1,079	2.33			
34	AMER HESS		WIMBERLY	5	4.07	320	5.97	1,853	6.51	13,295	7.64	3,182	6.94	1,861	6.48	13,425	7.61	3,203	6.91			
35	TEXACO		A.B.COATES C	8	6.50	400	7.46	2,841	9.98	22,753	13.08	5,116	11.15	2,856	9.95	22,960	13.02	5,152	11.12			
36	TEXACO		A.B.COATES D	1	0.81	40	0.75	248	0.87	2,317	1.33	480	1.05	249	0.87	2,327	1.32	481	1.04			
37	TEXACO		PENNY FED	2	1.63	80	1.49	141	0.50	210	0.12	162	0.35	143	0.50	212	0.12	165	0.36			
38A	UN TEX		BUFFINGTON B 3, 4	2	1.63	60	1.12	238	0.84	737	0.42	312	0.68	239	0.83	742	0.42	313	0.68			
38B	TEXACO		BUFFINGTON B 2	0	0.00	20	0.37	1	0.00	3	0.00	1	0.00	1	0.01	3	0.00	2	0.00			
39	ARCO		CARLSON JH FEDERAL	2	1.63	80	1.49	259	0.91	1,051	0.60	364	0.79	262	0.91	1,071	0.61	369	0.80			
40	BRUNO		CARLSON B 26	2	1.63	120	2.24	549	1.93	1,869	1.07	736	1.60	551	1.92	1,890	1.07	740	1.60			
41	ARCO		CARLSON FED	2	1.63	80	1.49	507	1.78	4,894	2.81	997	2.17	511	1.78	4,975	2.82	1,008	2.18			
42	UN TEX		CARLSON A	3	2.44	160	2.99	1,157	4.06	8,701	5.00	2,027	4.42	1,161	4.05	8,736	4.95	2,034	4.39			
43	ARCO		STATE Y	4	3.25	120	2.24	607	2.13	6,389	3.67	1,246	2.72	610	2.13	6,489	3.68	1,259	2.72			
44	BRUNO		CARSON B-25	4	3.25	80	1.49	908	3.19	5,768	3.31	1,485	3.24	910	3.17	5,869	3.33	1,497	3.23			
45	TEXACO		HOBBS A	2	1.63	80	1.49	453	1.59	1,385	0.80	591	1.29	455	1.59	1,392	0.79	594	1.28			
46	AMOCO		STATE AJ	1	0.81	80	1.49	236	0.83	754	0.43	311	0.68	236	0.82	758	0.43	312	0.67			
47	ARCO		FEDERAL 35	1	0.81	40	0.75	152	0.53	235	0.14	176	0.38	154	0.54	238	0.13	177	0.38			
48	UN TEX		GREGORY A FED	1	0.81	40	0.75	129	0.45	345	0.20	163	0.36	133	0.46	365	0.21	170	0.37			
49	CHEVRON		RAMSAY F	7	5.69	320	5.97	1,693	5.94	8,912	5.12	2,584	5.63	1,708	5.95	9,163	5.20	2,624	5.66			
50	CHEVRON		RAMSAY B	7	5.69	320	5.97	1,621	5.69	5,984	3.44	2,219	4.84	1,631	5.69	6,0						

SOUTH JUSTIS WATERFLOOD
PARAMETER TABLE

ARCO	TRACT	OPERATOR	LEASE	REM MBO	% TOTAL	REM MMCF	% TOTAL	ULT PRI	% TOTAL	ULT MMCF	% TOTAL	ULT PRI	% TOTAL	ULT SEC	% TOTAL	BOFD	% TOTAL	RATE 1989	% TOTAL	BOED	% TOTAL
1	CHEVRON	STUART		0	0.00	0	0.00	105	0.35	203	0.10	126	0.25	121	0.35	0	0.00	0	0.00	0	0.00
2	UN TEX	STUART		91	4.82	311	1.53	1,033	3.40	2,702	1.39	1,303	2.62	1,188	3.40	26	4.37	101	1.54	36	2.89
3	UN TEX	OLSEN STUART		5	0.26	25	0.12	115	0.38	378	0.19	153	0.31	133	0.38	3	0.55	17	0.26	5	0.40
4	ARCO	STUART		5	0.24	18	0.09	121	0.40	369	0.19	158	0.32	139	0.40	5	0.80	16	0.25	6	0.51
5	ARCO	JAL		82	4.36	1,312	6.45	690	2.27	5,809	2.99	1,271	2.55	794	2.27	23	3.92	402	6.13	64	5.07
6	ARCO	LANGLIE B JH FED		54	2.87	564	2.77	535	1.76	4,982	2.56	1,033	2.08	616	1.76	12	1.98	130	1.98	25	1.98
7	UN TEX	JUSTIS		28	1.47	92	0.45	424	1.40	1,705	0.88	595	1.19	488	1.40	11	1.77	39	0.59	14	1.15
8	ARCO	JUSTIS FED		15	0.79	115	0.56	293	0.97	1,245	0.64	418	0.84	337	0.97	6	1.07	54	0.83	12	0.95
9A	ARCO	EATON NW JH 15, 16, 17 (BLY)		19	1.00	87	0.43	356	1.17	1,452	0.75	501	1.01	409	1.17	11	1.88	45	0.68	16	1.25
9B	ARCO	EATON NW JH 15, 16, 17 (T/D)		0	0.00	0	0.00	14	0.04	20	0.01	16	0.03	16	0.04	1	0.12	2	0.03	1	0.07
10A	ARCO	EATON NW JH 14 (BLY)		0	0.00	0	0.00	158	0.52	415	0.21	199	0.40	181	0.52	2	0.37	7	0.11	3	0.23
10B	ARCO	EATON NW JH 14 (T/D)		0	0.00	0	0.00	23	0.08	149	0.08	38	0.08	27	0.08	0	0.00	0	0.00	0	0.00
11	ARCO	EATON SW JH 9, 7, 11		14	0.75	274	1.35	486	1.60	3,220	1.66	808	1.62	559	1.60	15	2.58	259	3.95	41	3.30
12A	ARCO	EATON SW JH 8 (BLY)		21	1.12	101	0.50	215	0.71	1,506	0.77	366	0.73	247	0.71	10	1.64	56	0.86	15	1.23
12B	ARCO	EATON SW JH 8 (T/D)		10	0.55	50	0.24	85	0.28	349	0.18	120	0.24	98	0.28	3	0.43	15	0.23	4	0.33
13	ARCO	EATON SW JH 10		0	0.00	0	0.00	273	0.90	1,475	0.76	420	0.84	314	0.90	0	0.00	0	0.00	0	0.00
14	ARCO	EATON SE JH 13		0	0.00	0	0.00	26	0.09	136	0.07	40	0.08	30	0.09	0	0.00	0	0.00	0	0.00
15	ARCO	EATON SE JH 12		5	0.26	10	0.05	111	0.37	376	0.19	148	0.30	127	0.37	2	0.29	7	0.11	2	0.19
16	ARCO	STUART A WN		24	1.26	85	0.42	185	0.61	626	0.32	247	0.50	212	0.61	6	1.03	22	0.33	8	0.67
17	AMER HESS	STUART		25	1.33	213	1.05	240	0.79	1,387	0.71	379	0.76	276	0.79	6	1.02	46	0.70	11	0.86
18	UN TEX	LANGLIE D		59	3.16	227	1.11	437	1.44	1,342	0.69	571	1.15	503	1.44	5	0.82	18	0.28	7	0.54
19	ARCO	LANGLIE B FED		16	0.87	155	0.76	269	0.89	1,131	0.58	382	0.77	309	0.89	5	0.84	56	0.85	11	0.84
20	ARCO	LANGLIE A FEDERAL		35	1.87	481	2.36	595	1.96	3,023	1.56	897	1.80	684	1.96	9	1.56	138	2.11	23	1.85
21	ARCO	LANGLIE FED		45	2.38	436	2.14	628	2.07	4,173	2.15	1,045	2.10	772	2.07	12	2.09	126	1.93	25	2.00
22	UN TEX	LANGLIE B		61	3.26	582	2.86	910	3.00	5,811	2.99	1,491	2.99	1,046	3.00	10	1.61	108	1.65	20	1.63
23	UN TEX	BLOCKER		66	3.51	699	3.43	912	3.00	7,072	3.64	1,620	3.25	1,049	3.00	28	4.63	281	4.29	56	4.45
24	CHEVRON	L. McBUFFINGTON		87	4.63	2,117	10.41	1,506	4.96	16,775	8.63	3,183	6.39	1,732	4.96	30	4.97	596	9.10	89	7.13
25	PACIFIC E	CARLSON B-13		18	0.97	124	0.61	411	1.35	2,411	1.24	652	1.31	472	1.35	8	1.40	68	1.04	15	1.21
26	ARCO	WIMBERLY WN		160	8.49	1,379	6.78	1,708	5.62	11,671	6.00	2,875	5.77	1,964	5.62	52	8.73	526	8.03	105	8.36
27	PACIFIC E	CARLSON A-23		0	0.00	0	0.00	21	0.07	70	0.04	28	0.06	25	0.07	0	0.00	0	0.00	0	0.00
28	TEXACO	LAS CRUCES C		9	0.48	77	0.38	405	1.33	1,857	0.96	591	1.19	466	1.33	4	0.71	37	0.56	8	0.63
29	ARCO	WIMBERLY JH 2		4	0.19	11	0.05	295	0.97	3,019	1.55	597	1.20	339	0.97	2	0.41	21	0.33	5	0.37
30	ARCO	WIMBERLY JH 3		40	2.10	464	2.28	405	1.33	3,645	1.88	769	1.54	465	1.33	14	2.31	153	2.33	29	2.32

SOUTH JUSTIS WATERFLOOD
PARAMETER TABLE

ARCO TRACT	OPERATOR	LEASE	REM MBO	% TOTAL	REM MMCF	% TOTAL	ULT PRI	ULT % TOTAL	ULT MMCF	ULT PRI	ULT % TOTAL	ULT MBO	ULT SEC	TOTAL BOFD	RATE 1989 %	TOTAL MCFD	RATE 1989 %	TOTAL BOED	RATE 1989 %	TOTAL
31	ARCO	CARLSON A FED	16	0.82	196	0.97	286	0.94	1,302	0.67	416	0.84	329	0.94	8	1.29	88	1.35	17	1.32
32	AMER EXPL	EL PASO FED I	49	2.63	142	0.70	203	0.67	669	0.34	270	0.54	234	0.67	16	2.64	44	0.68	20	1.61
33	UN TEX	CARLSON B	25	1.35	242	1.19	739	2.43	3,834	1.97	1,122	2.25	850	2.43	9	1.47	87	1.32	17	1.39
34	AMER HESS	WIMBERLY	80	4.26	1,302	6.40	1,933	6.37	14,598	7.51	3,393	6.81	2,223	6.37	22	3.64	354	5.40	57	4.56
35	TEXACO	A.B.COATES C	162	8.61	2,158	10.61	3,003	9.89	24,911	12.82	5,494	11.03	3,453	9.89	43	7.16	567	8.65	99	7.94
36	TEXACO	A.B.COATES D	2	0.09	24	0.12	249	0.82	2,341	1.20	484	0.97	287	0.82	2	0.31	27	0.42	5	0.37
37	TEXACO	PENNY FED	9	0.49	9	0.05	150	0.49	219	0.11	172	0.35	173	0.49	7	1.09	6	0.09	7	0.57
38A	UN TEX	BUFFINGTON B 3,4	3	0.14	12	0.06	241	0.79	749	0.39	316	0.63	277	0.79	3	0.49	13	0.20	4	0.34
38B	TEXACO	BUFFINGTON B 2	0	0.00	0	0.00	1	0.00	3	0.00	1	0.00	1	0.00	1	0.14	0	0.00	1	0.07
39	ARCO	CARLSON JH FEDERAL	23	1.24	157	0.77	282	0.93	1,209	0.62	403	0.81	324	0.93	9	1.55	53	0.82	15	1.16
40	BRUNO	CARLSON B 26	25	1.34	218	1.07	574	1.89	2,066	1.07	783	1.57	660	1.89	7	1.14	60	0.91	13	1.02
41	ARCO	CARLSON FED	33	1.74	726	3.57	540	1.78	5,620	2.89	1,102	2.21	621	1.78	10	1.66	221	3.38	32	2.56
42	UN TEX	CARLSON A	26	1.36	195	0.96	1,182	3.89	8,897	4.58	2,072	4.16	1,360	3.89	11	1.88	95	1.44	21	1.65
43	ARCO	STATE Y	14	0.73	503	2.47	621	2.05	6,891	3.55	1,310	2.63	714	2.05	7	1.24	273	4.17	35	2.77
44	BRUNO	CARSON B-25	16	0.83	600	2.95	923	3.04	6,368	3.28	1,560	3.13	1,062	3.04	7	1.22	277	4.22	35	2.79
45	TEXACO	HOBBS A	19	1.02	54	0.26	472	1.56	1,439	0.74	616	1.24	543	1.56	6	0.93	20	0.31	8	0.60
46	AMOCO	STATE AJ	2	0.08	5	0.03	237	0.78	759	0.39	313	0.63	273	0.78	2	0.28	10	0.15	3	0.21
47	ARCO	FEDERAL 35	16	0.83	26	0.13	168	0.55	262	0.13	194	0.39	193	0.55	4	0.68	7	0.11	5	0.38
48	UN TEX	GREGORY A FED	40	2.11	205	1.01	169	0.56	549	0.28	224	0.45	194	0.56	12	2.00	55	0.83	17	1.39
49	CHEVRON	RAMSAY F	196	10.41	2,939	14.44	1,889	6.22	11,852	6.10	3,074	6.17	2,172	6.22	41	6.91	686	10.47	110	8.77
50	CHEVRON	RAMSAY B	63	3.34	384	1.89	1,684	5.55	6,368	3.28	2,321	4.66	1,936	5.55	29	4.82	179	2.73	47	3.73
51	FINA	GINGSBERG	32	1.67	77	0.38	500	1.65	1,550	0.80	655	1.32	575	1.65	15	2.48	44	0.67	19	1.54
52	TEXACO	RIGGS B	37	1.96	163	0.80	325	1.07	1,375	0.71	463	0.93	374	1.07	7	1.11	38	0.58	10	0.83
TOTAL			1,883	100	20,348	100	30,361	100	194,354	100	49,797	100	34,916	100	597	100	6,555	100	1,253	100

APPENDIX H

Appendix H - Tract Production Plots

Figure 1H - Tract 1 - Chevron Stuart
Figure 2H - Tract 2 - Union Texas Stuart
Figure 3H - Tract 3 - Union Texas O. Stuart
Figure 4H - Tract 4 - ARCO J. A. Stuart
Figure 5H - Tract 5 - ARCO Jal
Figure 6H - Tract 6 - ARCO Langlie B (JH)
Figure 7H - Tract 7 - Union Texas Justis
Figure 8H - Tract 8 - ARCO Justice Federal
Figure 9H - Tract 9A - ARCO N.W. Eaton (JH) Nos. 15, 16, and 17
Figure 10H - Tract 9B - ARCO N.W. Eaton (JH) Nos. 15, 16, and 17 (T/D)
Figure 11H - Tract 10A - ARCO N.W. Eaton (JH) No. 14 (Bly)
Figure 12H - Tract 10B - ARCO N.W. Eaton (JH) No. 14 (T/D)
Figure 13H - Tract 11 - ARCO S.W. Eaton (JH) Nos. 9 and 11
Figure 14H - Tract 12A - ARCO S.W. Eaton (JH) No. 8 (Bly)
Figure 15H - Tract 12B - ARCO S.W. Eaton (JH) No. 8 (T/D)
Figure 16H - Tract 13 - ARCO S.W. Eaton (JH) No. 10
Figure 17H - Tract 14 - ARCO S.E. Eaton (JH) No. 13
Figure 18H - Tract 15 - ARCO S.E. Eaton (JH) No. 12
Figure 19H - Tract 16 - ARCO Stuart A WN
Figure 20H - Tract 17 - Amerada Hess W. F. Stuart
Figure 21H - Tract 18 - Union Texas Langlie D
Figure 22H - Tract 19 - ARCO Langlie B Federal
Figure 23H - Tract 20 - ARCO Langlie A Federal
Figure 24H - Tract 21 - ARCO Langlie Federal
Figure 25H - Tract 22 - Union Texas Langlie B
Figure 26H - Tract 23 - Union Texas Blocker
Figure 27H - Tract 24 - Chevron McBuffington
Figure 28H - Tract 25 - Pacific Enterprises Carlson B-13
Figure 29H - Tract 26 - ARCO Wimberly WN
Figure 30H - Tract 27 - Pacific Enterprises Carlson A-23
Figure 31H - Tract 28 - Texaco Las Cruces C
Figure 32H - Tract 29 - ARCO Wimberly (JH) No. 2
Figure 33H - Tract 30 - ARCO Wimberly (JH) No. 3
Figure 34H - Tract 31 - ARCO Carlson A Federal
Figure 35H - Tract 32 - American Exploration El Paso Federal
Figure 36H - Tract 33 - Union Texas Carlson B
Figure 37H - Tract 34 - Amerada Hess Ida Wimberley
Figure 38H - Tract 35 - Texaco Coates C
Figure 39H - Tract 36 - Texaco Coates D
Figure 40H - Tract 37 - Texaco C. E. Penny Federal NCT-4
Figure 41H - Tract 38A - Union Texas Buffington B Nos. 3 and 4
Figure 42H - Tract 38B - Texaco Buffington B No. 2 (T/D)
Figure 43H - Tract 39 - ARCO Carlson (JH)
Figure 44H - Tract 40 - Bruno Carlson B-26

**Appendix H - Tract Production Plots
(continued)**

Figure 45H - Tract 41 - ARCO Carlson Federal
Figure 46H - Tract 42 - Union Texas Carlson A
Figure 47H - Tract 43 - ARCO State Y
Figure 48H - Tract 44 - Bruno Carlson B-25
Figure 49H - Tract 45 - Texaco Hobbs A
Figure 50H - Tract 46 - Amoco State A J
Figure 51H - Tract 47 - ARCO Federal 35
Figure 52H - Tract 48 - Union Texas Gregory A Federal
Figure 53H - Tract 49 - Chevron Ramsay NCT-F
Figure 54H - Tract 50 - Chevron Ramsay NCT-B
Figure 55H - Tract 51 - Fina Ginsberg Federal Nos. 8, 9, 10, and 11
Figure 56H - Tract 52 - Texaco Riggs B Nos. 6 and 8

TRACT 1

CHEVRON - J. A. STUART #8

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

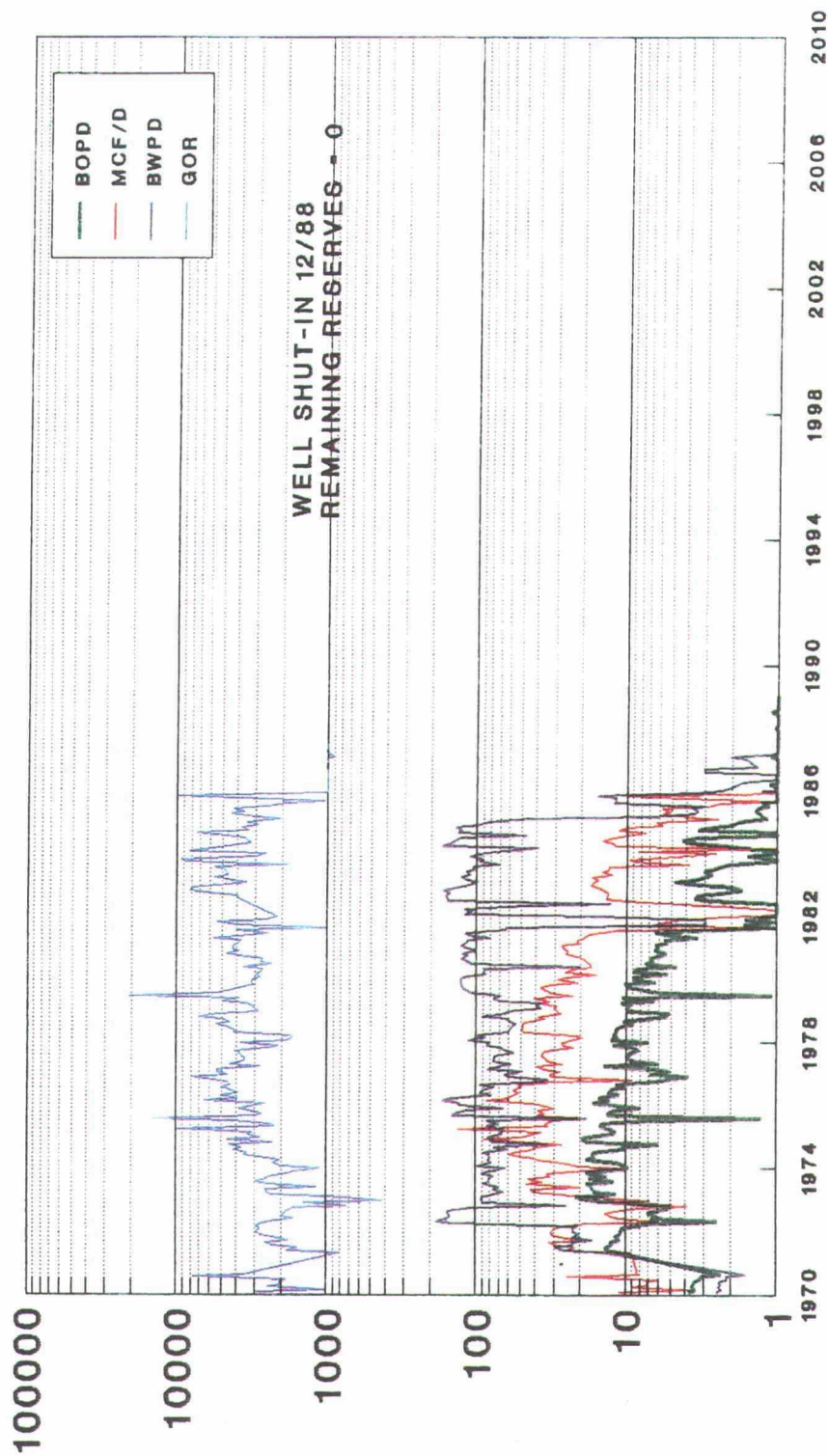


FIGURE 1H
177

TRACT 2

UNION TEXAS - STUART #6, #7, #8

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

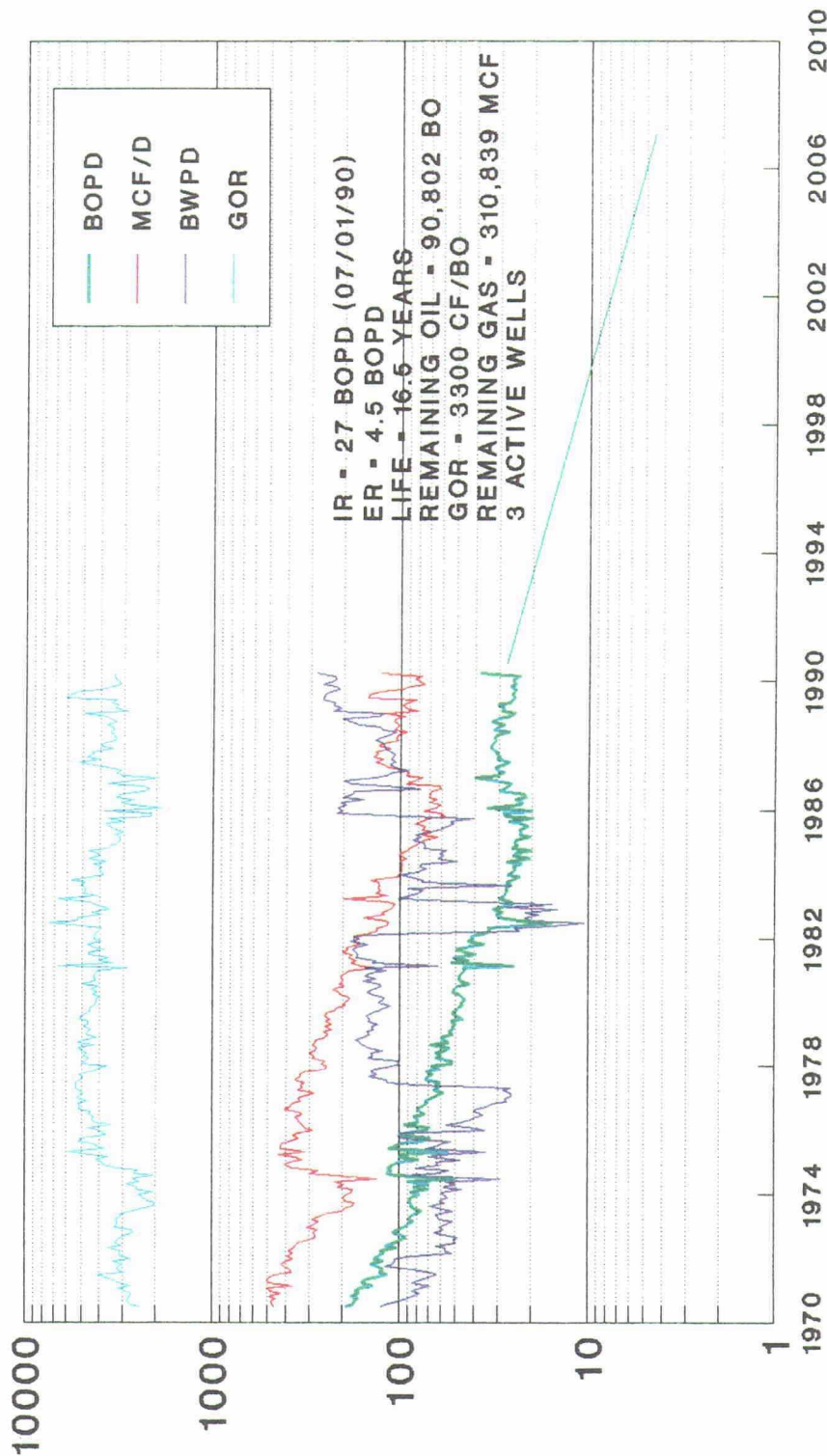


FIGURE 2 H
178

TRACT 3

UNION TEXAS - OLSEN STUART #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

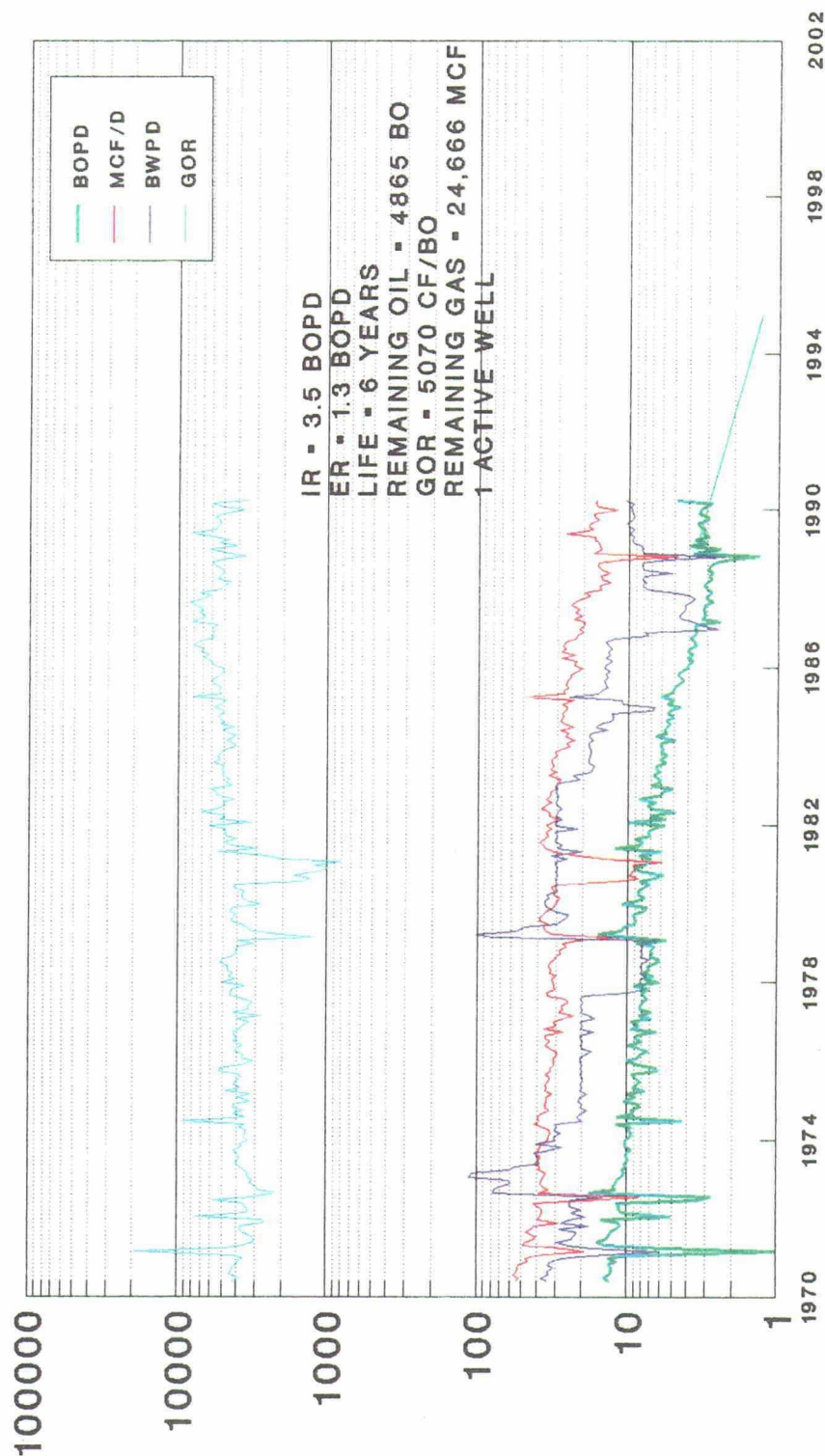


FIGURE 3H
179

TRACT 4

ARCO - J. A. STUART #1

JUSTIS BLINEBRY FIELD

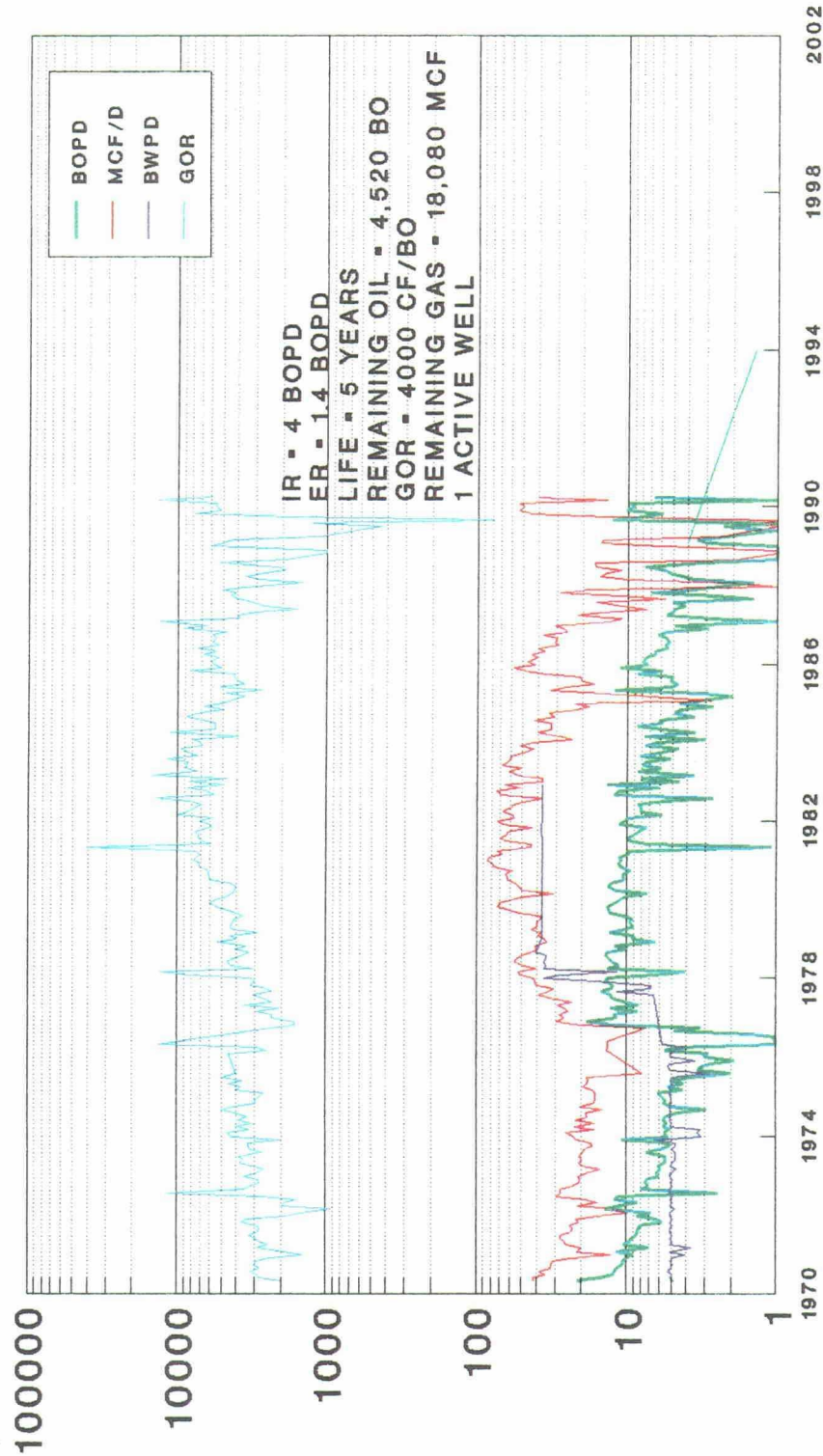


FIGURE 4H
180

TRACT 5

ARCO OIL AND GAS COMPANY - JAL #2, #3

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

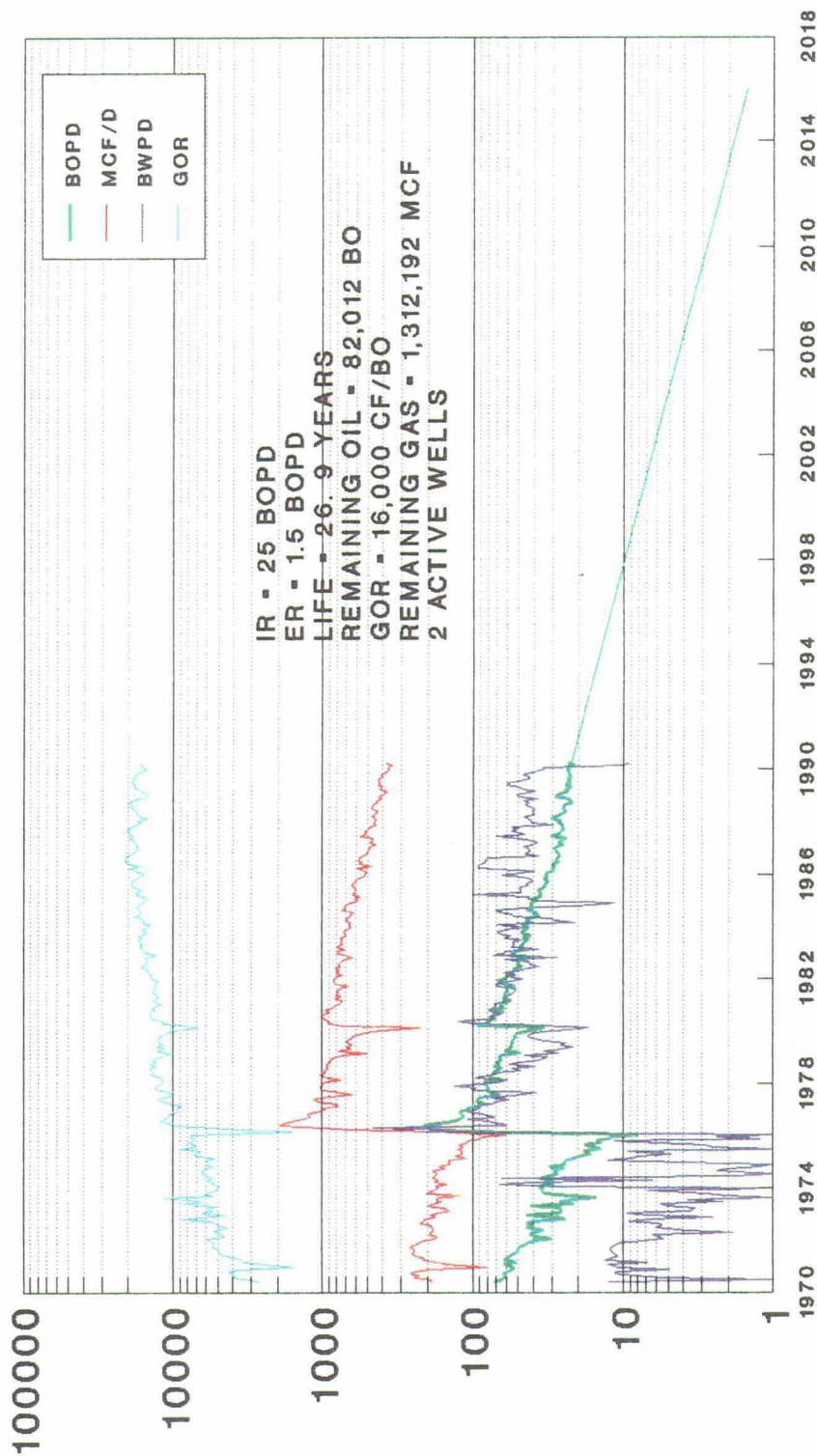


FIGURE 5 H
181

TRACT 6

ARCO - LANGLEIE B JH FED #1 & #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

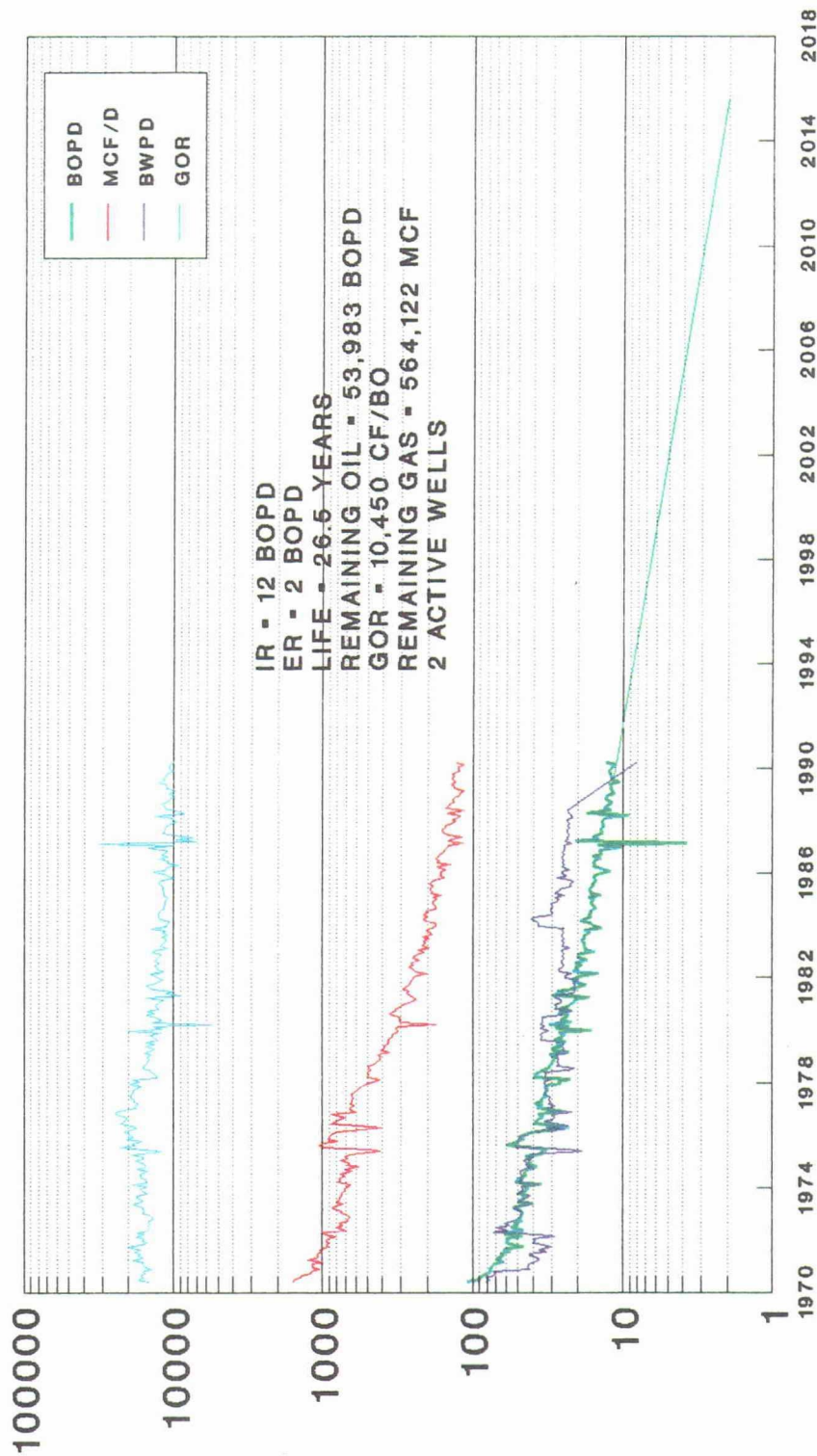


FIGURE 6 H
182

TRACT 7

UNION TEXAS - JUSTIS #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

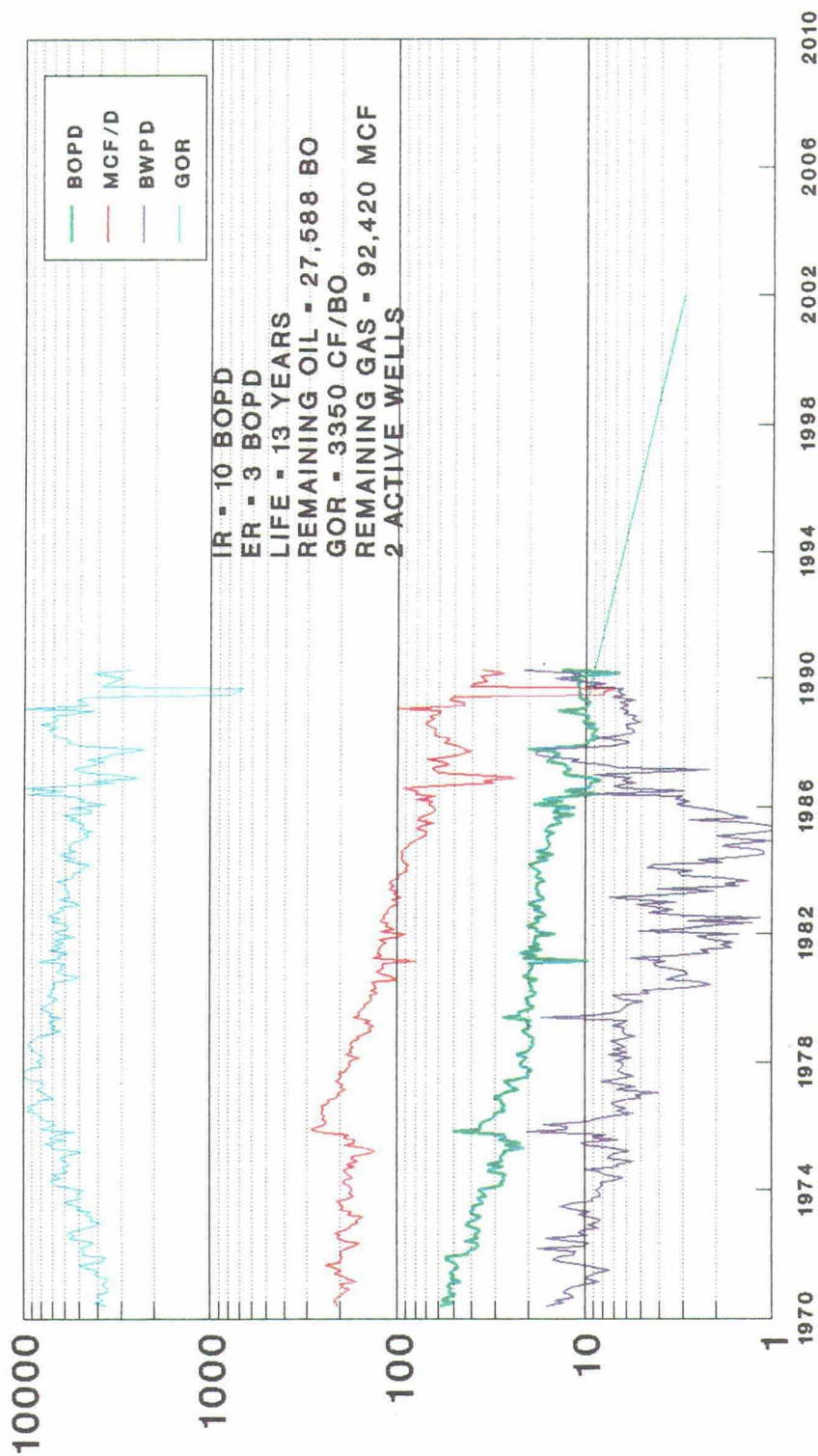


FIGURE 7 H
183

TRACT 8

ARCO - JUSTICE FEDERAL #2, #3

JUSTIS BLINEBRY FIELD

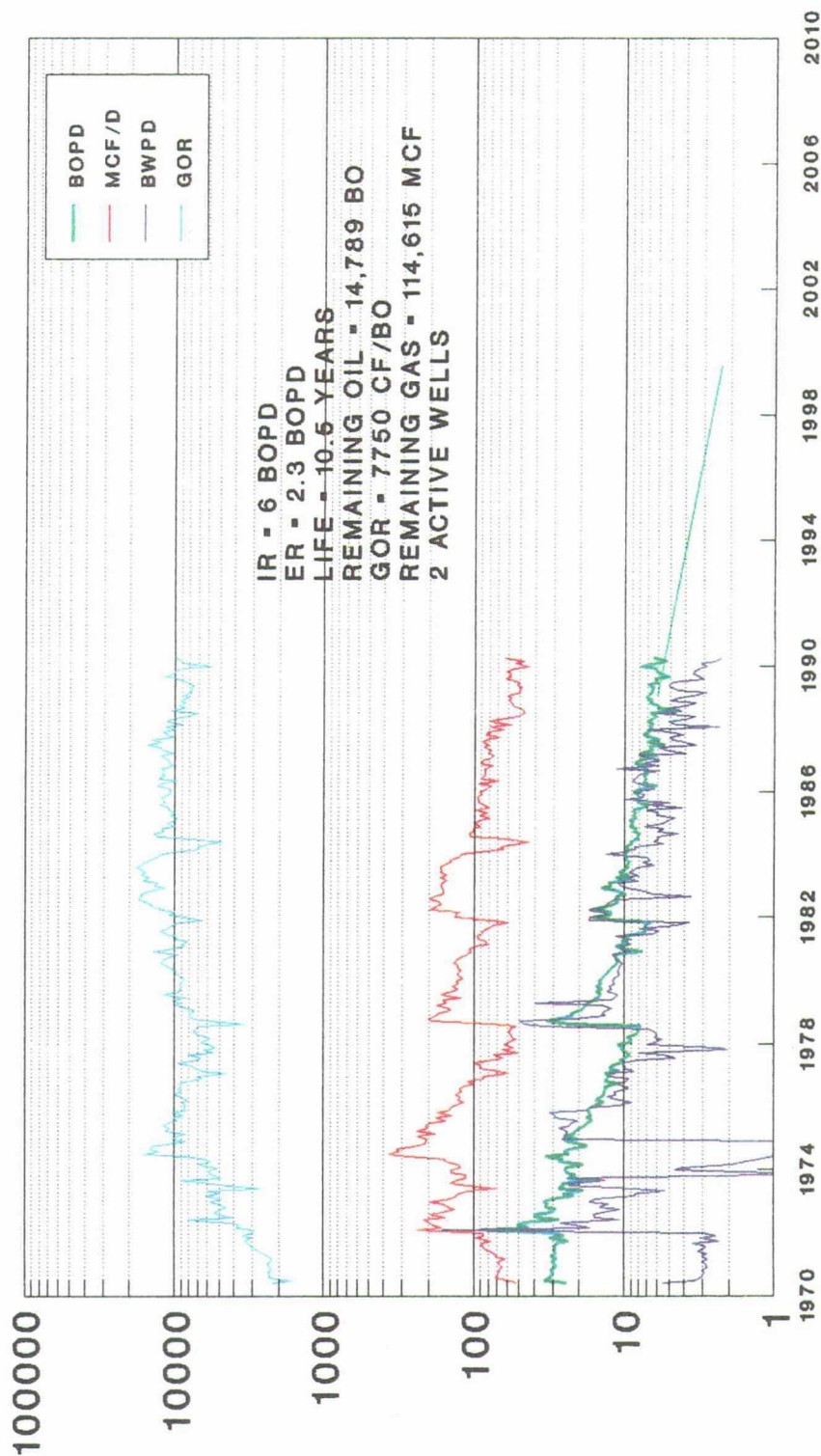


FIGURE 8 H
184

TRACT 9A

ARCO - EATON NW JH #15, #16, #17

JUSTIS BLINEBRY FIELD

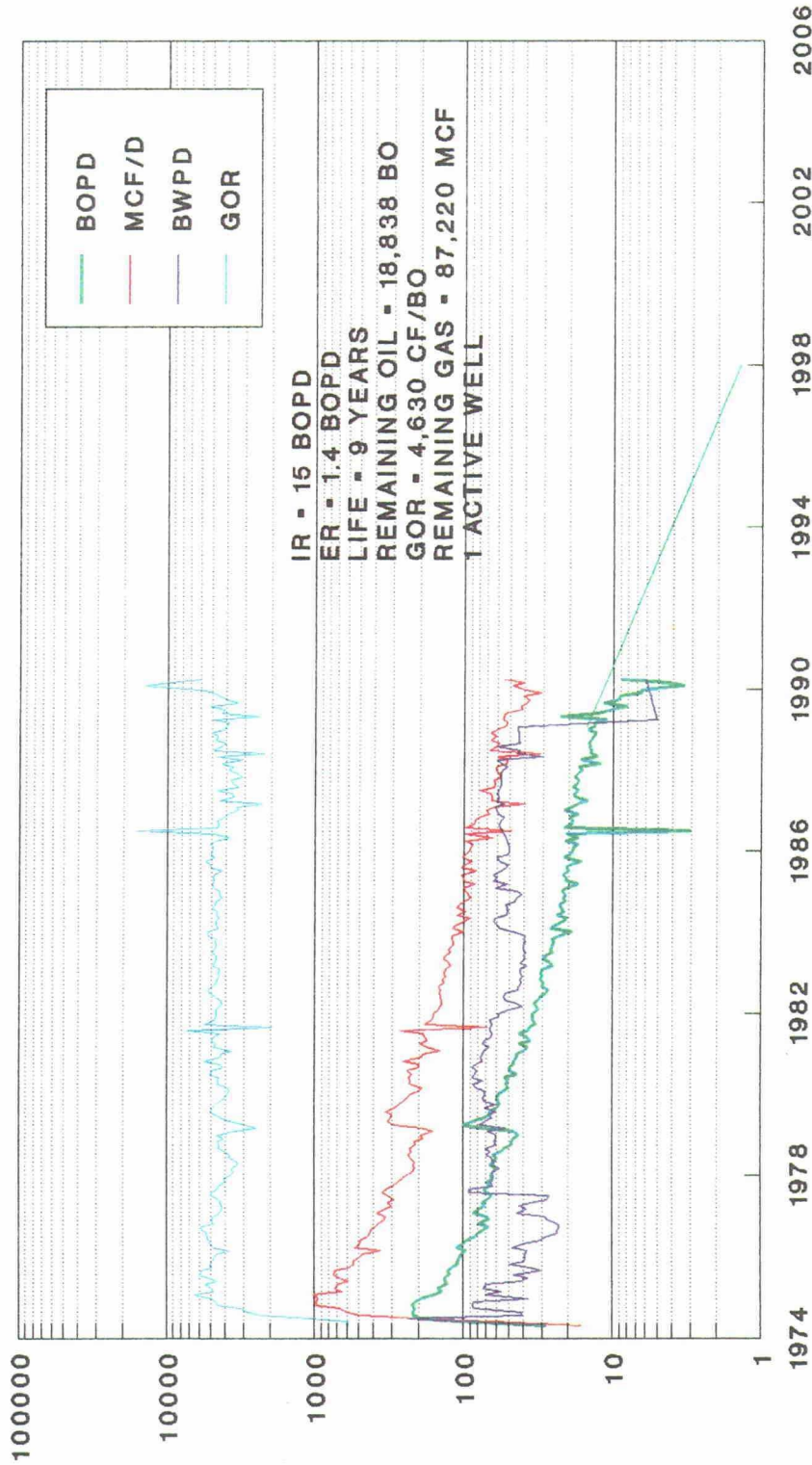


FIGURE 9H
185

TRACT 9B

ARCO - EATON NW JH #15, #16, #17

JUSTIS TUBB DRINKARD FIELD

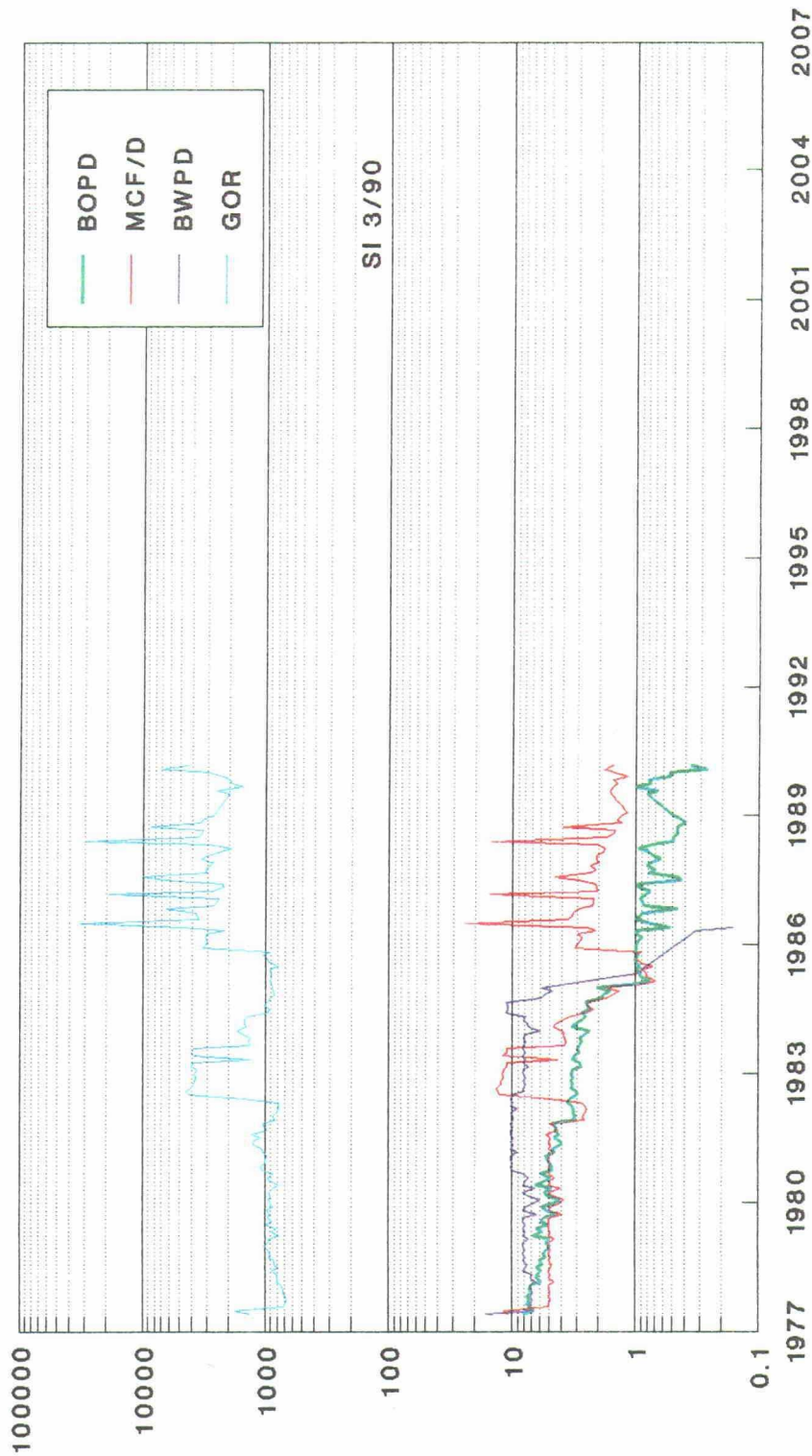


FIGURE 10 H
186

TRACT 10A

ARCO - EATON NW JH #14

JUSTIS BLINEBRY FIELD

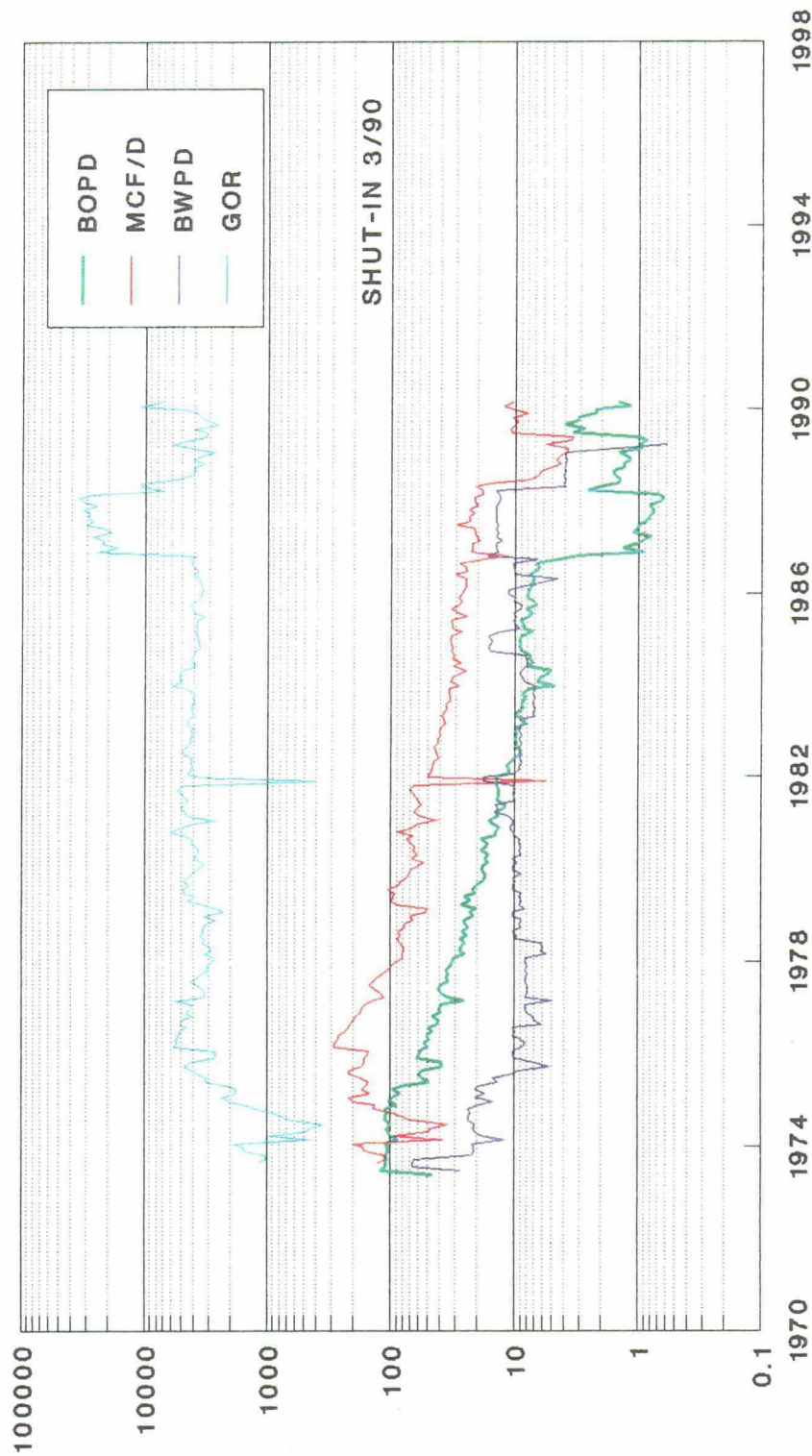


FIGURE 11 H
187

TRACT 10B

ARCO - EATON NW JH #14

JUSTIS TUBB DRINKARD FIELD

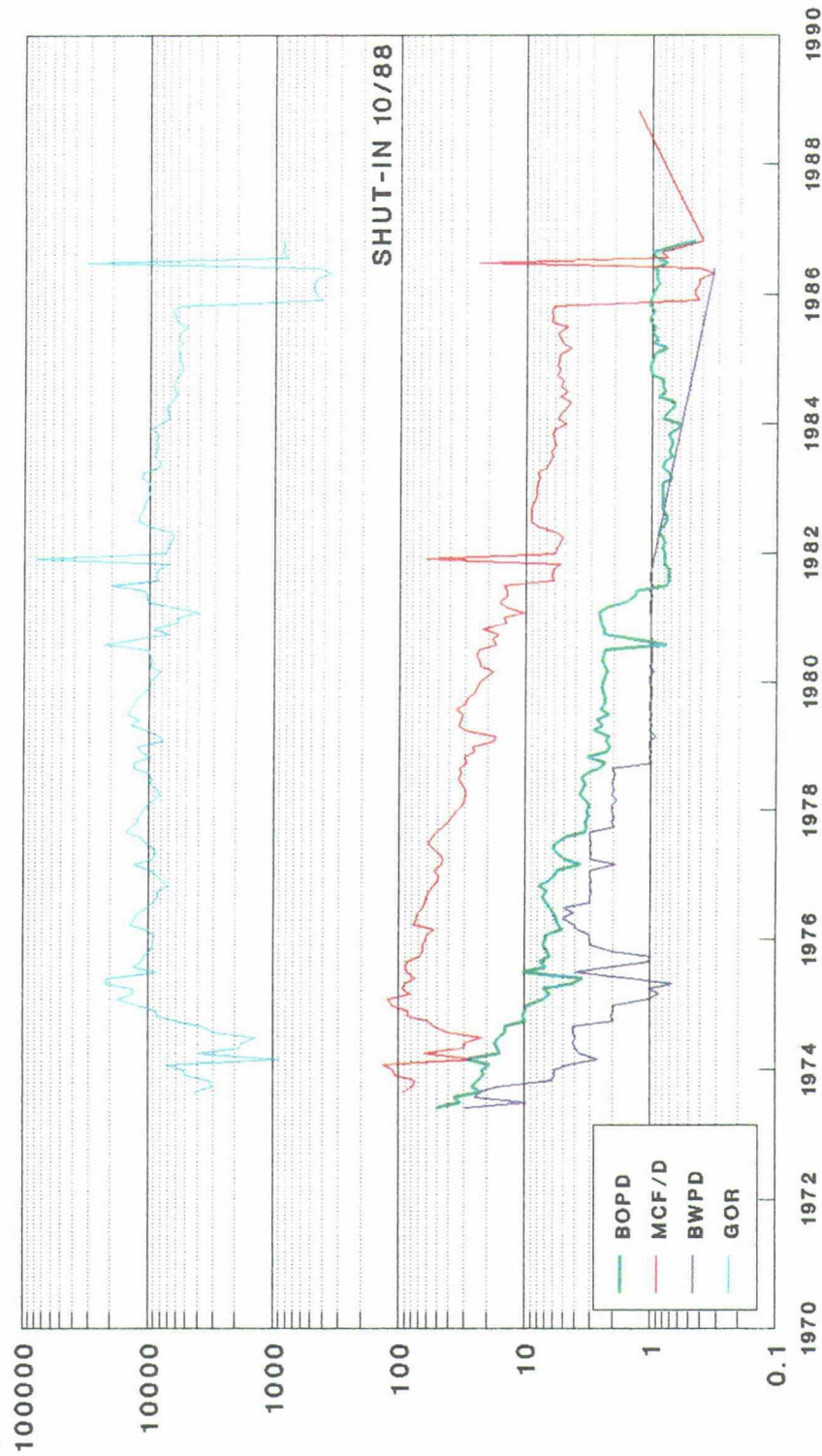


FIGURE 12 H
188

TRACT 11

ARCO - EATON SW JH #9, #11

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

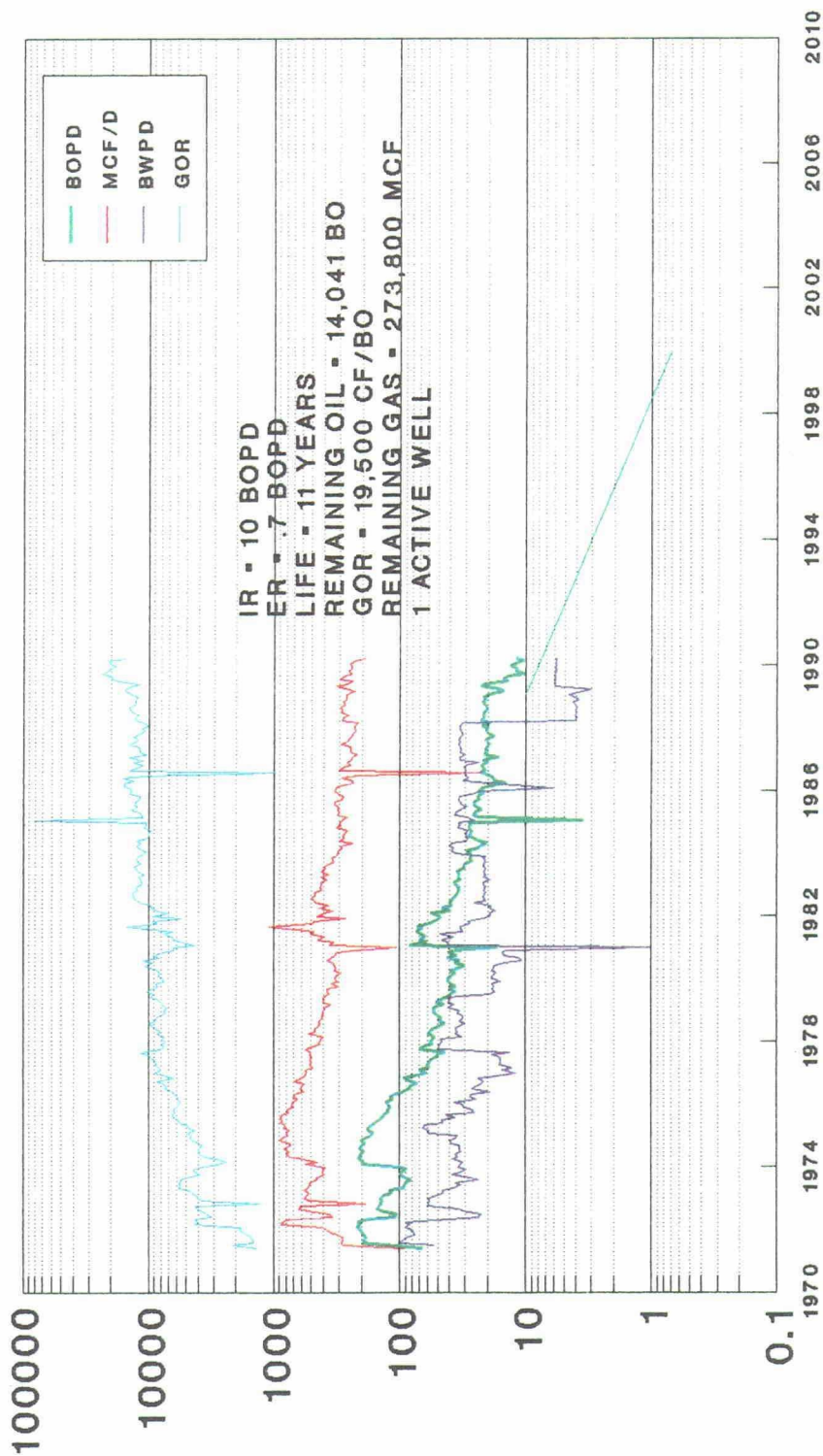


FIGURE 13 H
189

TRACT 12A

ARCO - EATON SW JH #8

JUSTIS BLINEBRY FIELD

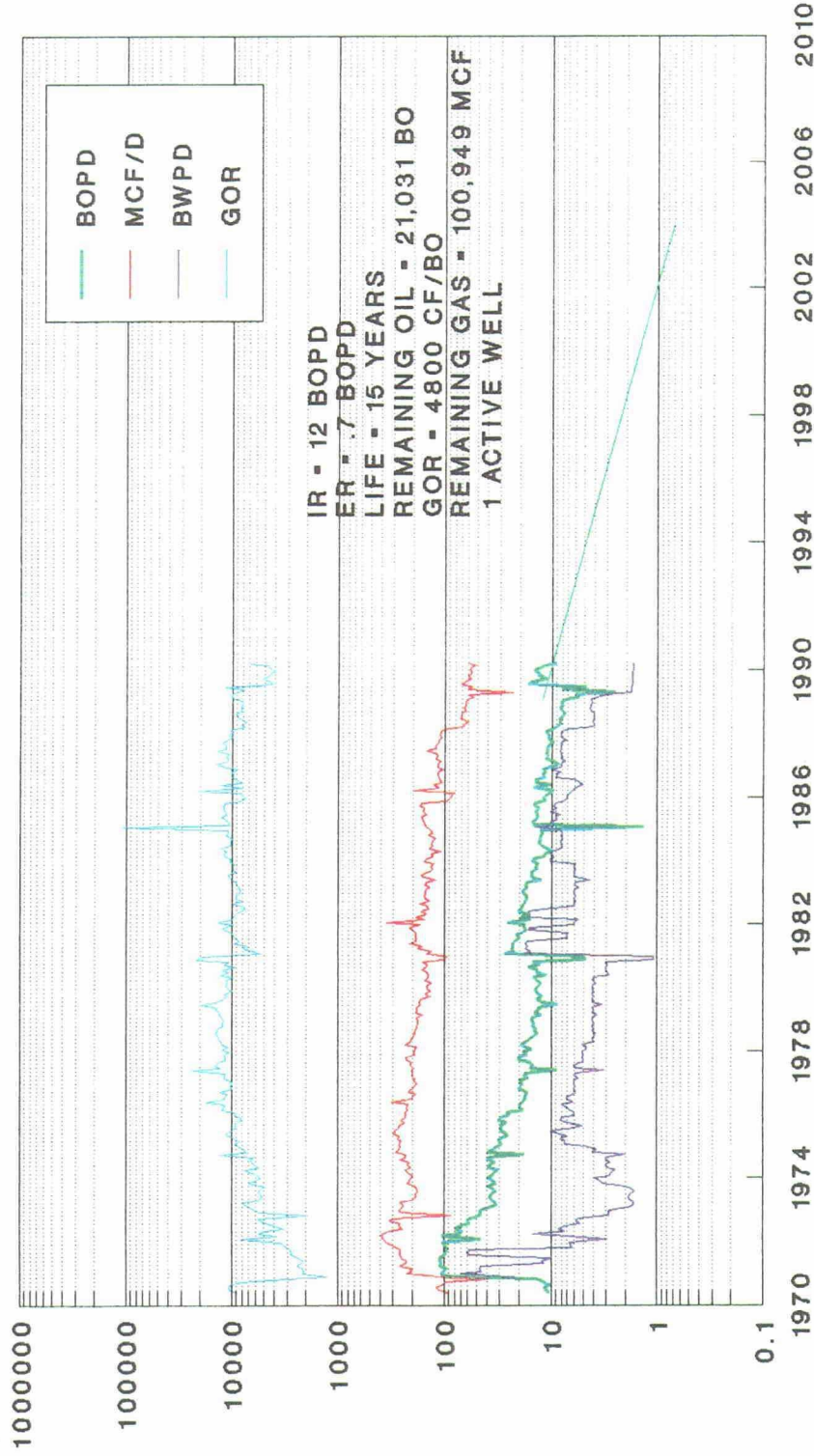


FIGURE 14 H
190

TRACT 12B

ARCO - EATON SW JH #8

JUSTIS TUBB DRINKARD FIELD

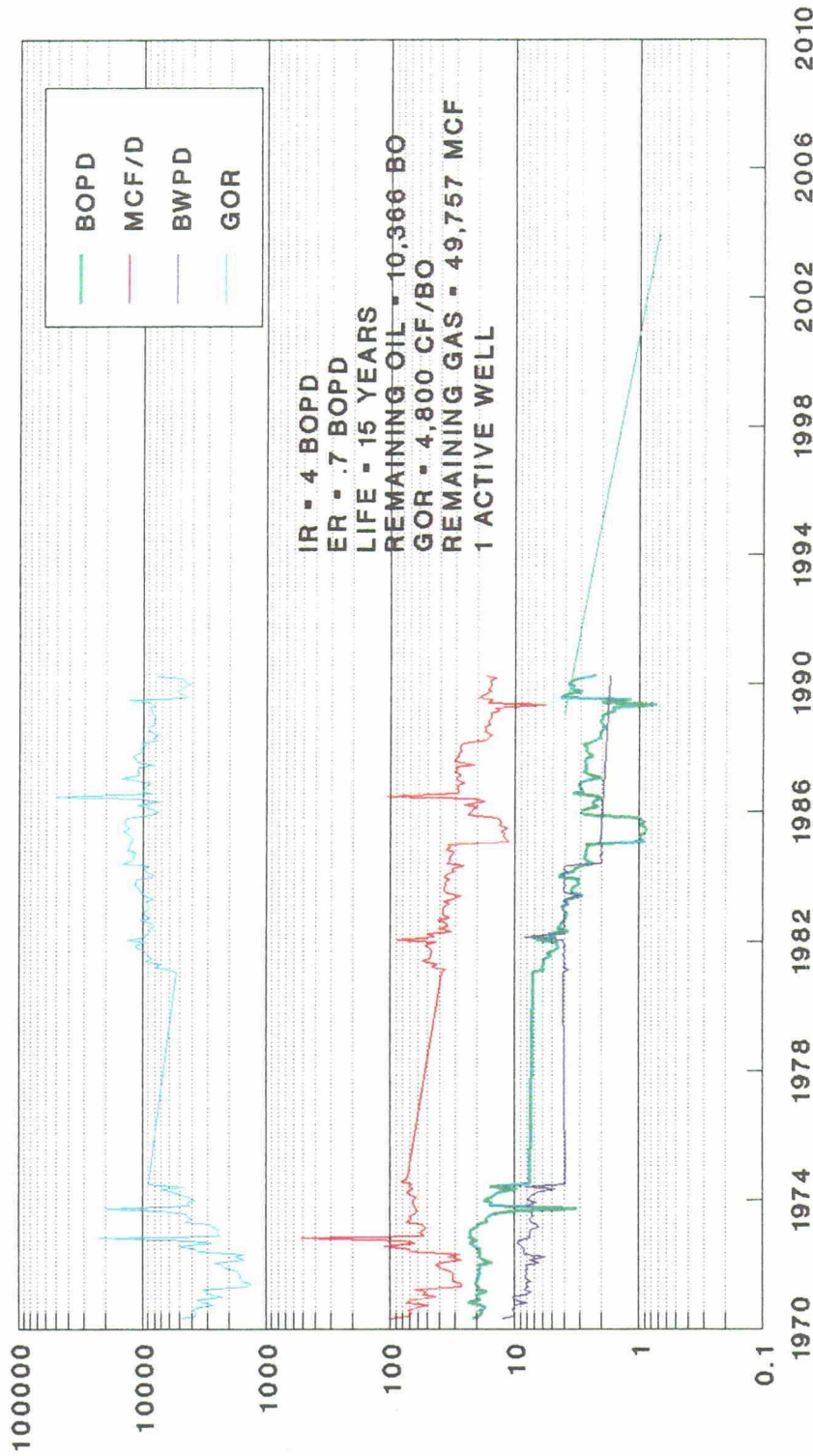


FIGURE 15 H
190A

TRACT 13

ARCO - EATON SW JH #10

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

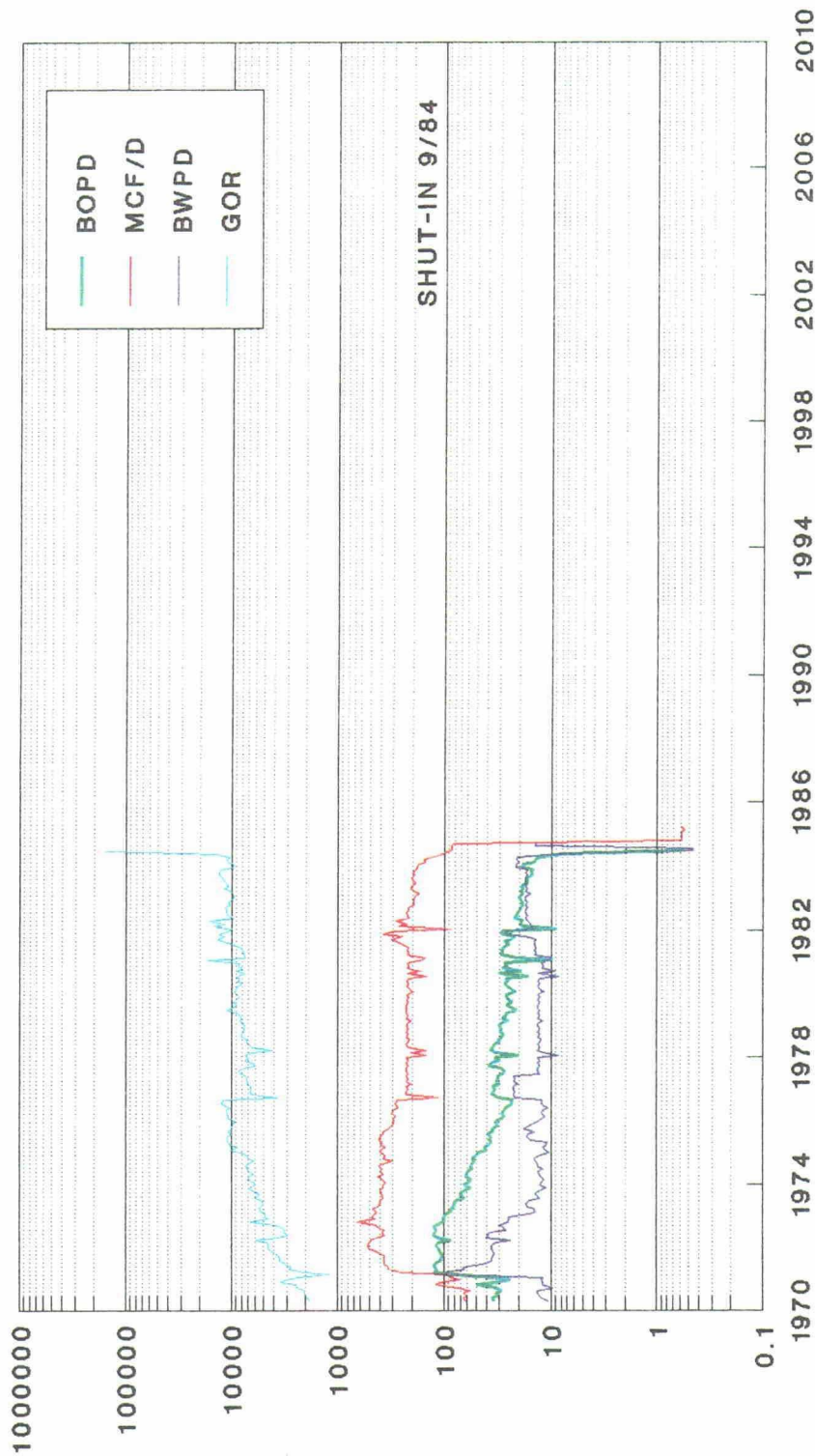


FIGURE 16 H
191

RSP/EEG EAT13 12/27/90

TRACT 14

ARCO - EATON SE JH #13

JUSTIS BLINEBRY FIELD

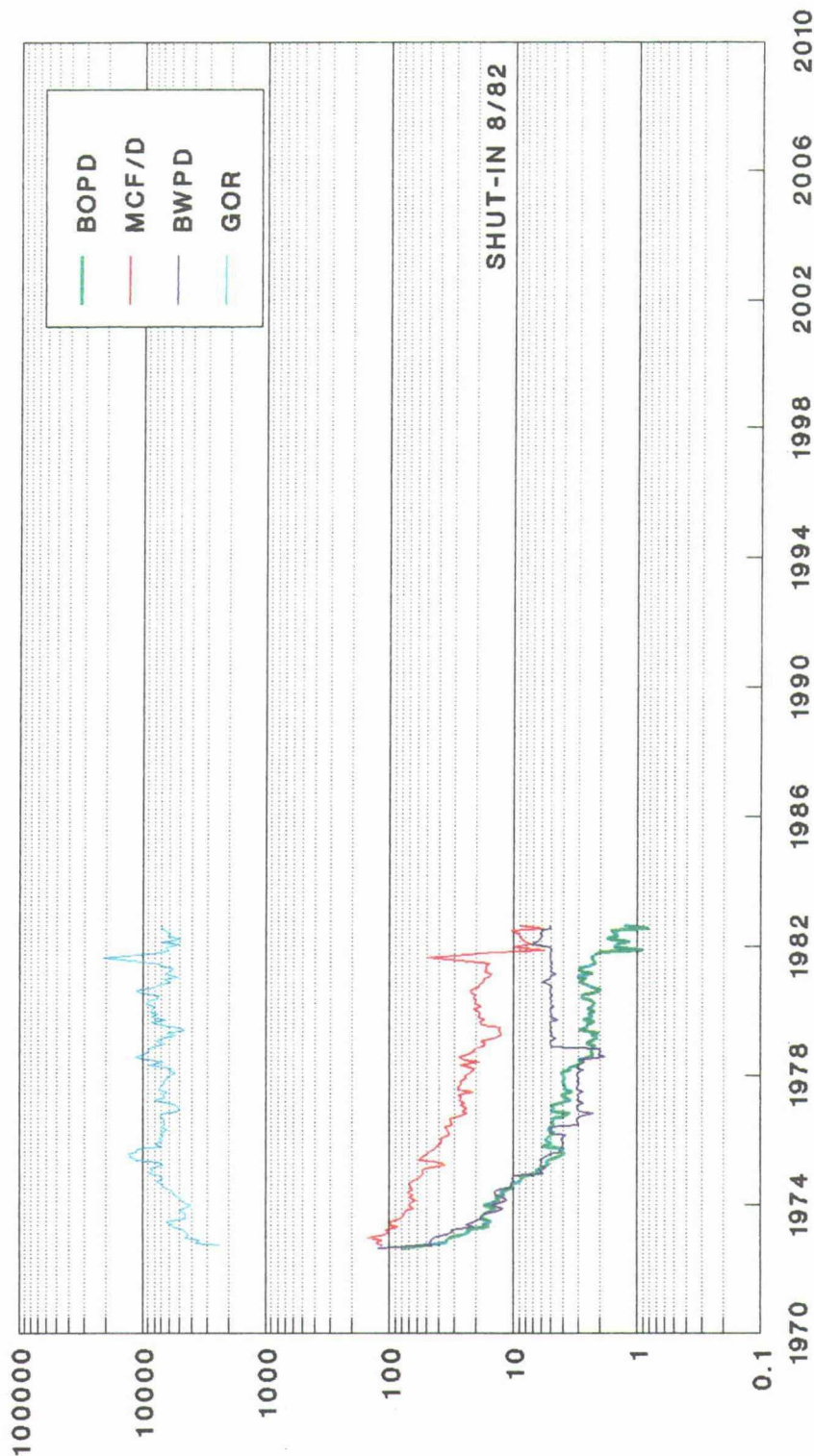


FIGURE 17 H
192

TRACT 15

ARCO - EATON SE JH #12

JUSTIS BLINEBRY FIELD

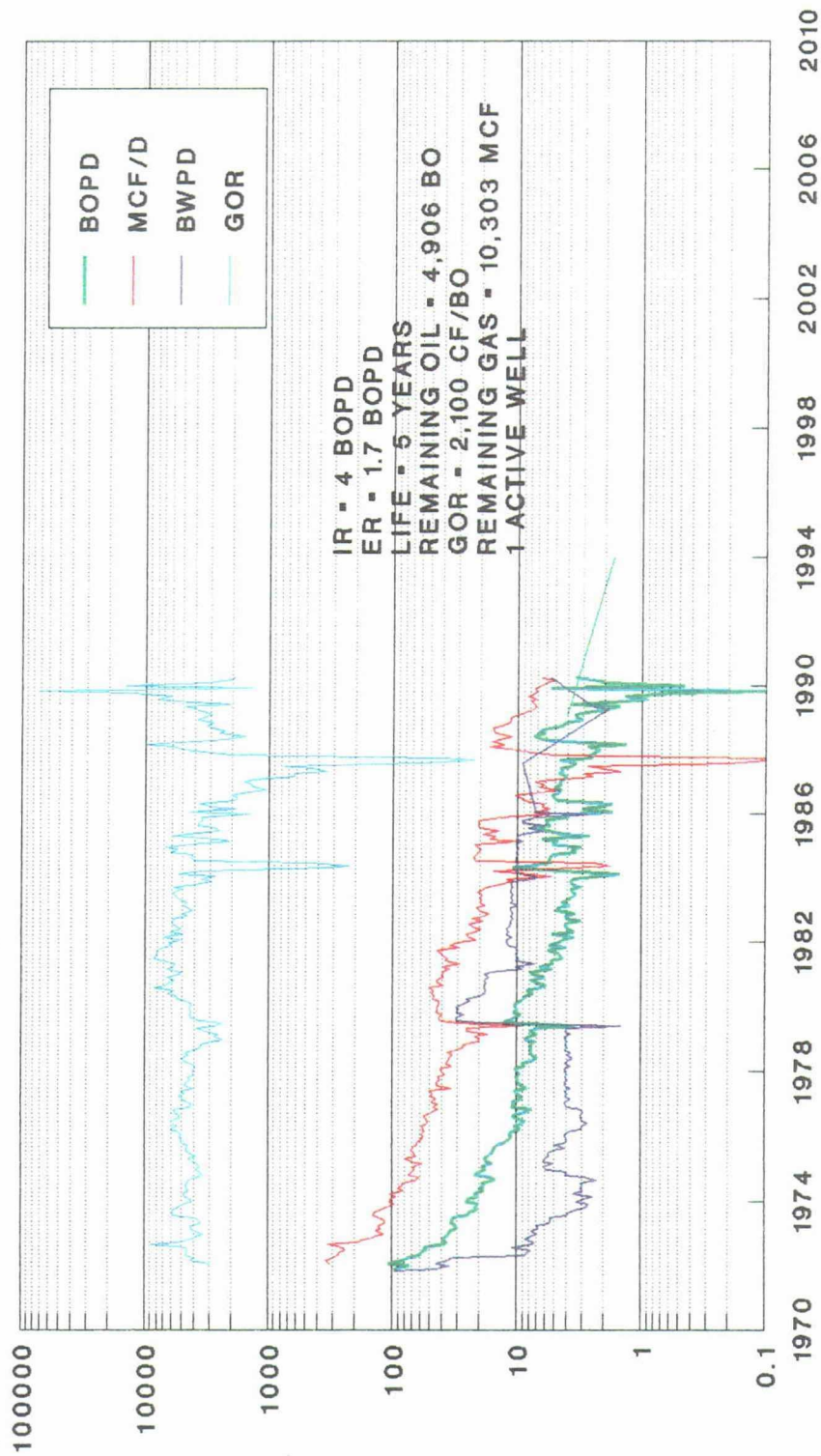


FIGURE 18 H
193

TRACT 16

ARCO OIL AND GAS CO - STUART A WN #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

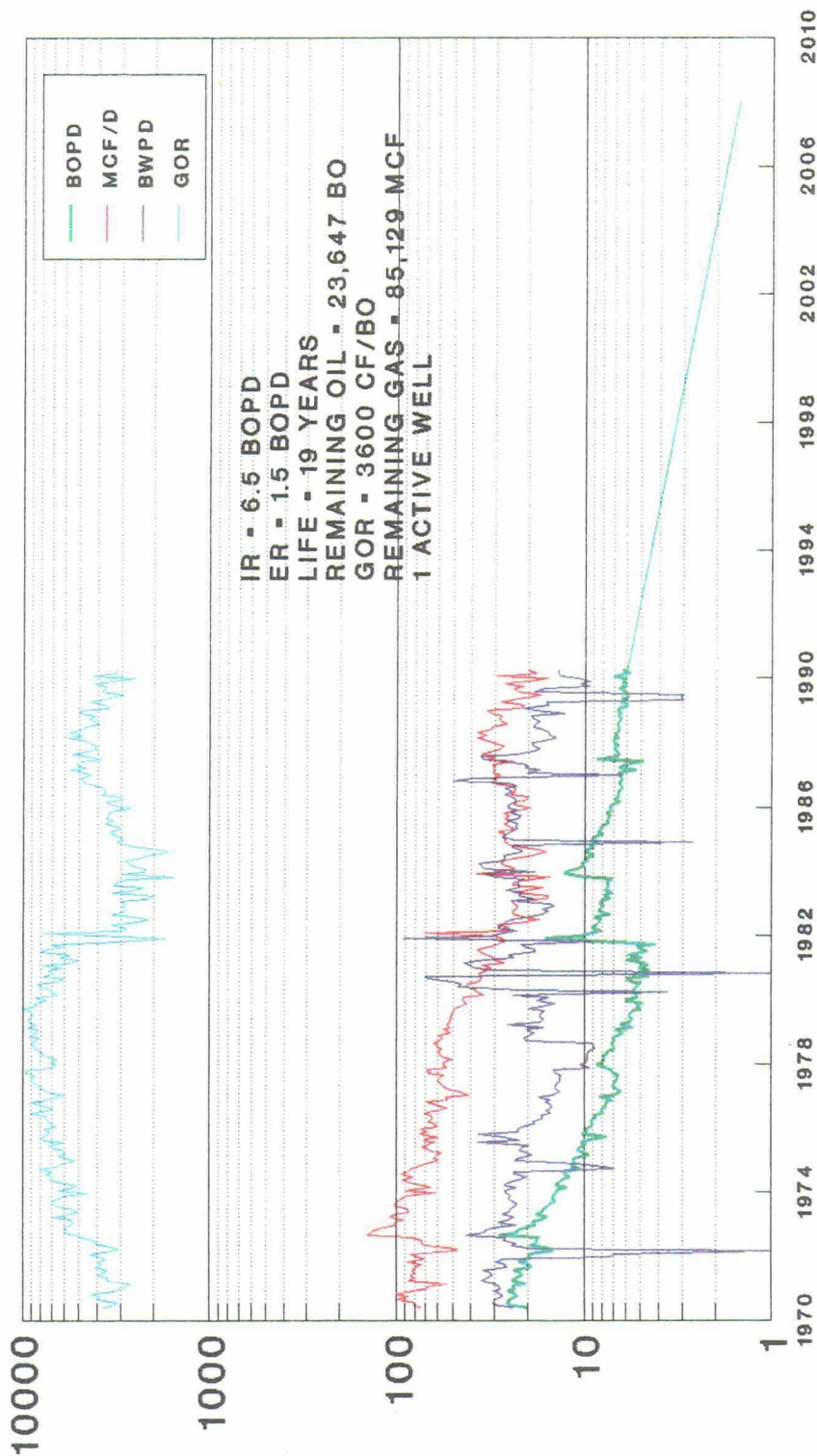


FIGURE 19 H
194

TRACT 17

AMERADA HESS - W. F. STUART #1

JUSTIS BLINEBRY FIELD

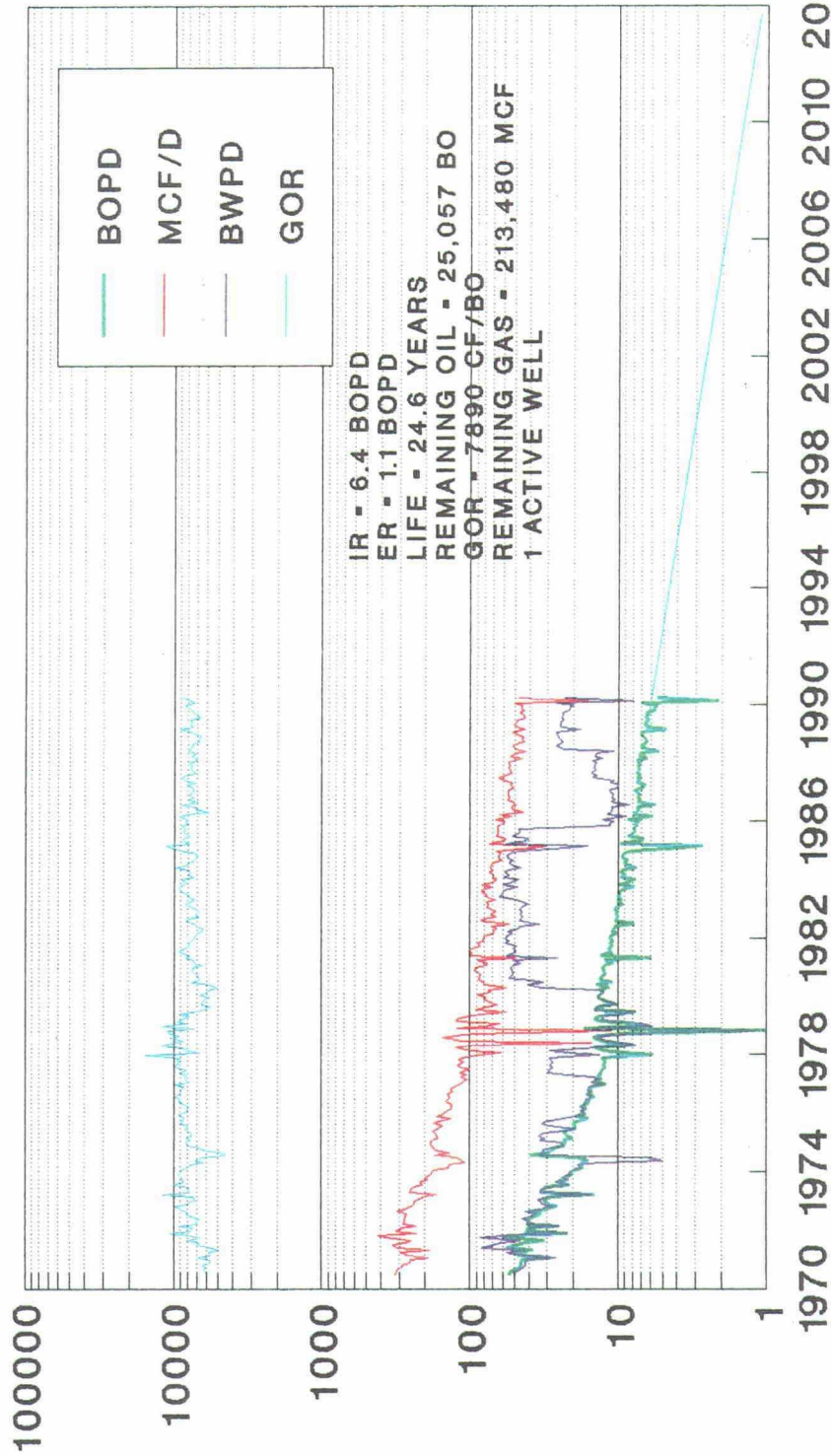


FIGURE 20 H
195

TRACT 18

UNION TEXAS - LANGLEIE D #1, #2

JUSTIS BLINEBRY FIELD

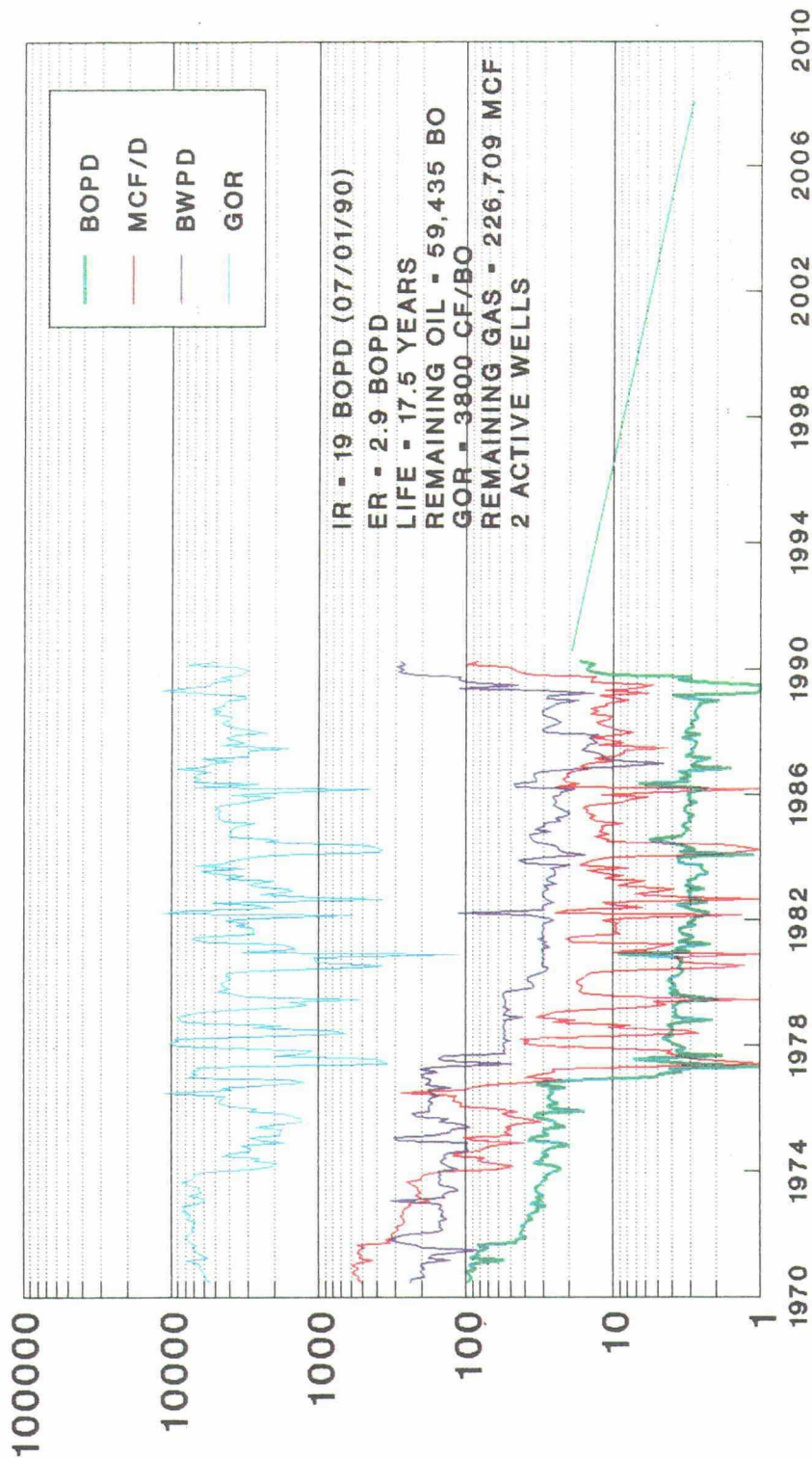


FIGURE 21 H
196

TRACT 19

ARCO - LANGLEIE B FEDERAL #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

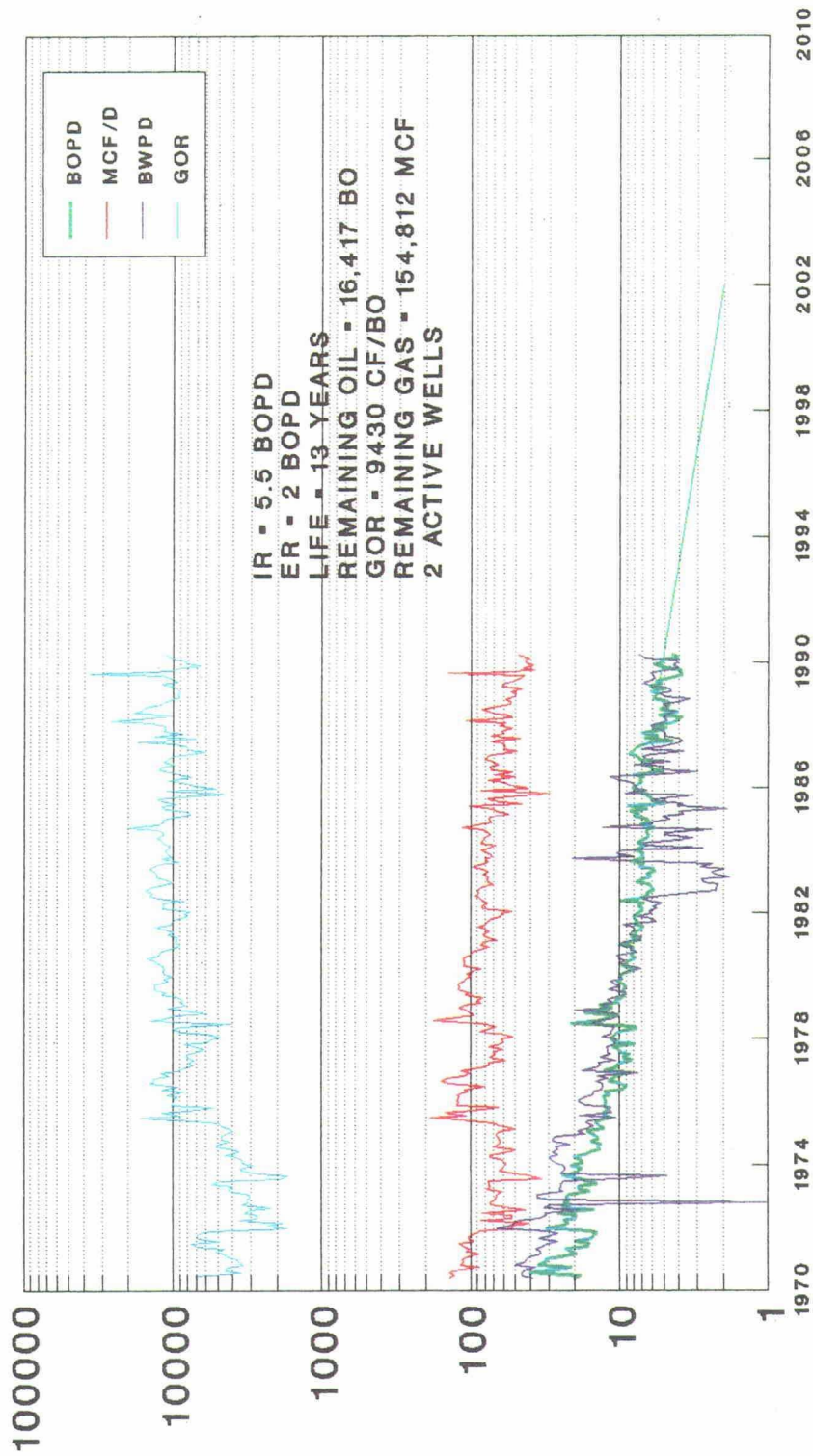


FIGURE 22 H
197

TRACT 20

ARCO - LANGLEIE A FEDERAL #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

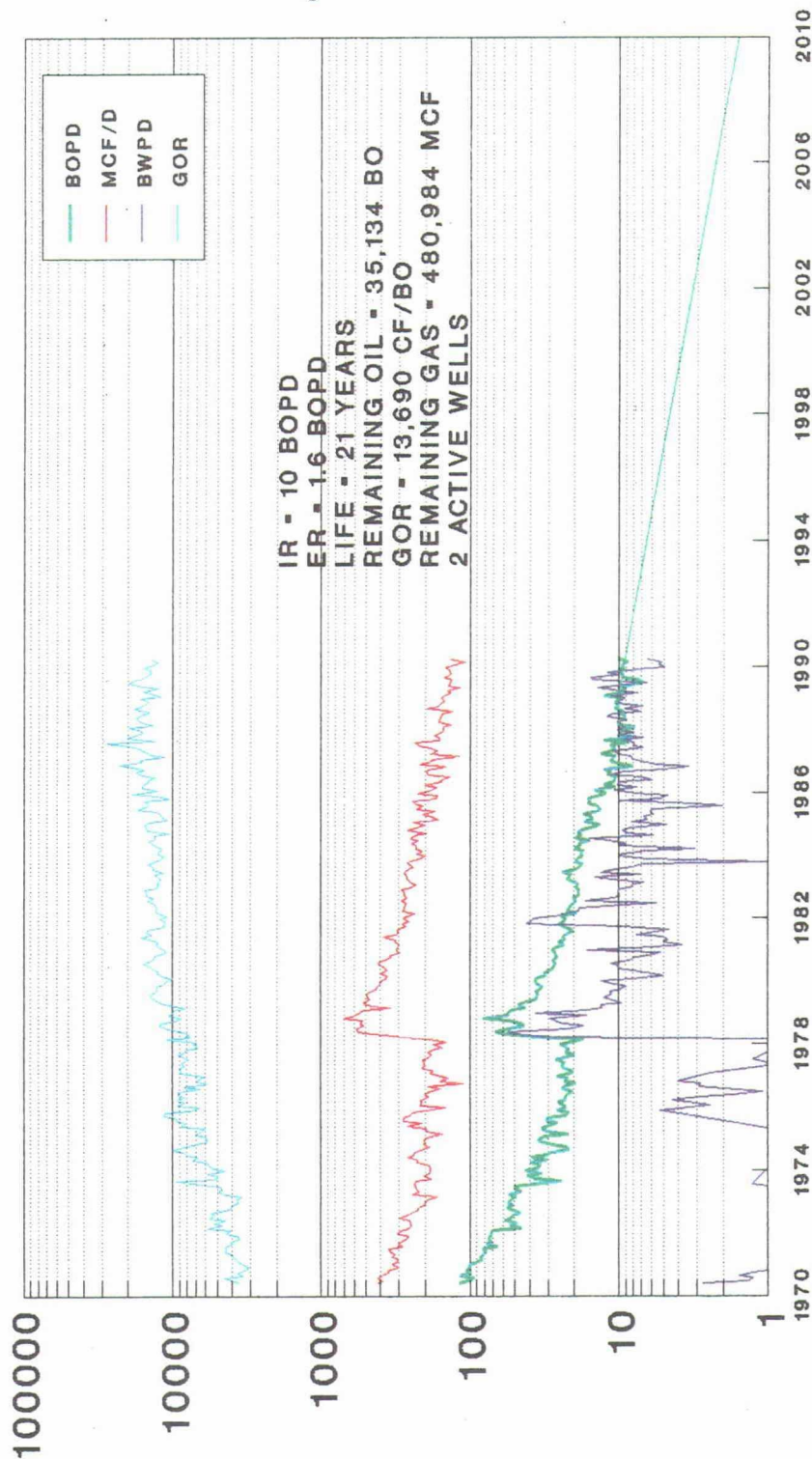


FIGURE 23 H
198

TRACT 21

ARCO - LANGLIE FEDERAL #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

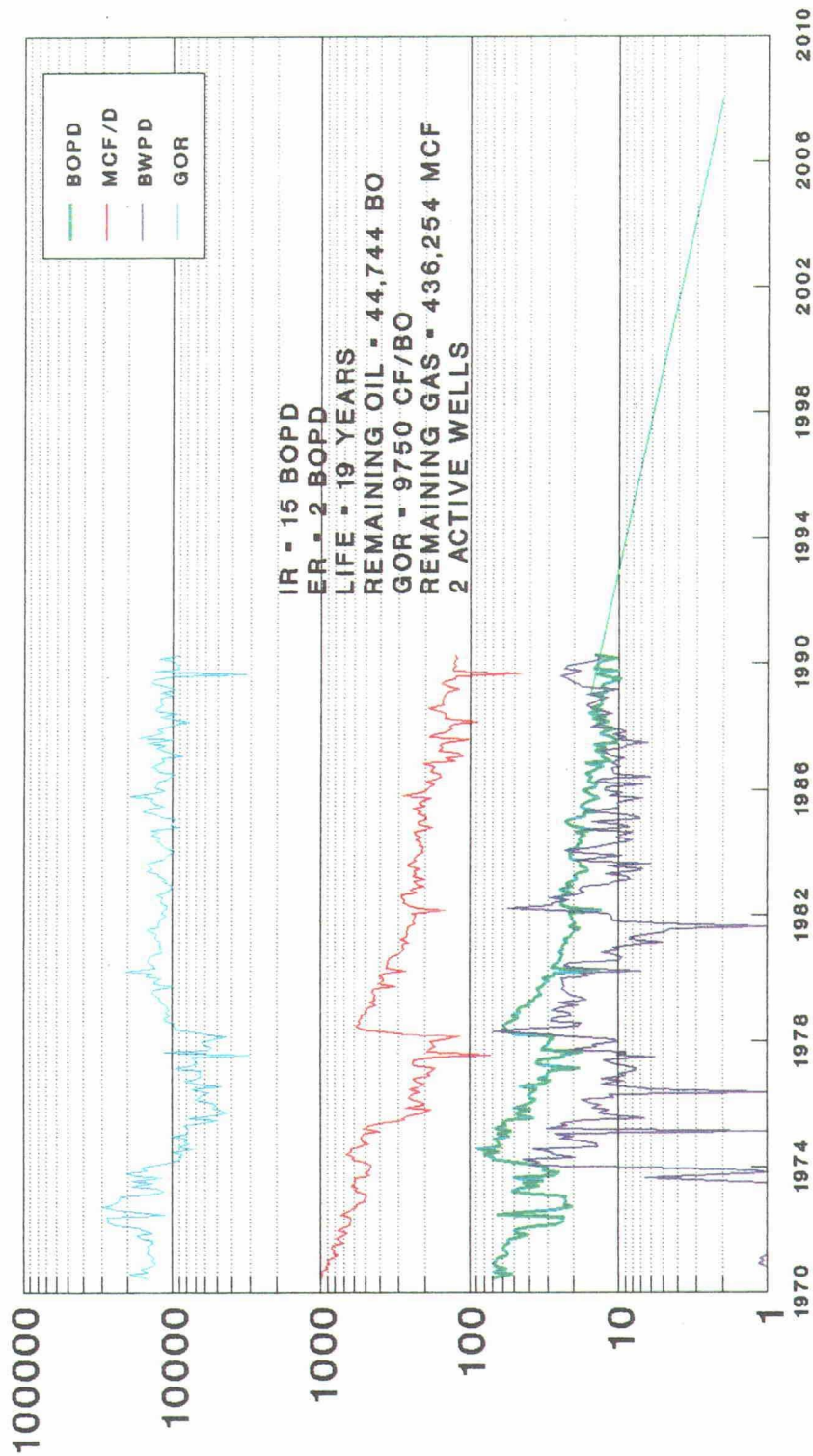


FIGURE 24 H
199

TRACT 22

UNION TEXAS - LANGLEIE B #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

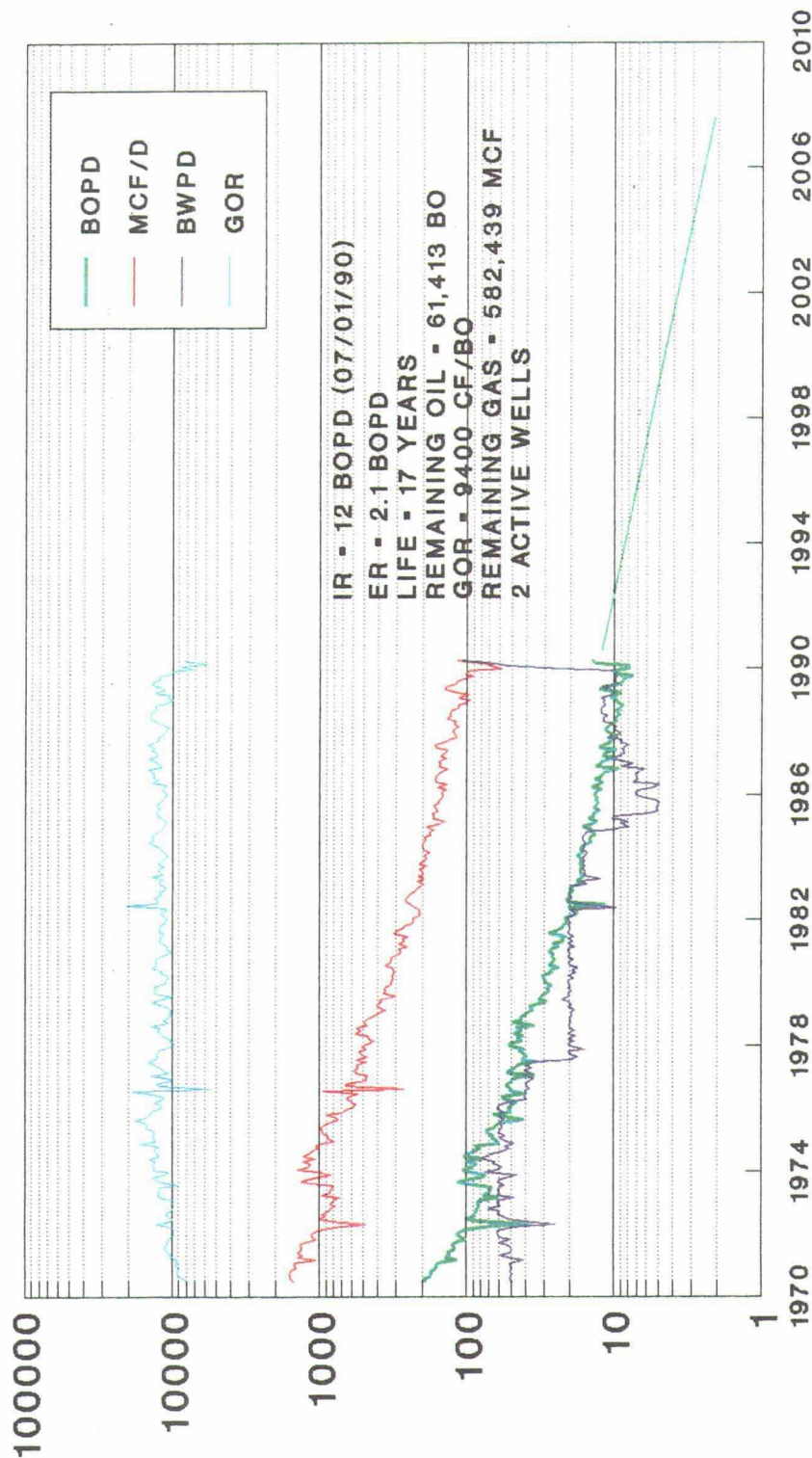


FIGURE 25 H
200

TRACT 23

UNION TEXAS - BLOCKER #4, #5, #6, #7

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

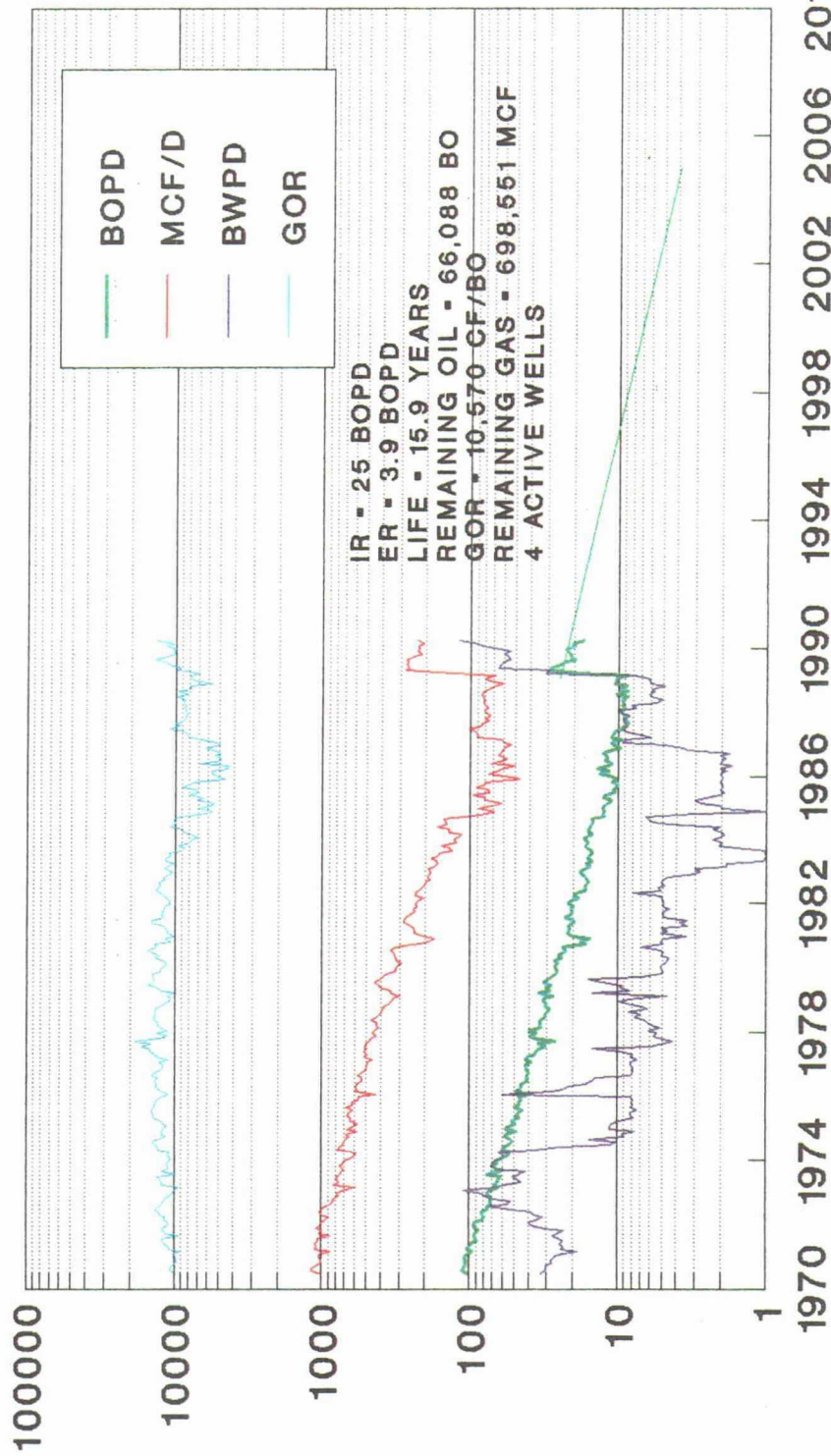


FIGURE 26 H
201

TRACT 24

CHEVRON - L. MCBUFFINGTON LEASE

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

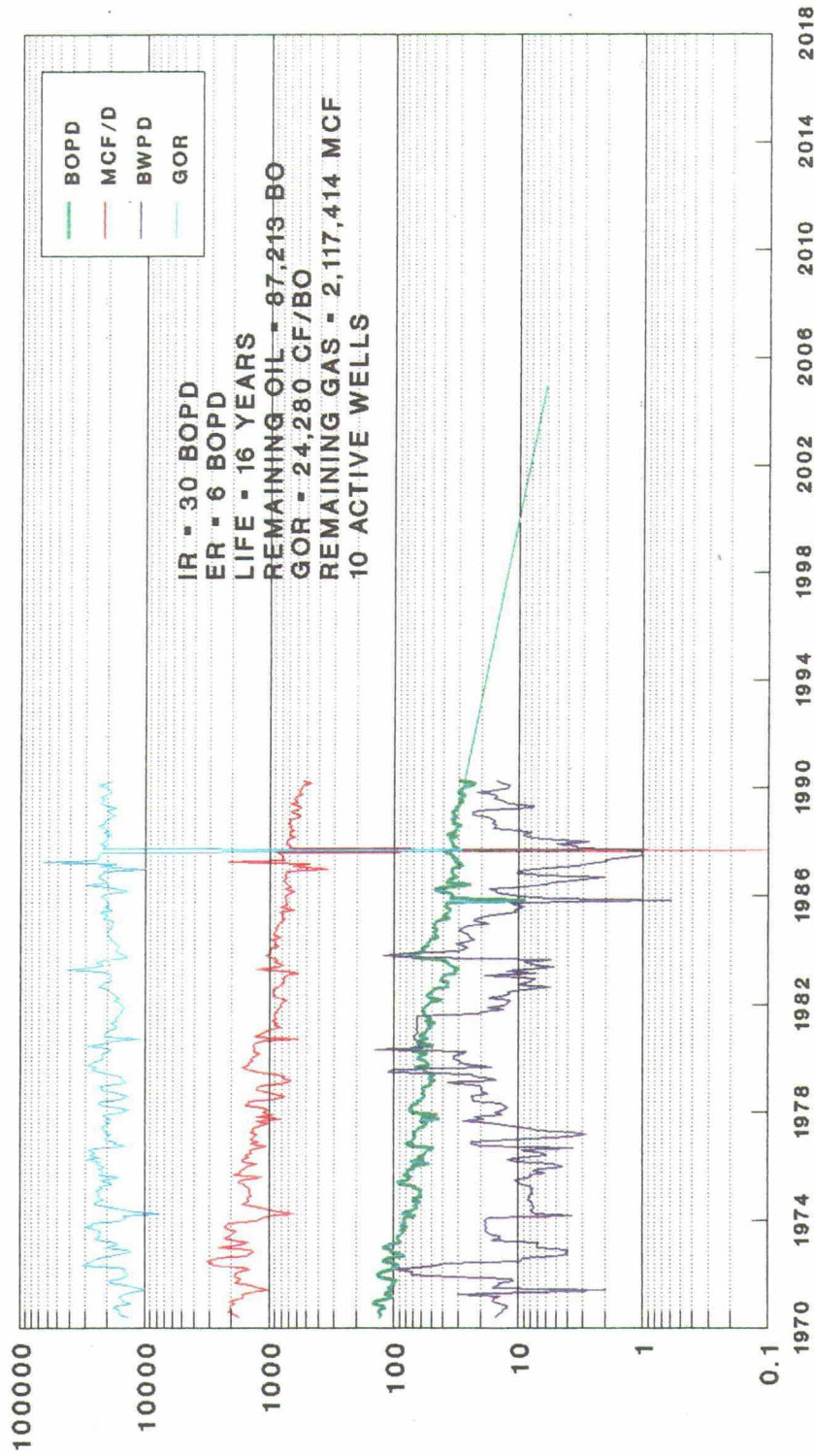


FIGURE 27 H
202

TRACT 25

PACIFIC ENTERPRISES - CARLSON B 13

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

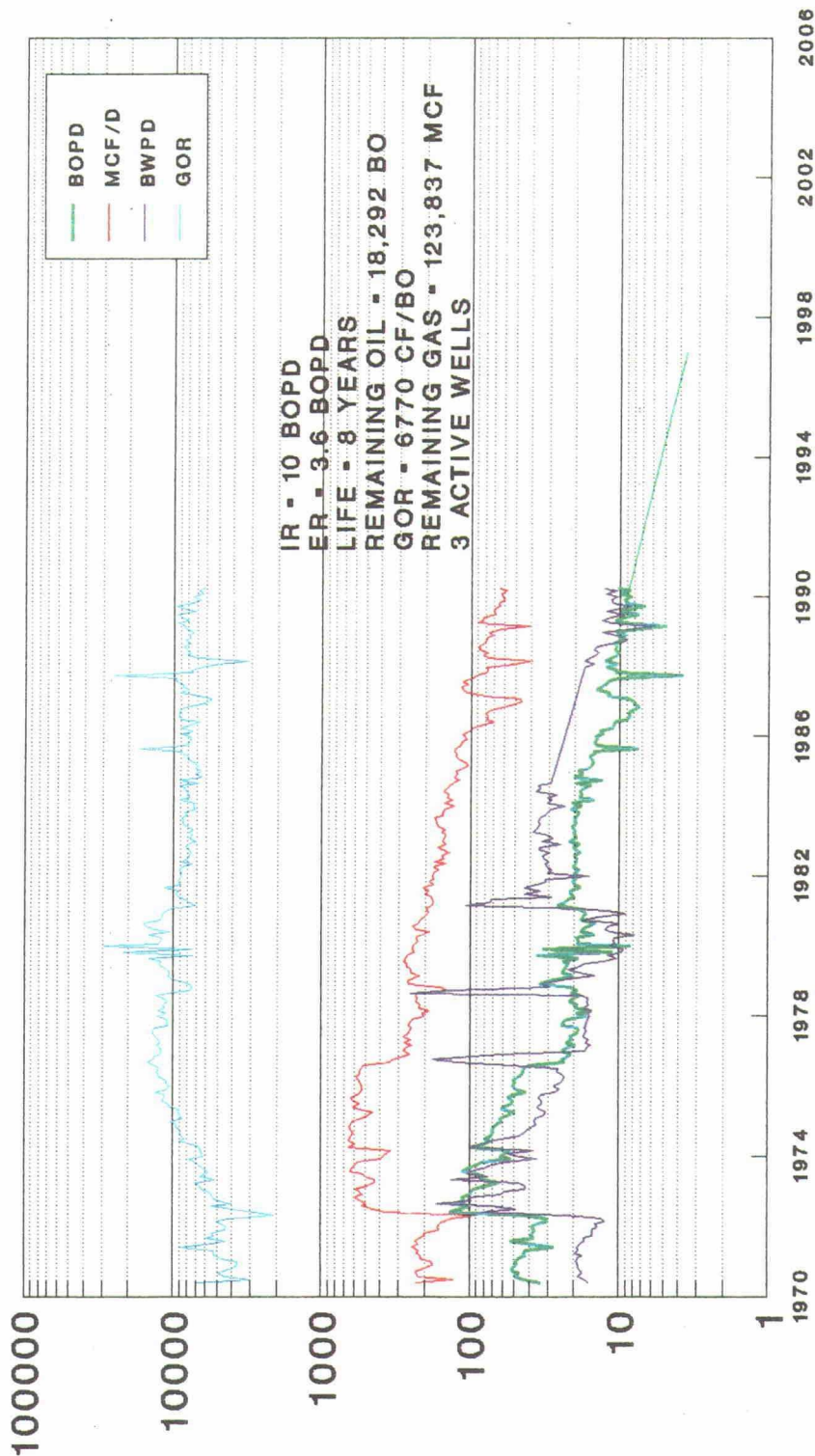


FIGURE 28 H
203

TRACT 26

ARCO - WIMBERLY WN LEASE

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

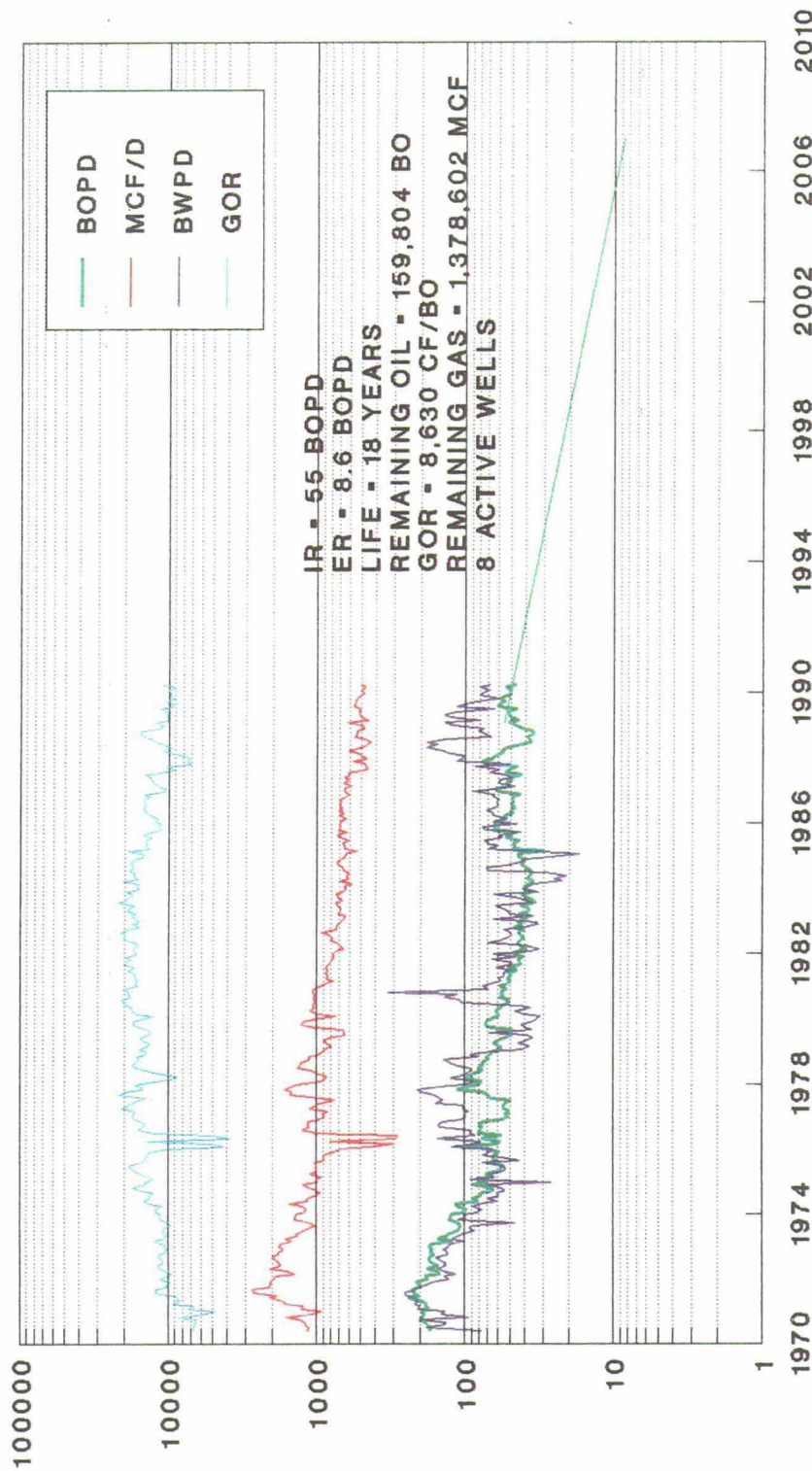


FIGURE 29 H
204

TRACT 27
PACIFIC ENTERPRISES - CARLSON A 23 #1
JUSTIS BLINEBRY FIELD

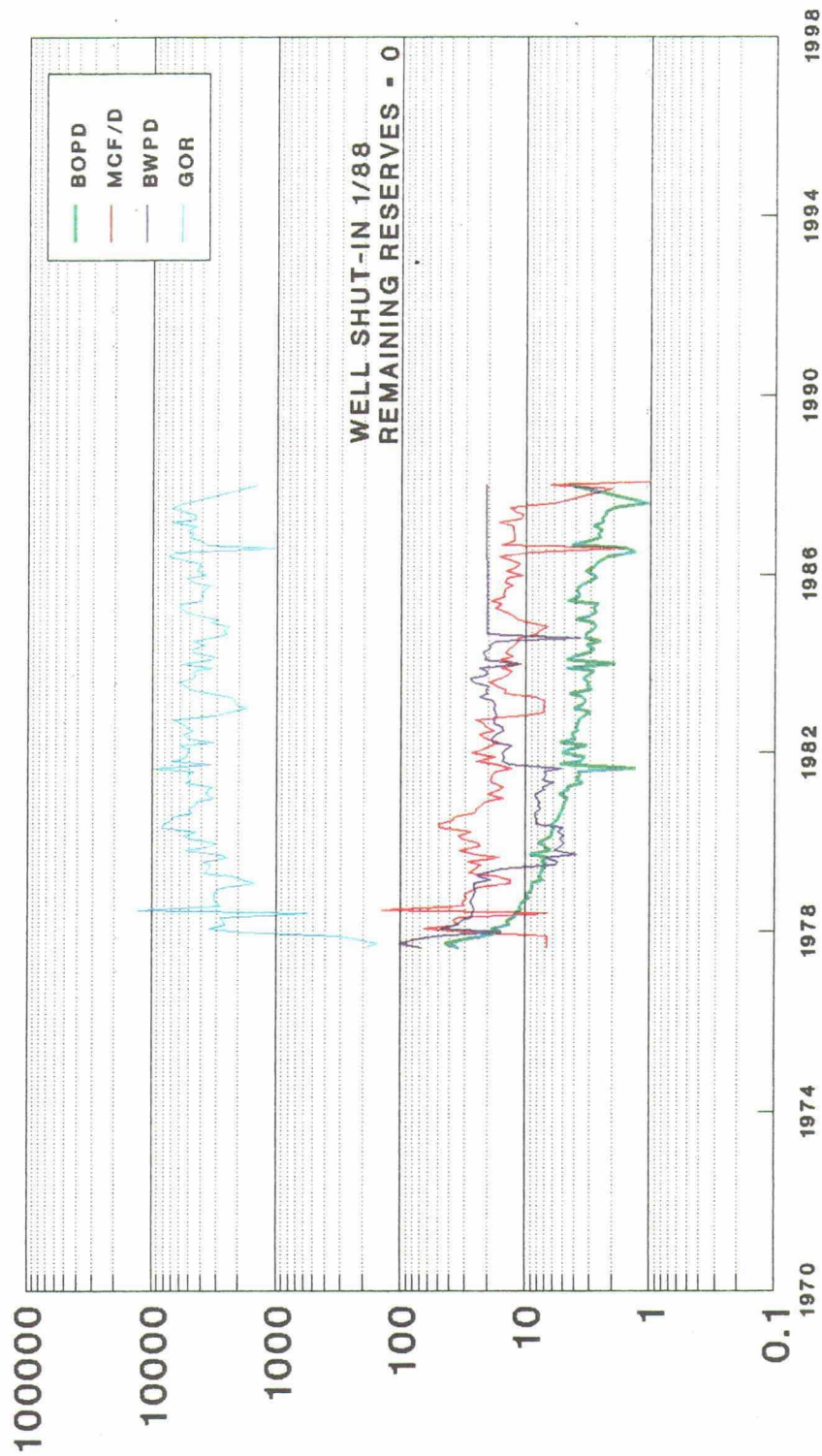


FIGURE 30 H
205

TRACT 28

TEXACO - LAS CRUCES C #1

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

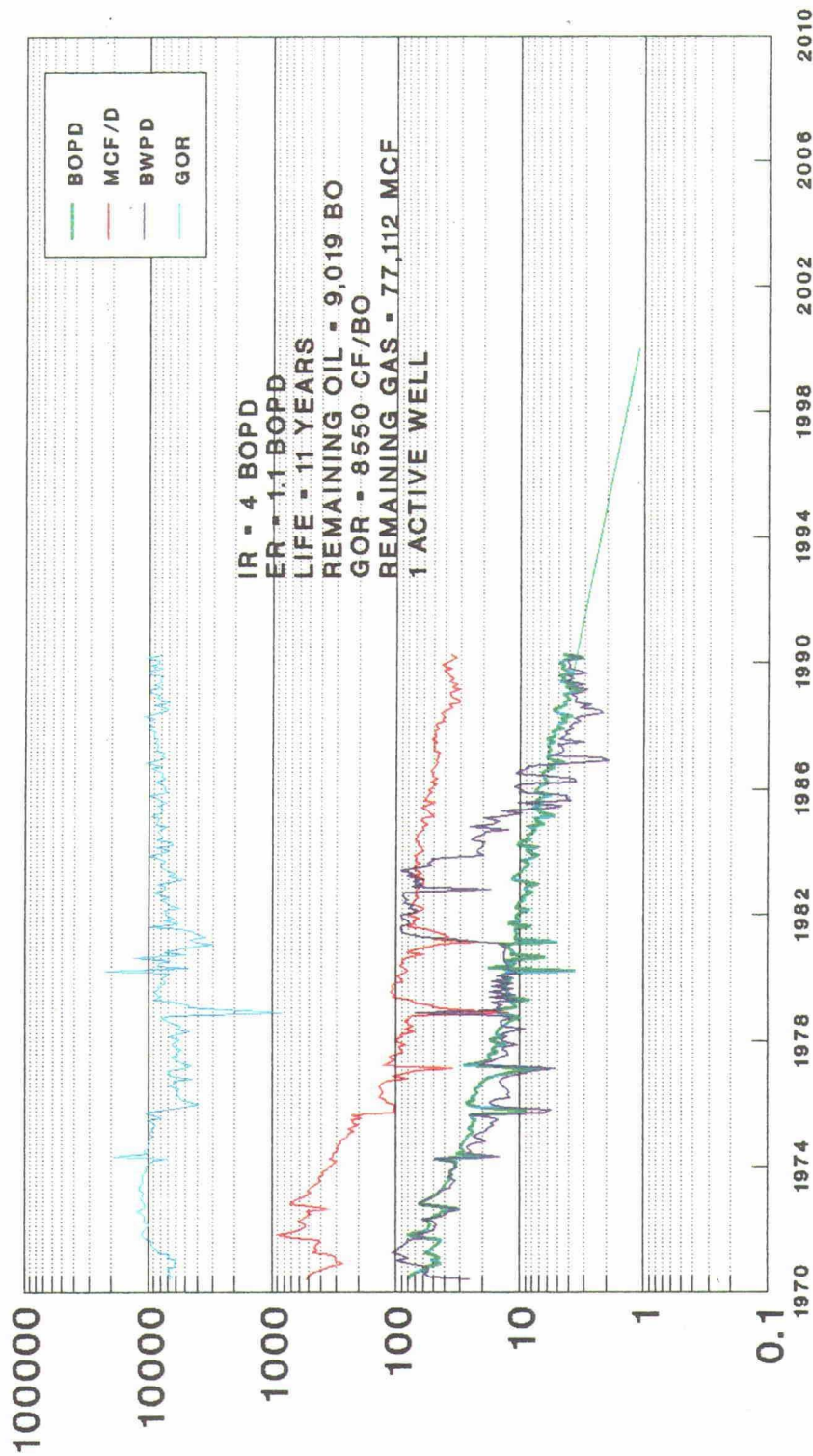


FIGURE 31 H
206

TRACT 29

ARCO - WIMBERLY JH #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

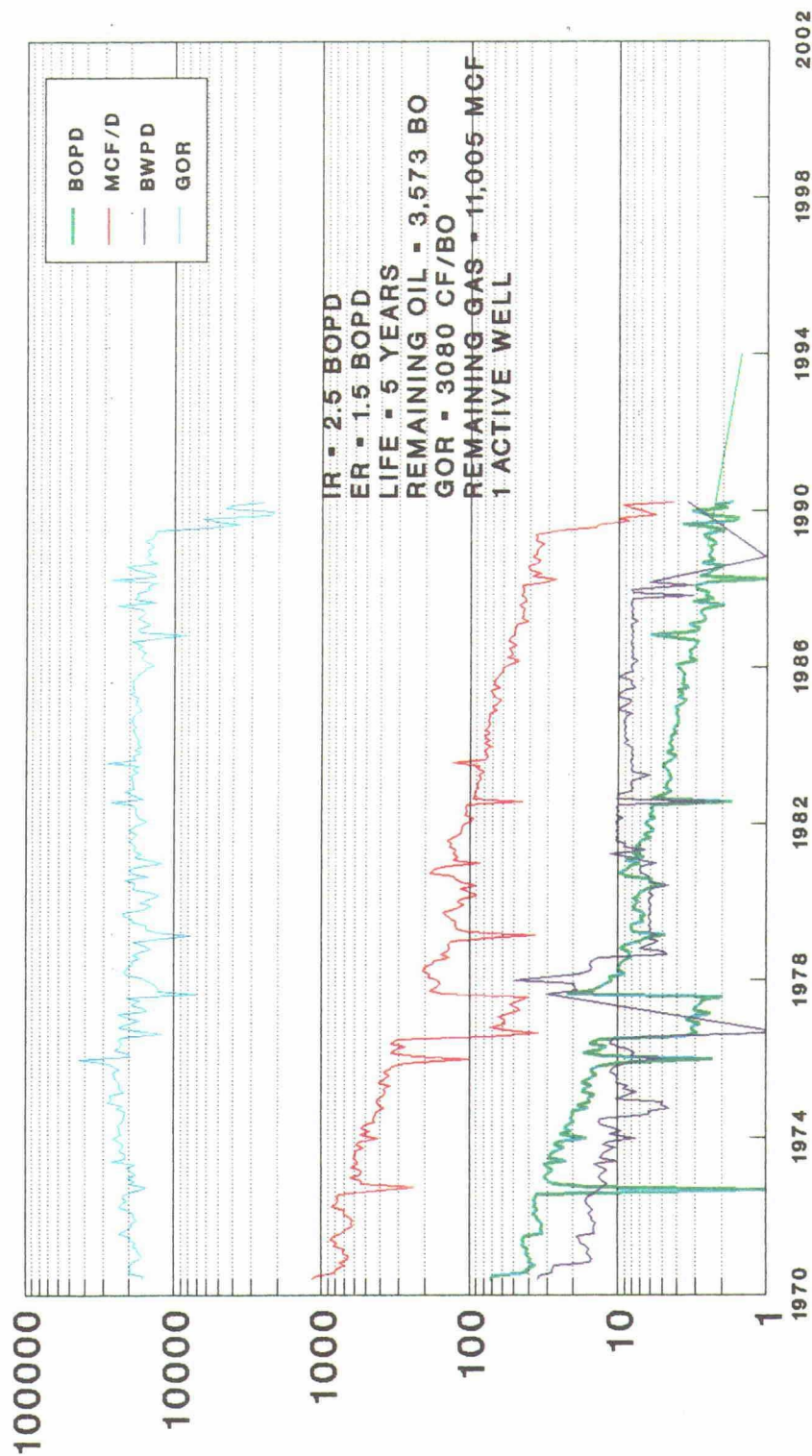


FIGURE 32 H
207

TRACT 30

ARCO - WIMBERLY JH #3

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

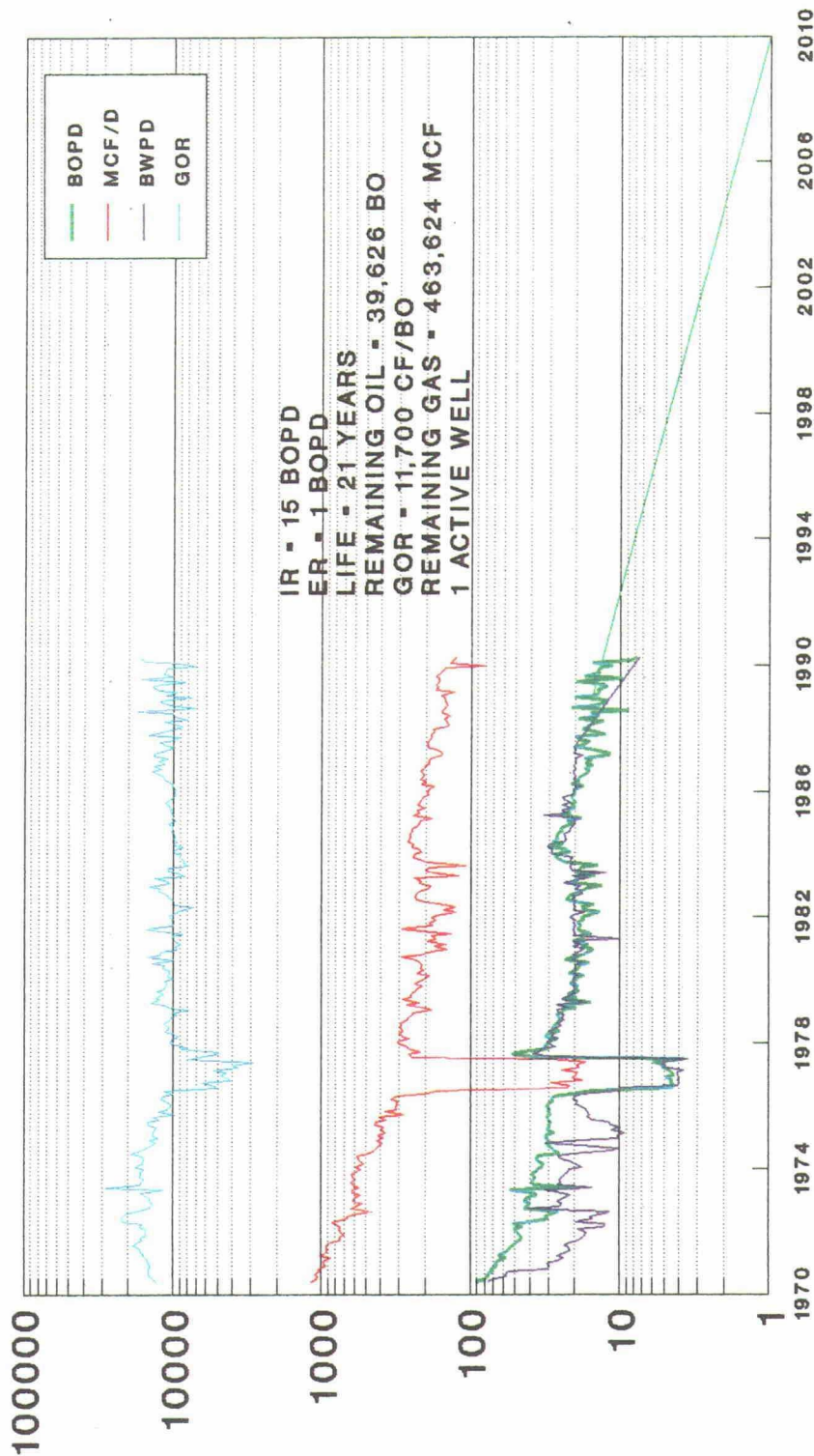


FIGURE 33 H
208

TRACT 31

ARCO - CARLSON A FEDERAL #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

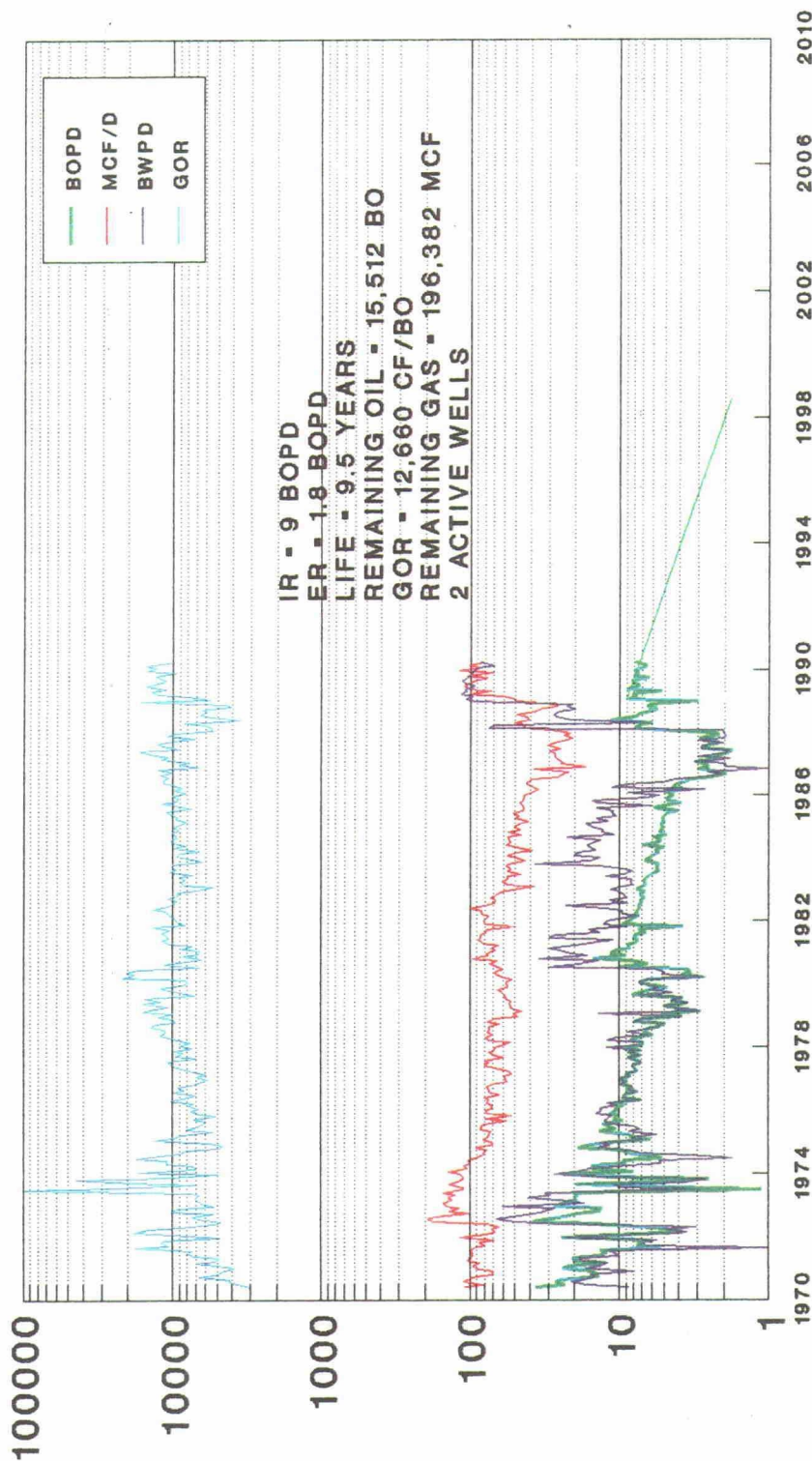


FIGURE 34 H
209

TRACT 32

AMERICAN EXPL CO - EL PASO FEDERAL #1

JUSTIS BLINEBRY FIELD

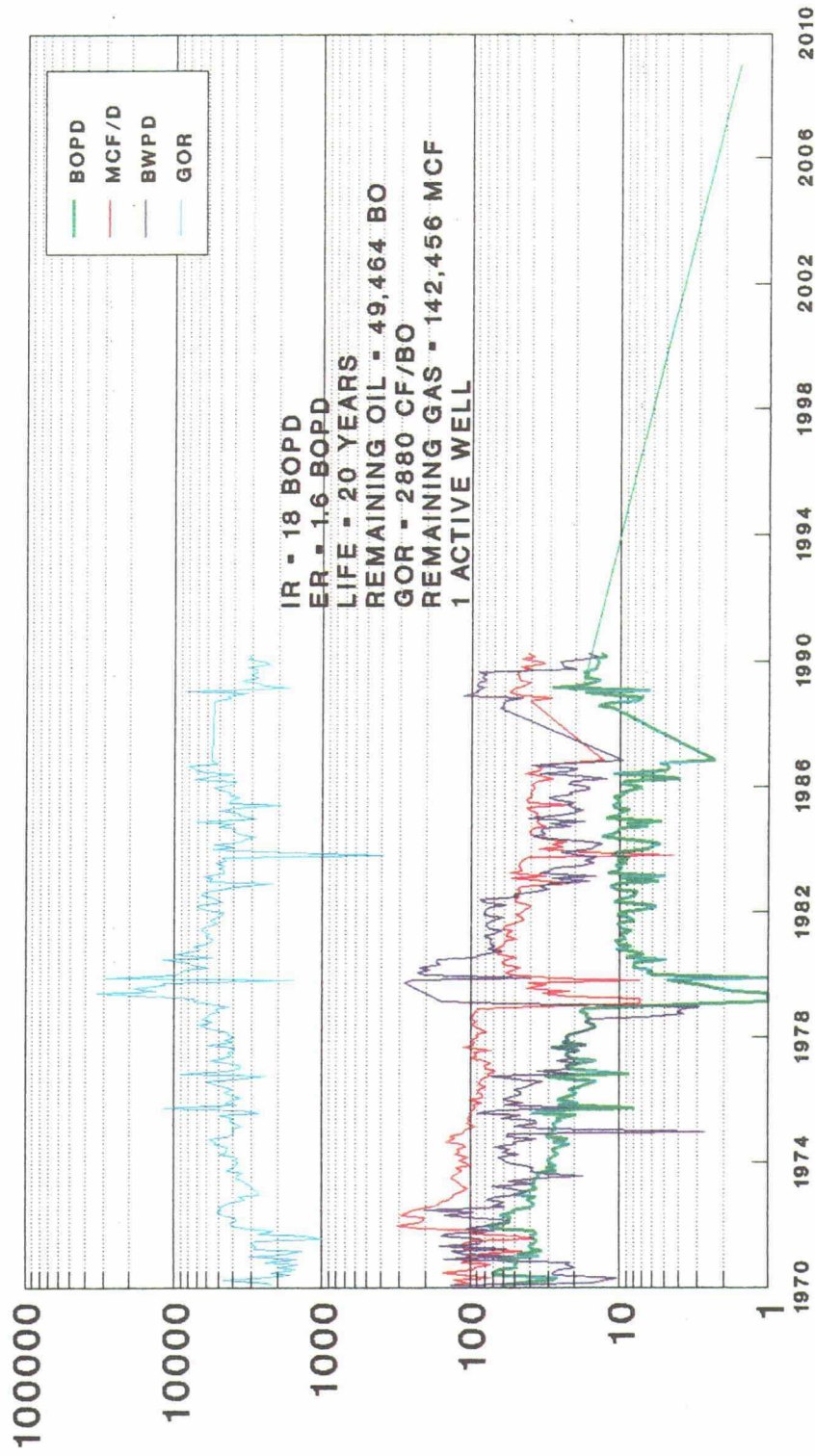


FIGURE 35 H
210

TRACT 33

UNION TEXAS - CARLSON B #1 & #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

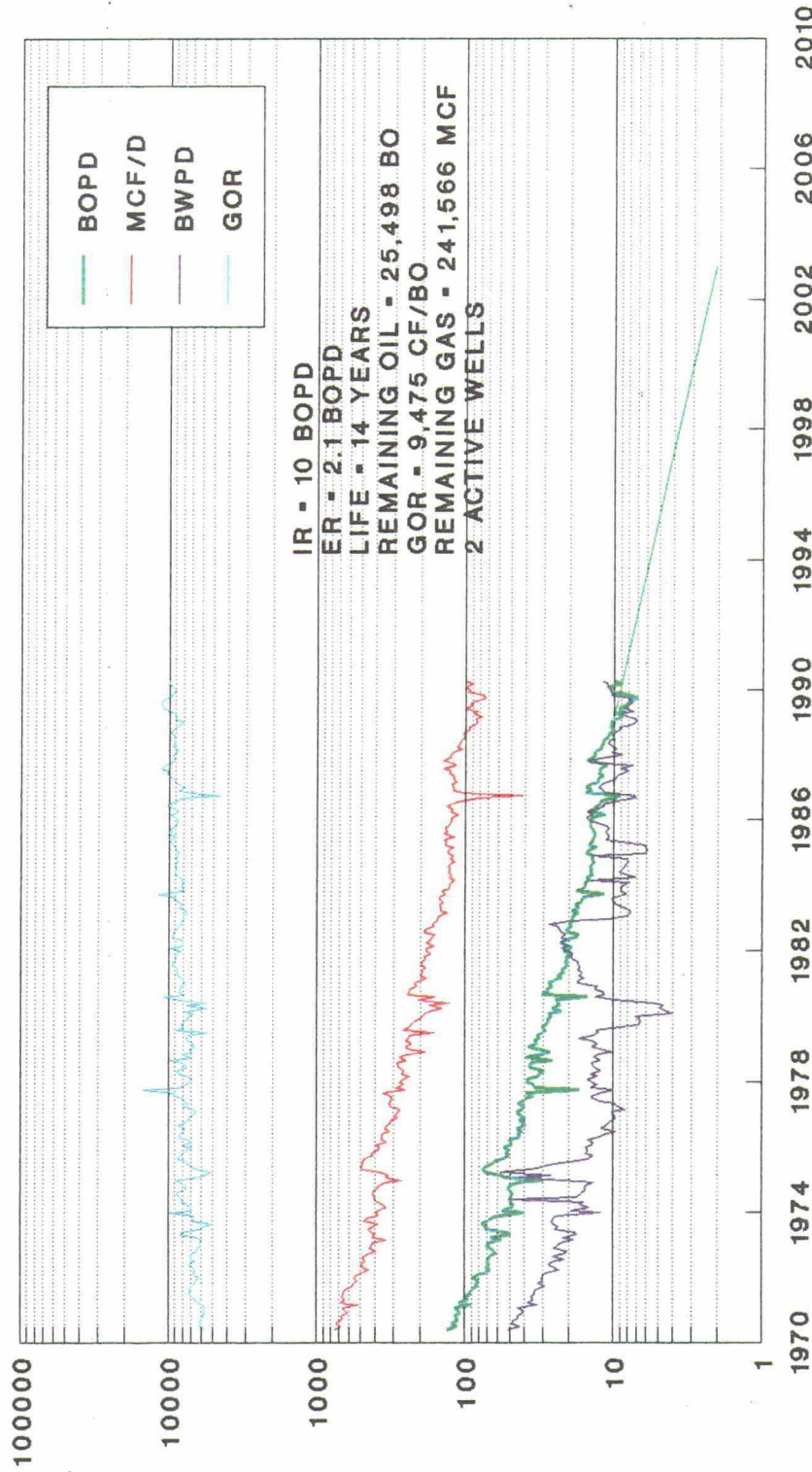


FIGURE 36 H
211

TRACT 34

AMERADA HESS CORP - IDA WIMBERLEY LEASE

JUSTIS BLINEBRY AND TUBB DRINKDARD

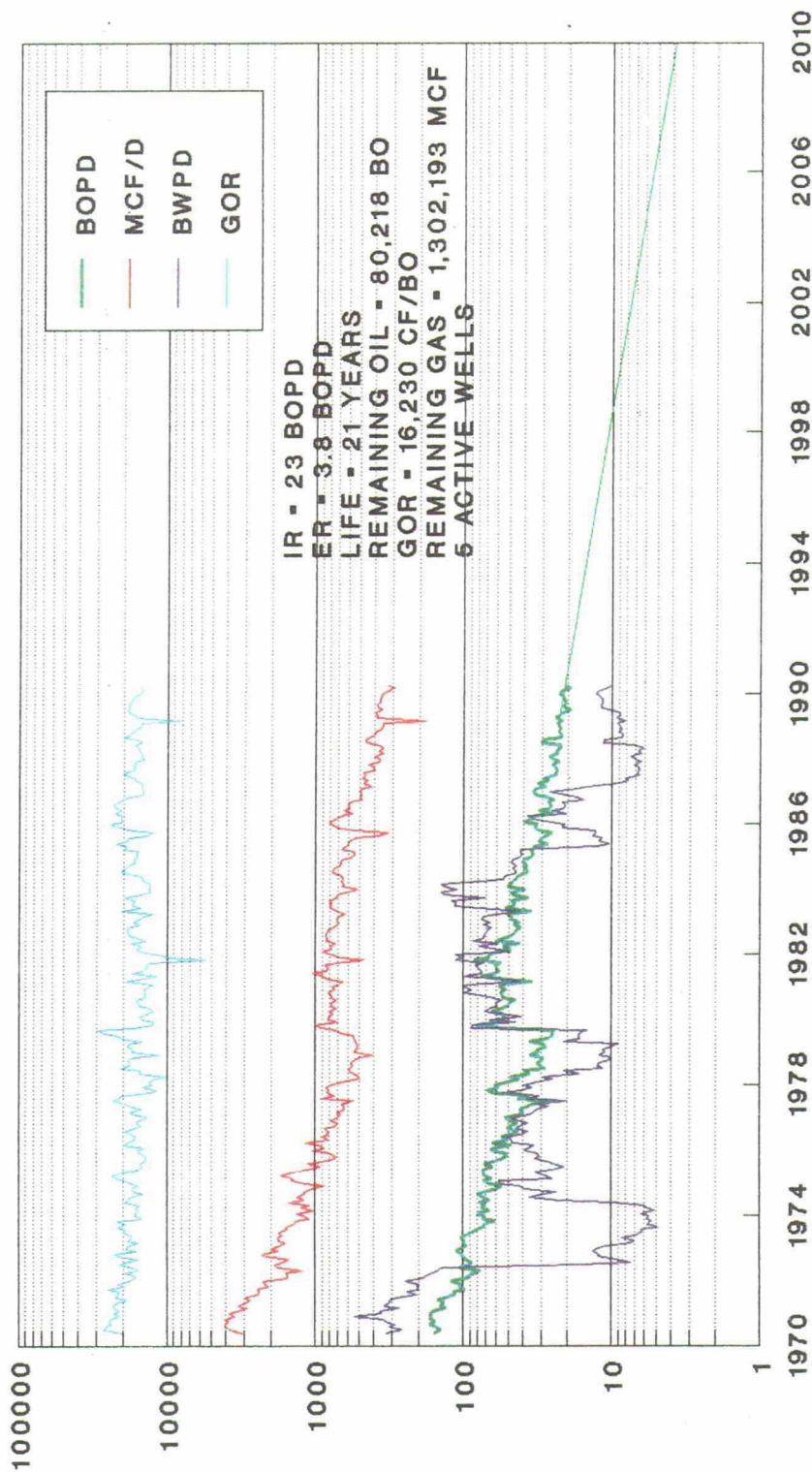


FIGURE 37 H
212

TRACT 35

TEXACO PRODUCING INC - A. B. COATES C

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

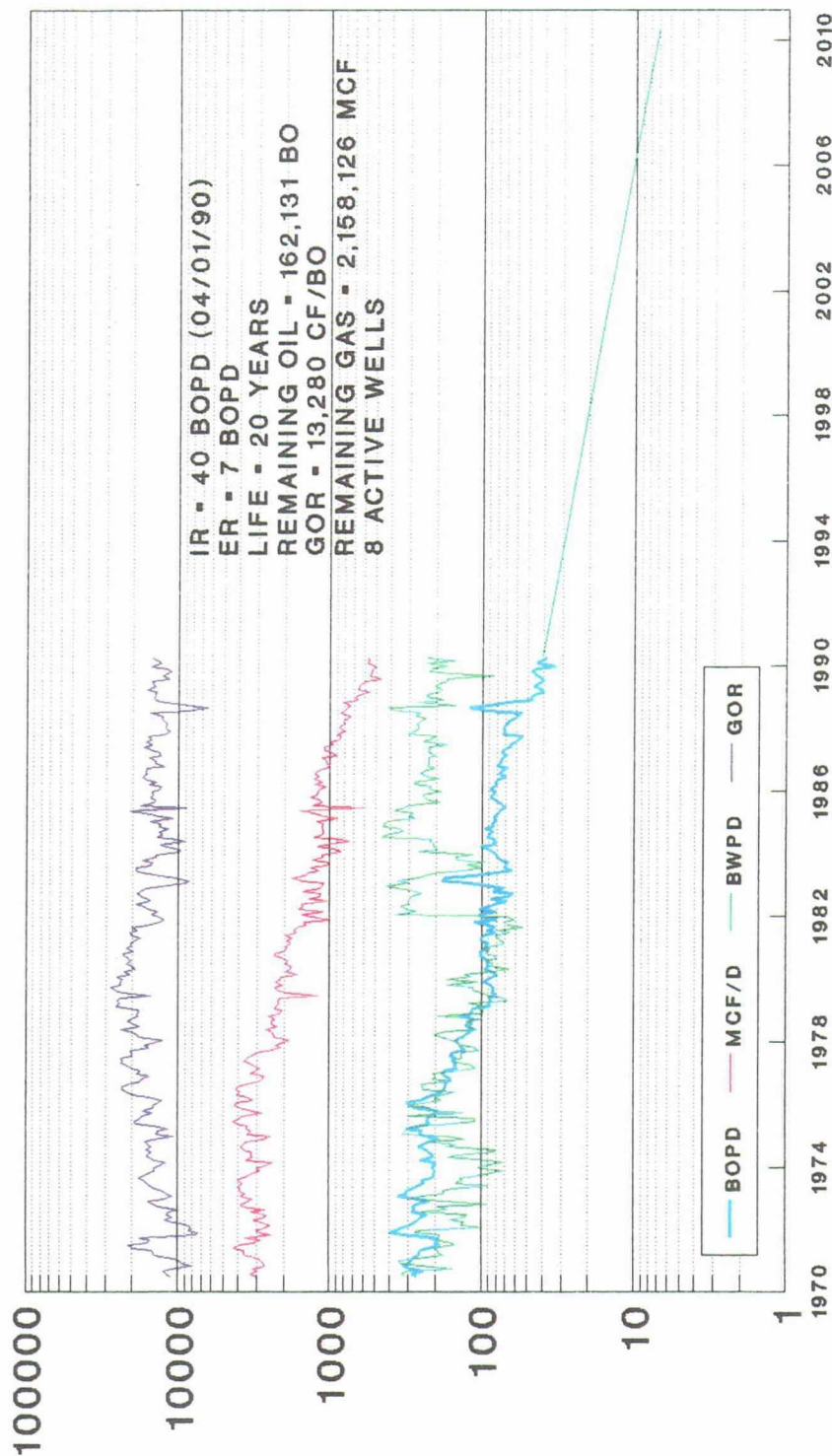


FIGURE 38 H
213

TRACT 36

TEXACO - A. B. COATES D #2, #3

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

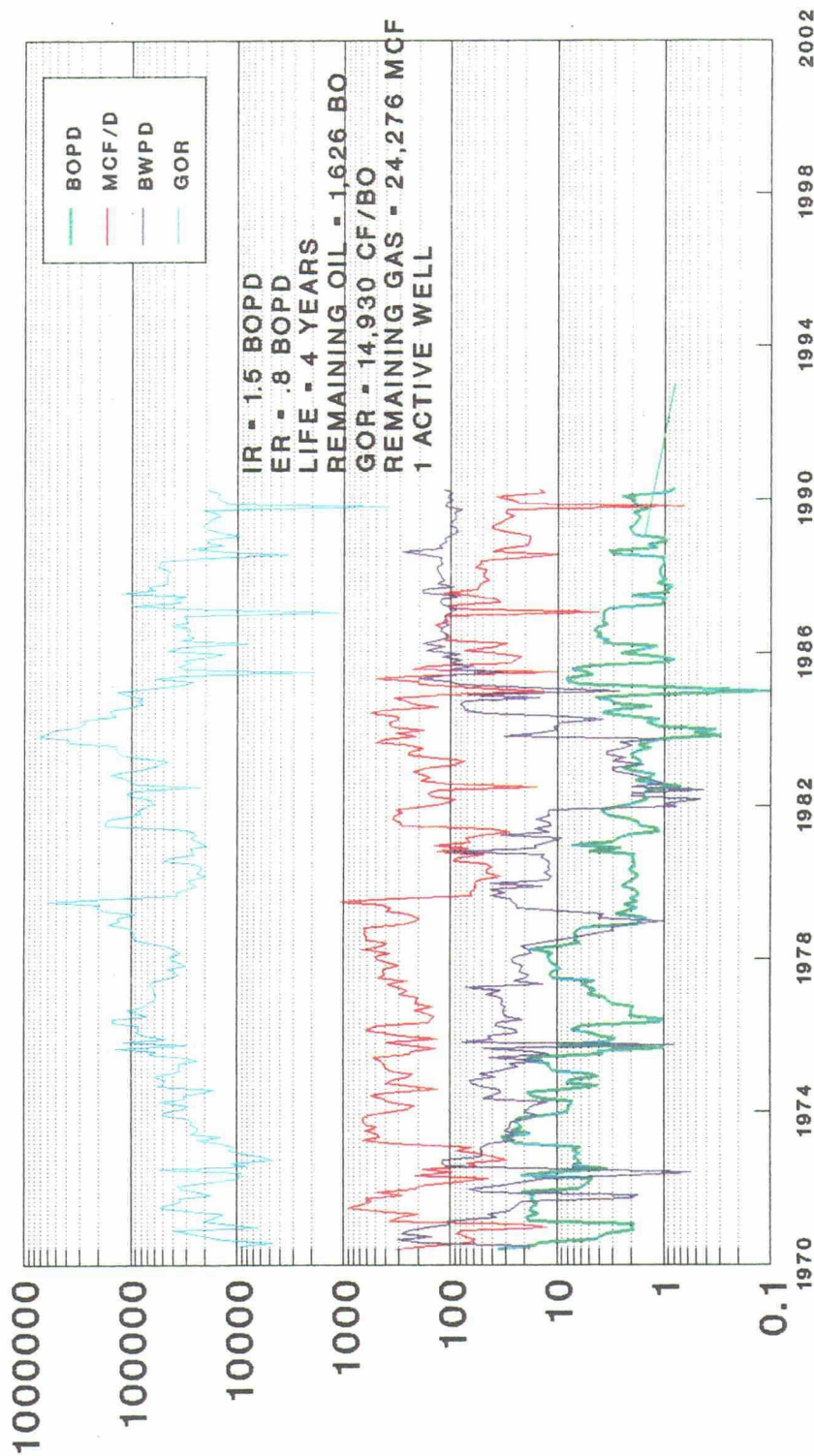


FIGURE 39 H
214

TRACT 37

TEXACO - C. E. PENNY FEDERAL NCT 4

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

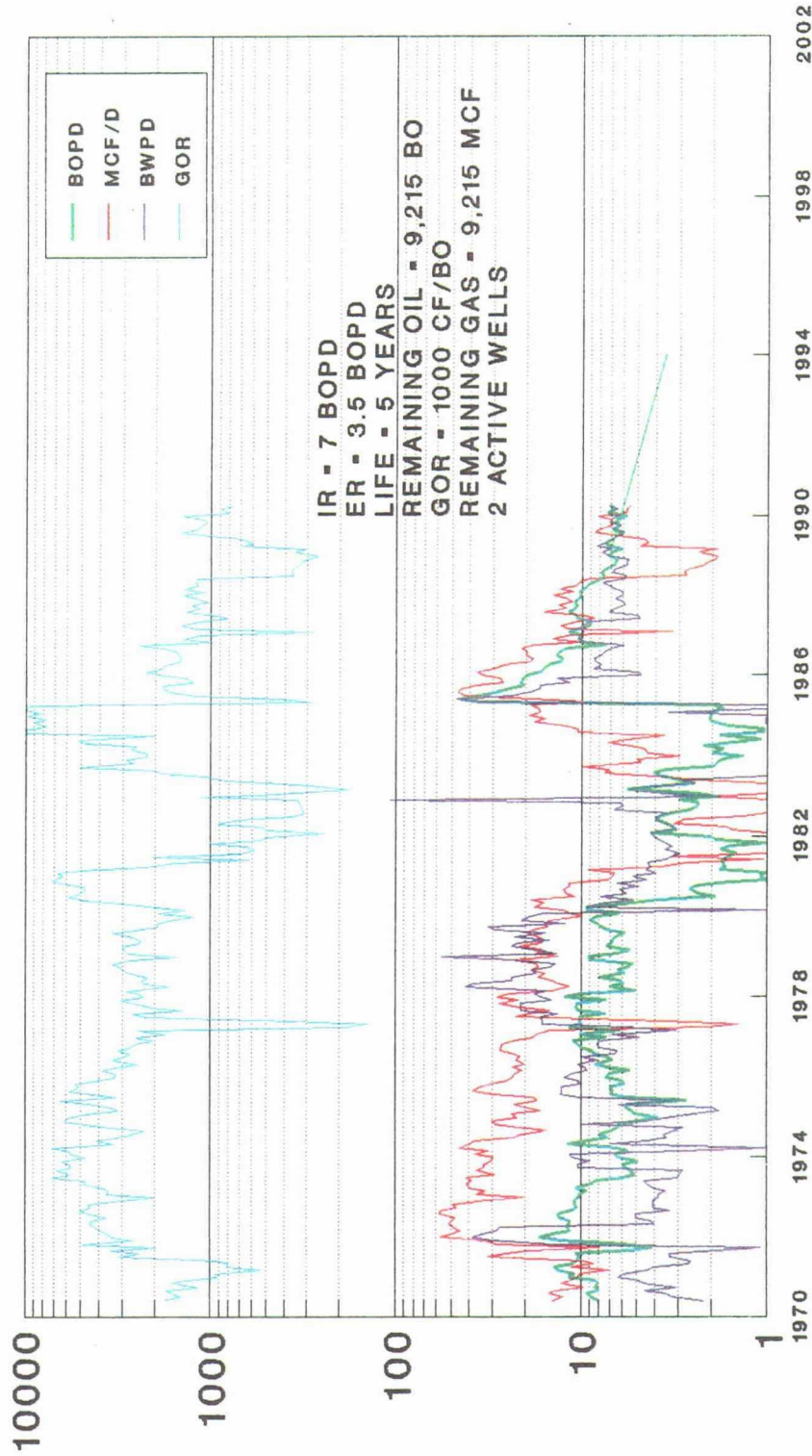


FIGURE 40 H
215

TRACT 38A

UNION TEXAS - BUFFINGTON B #3, #4

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

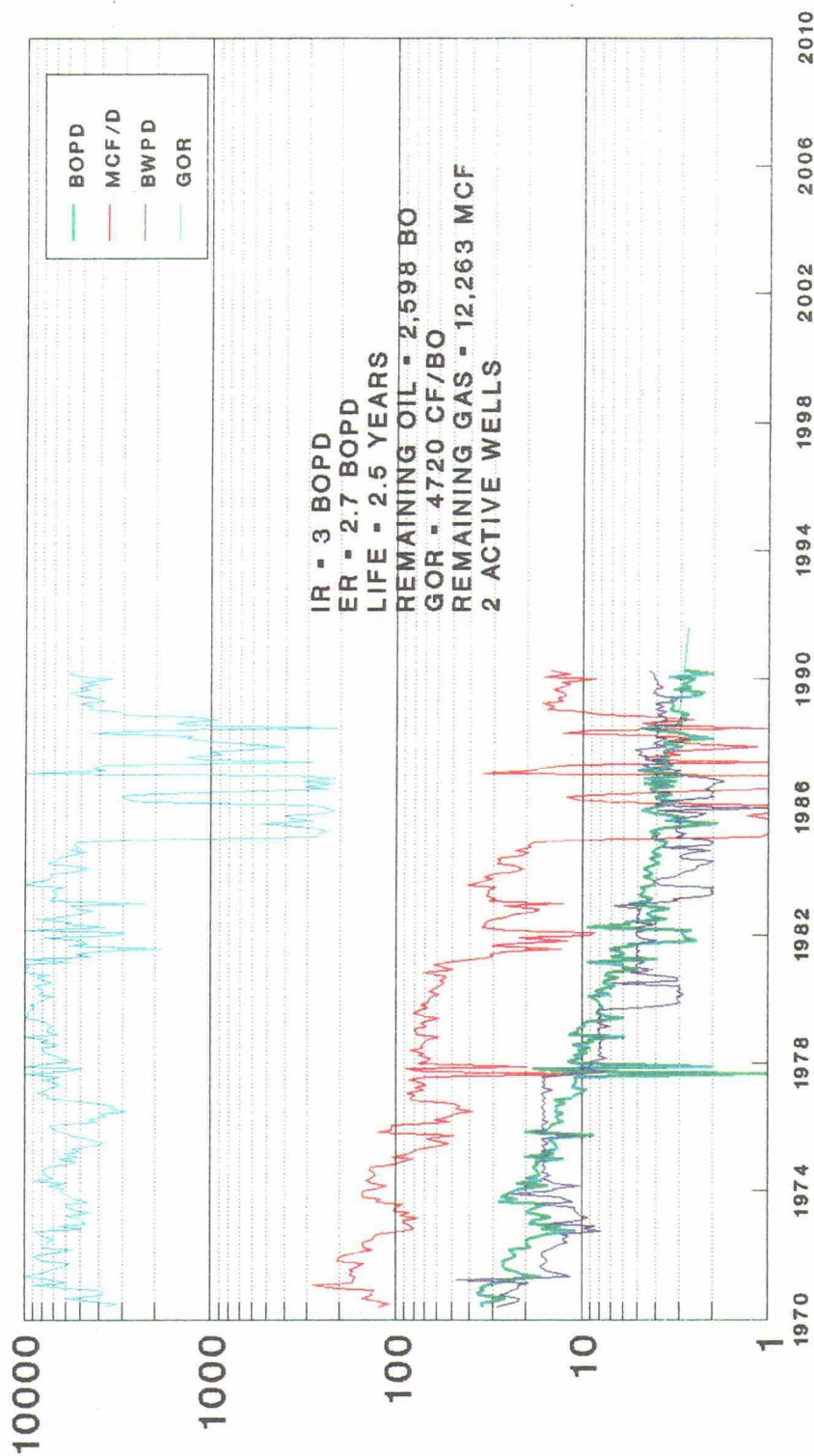


FIGURE 41 H
216

TRACT 38B

TEXACO - L. M. BUFFINGTON B #2

JUSTIS TUBB DRINKARD FIELD

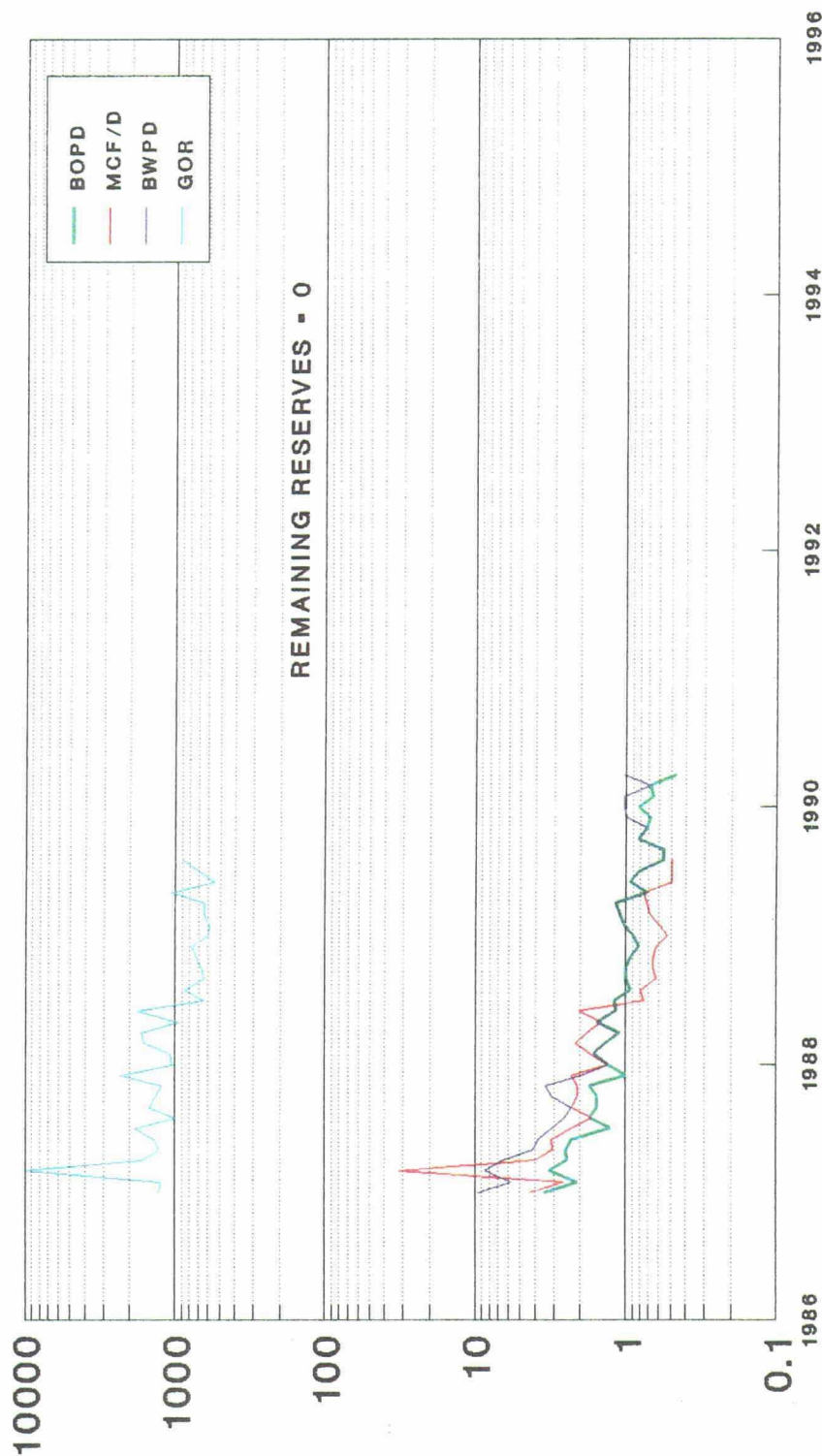


FIGURE 42 H
217

TRACT 39

ARCO - CARLSON JH FEDERAL #1 & #2

JUSTIS BLINEBRY FIELD

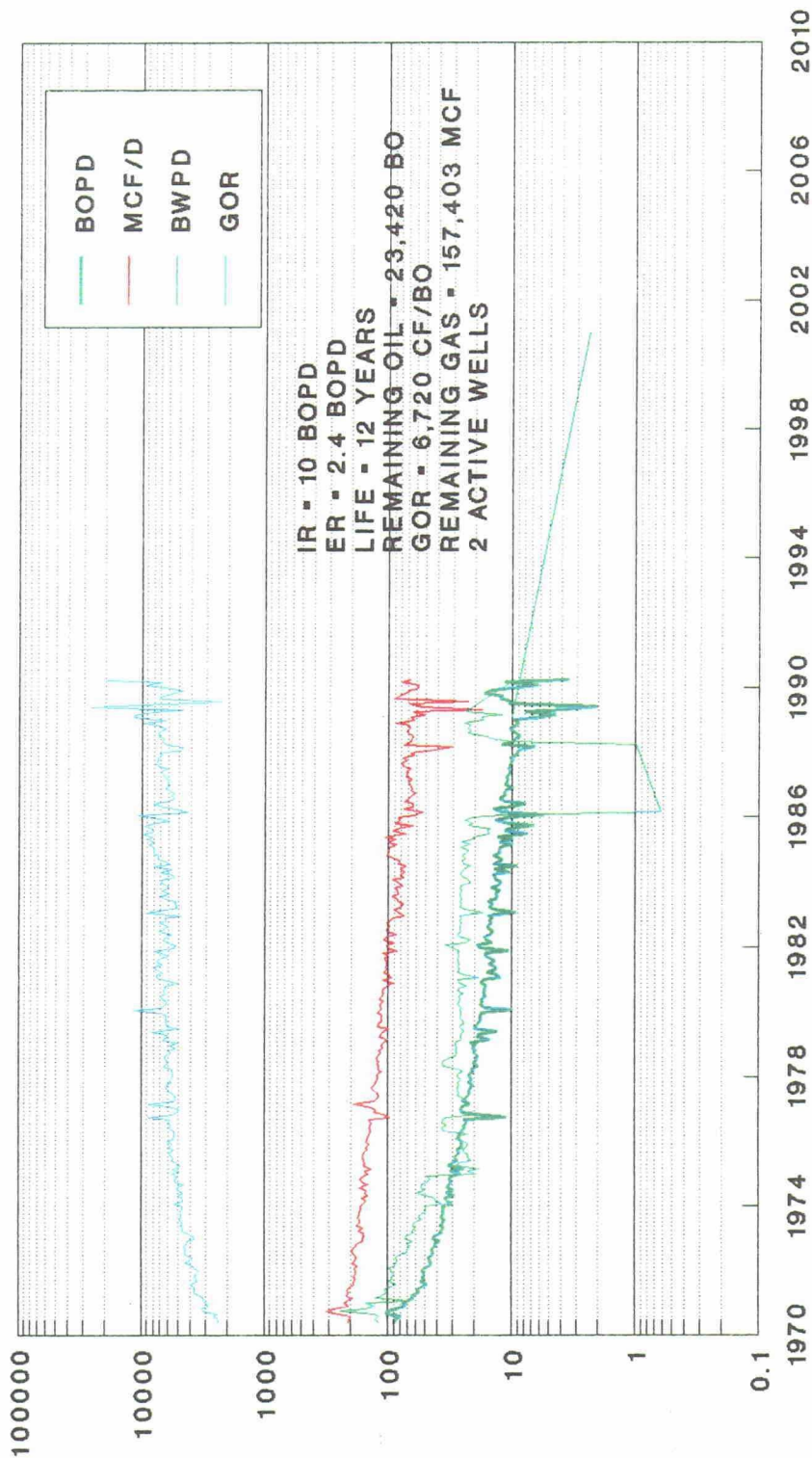


FIGURE 43 H
218

TRACT 40

EARL R. BRUNO - CARLSON B 26 LEASE

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

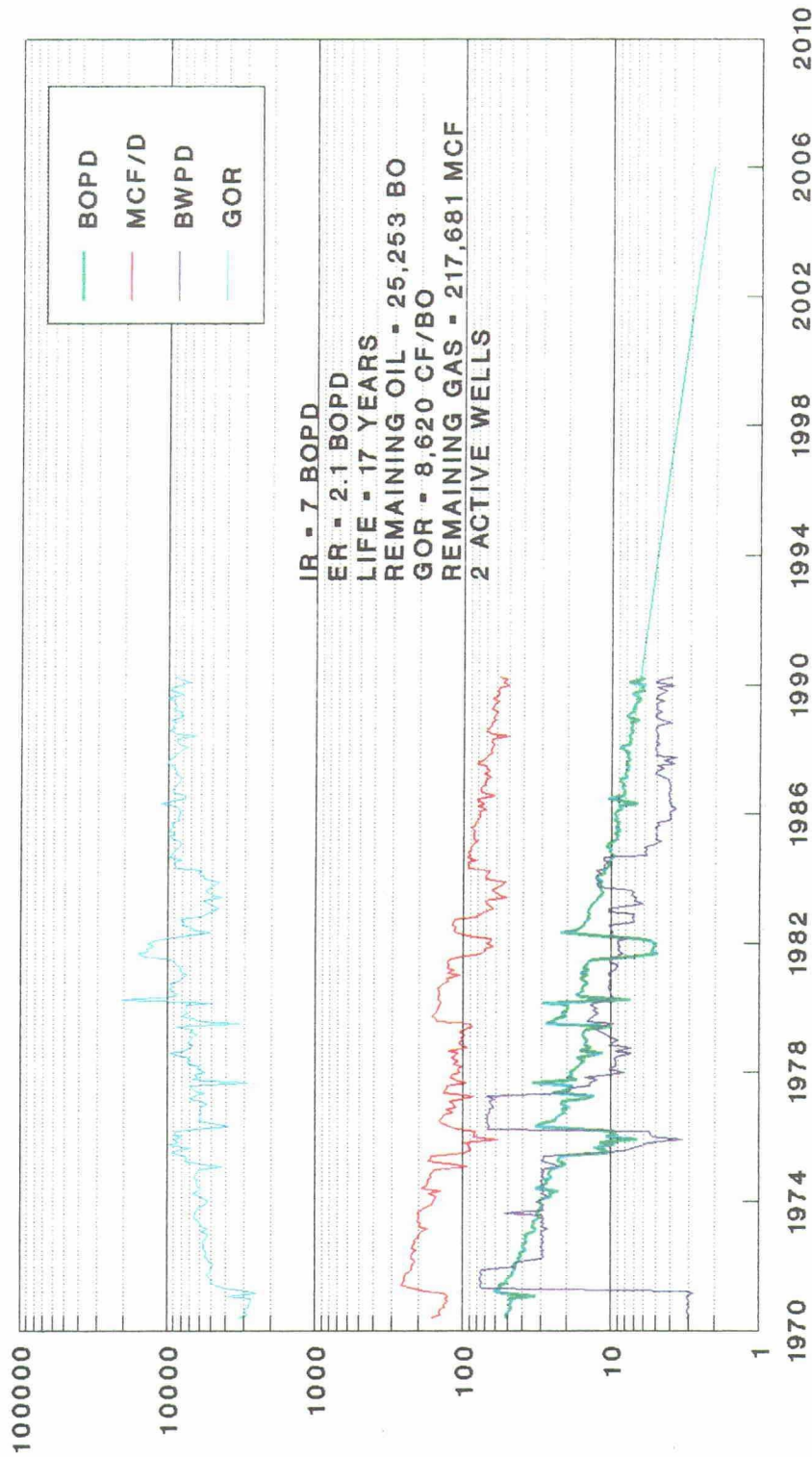


FIGURE 44 H
219

TRACT 41

ARCO - CARLSON FEDERAL #1, #2

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

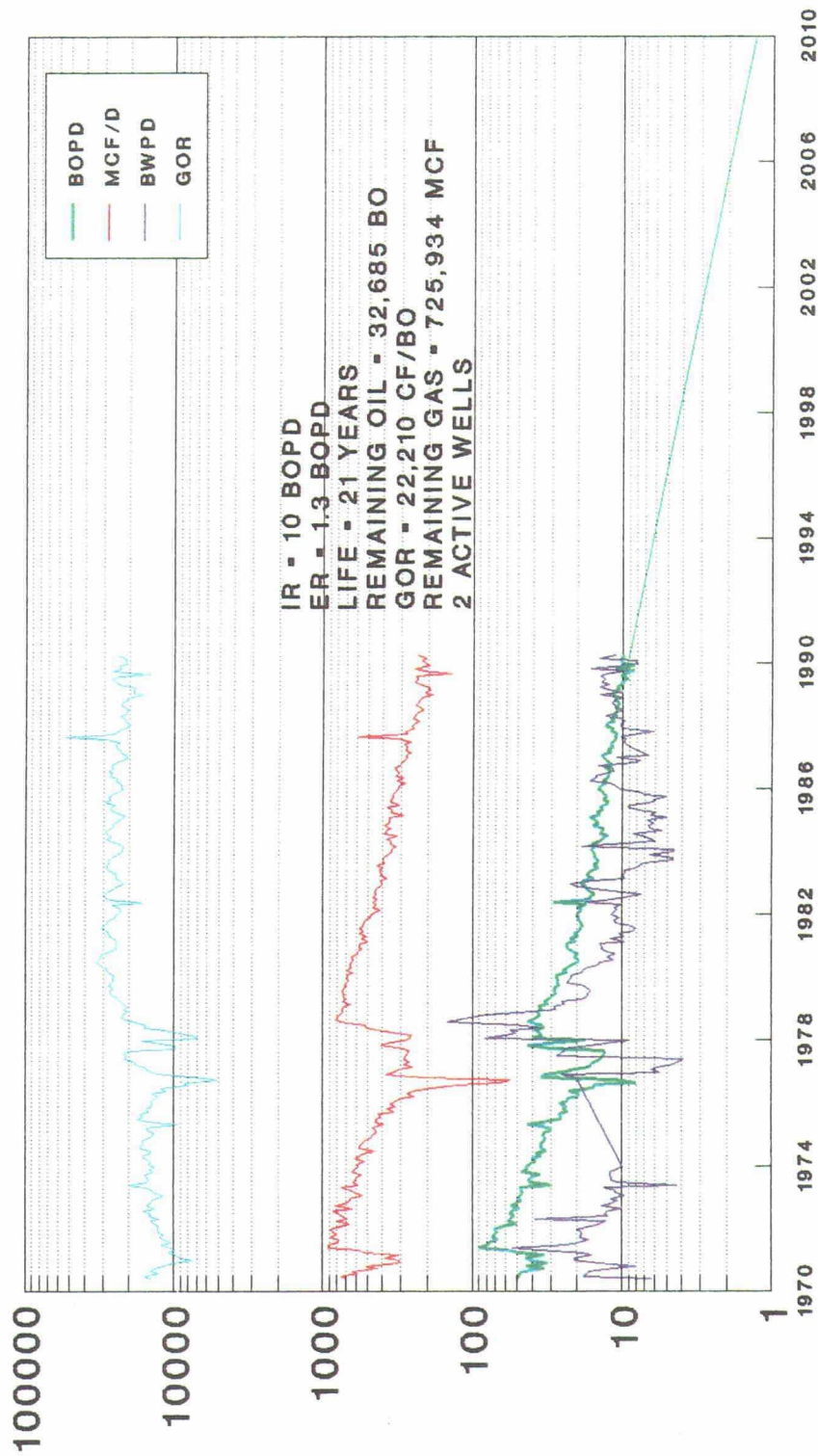


FIGURE 45 H
220

TRACT 42

UNION TEXAS - CARLSON A LEASE

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

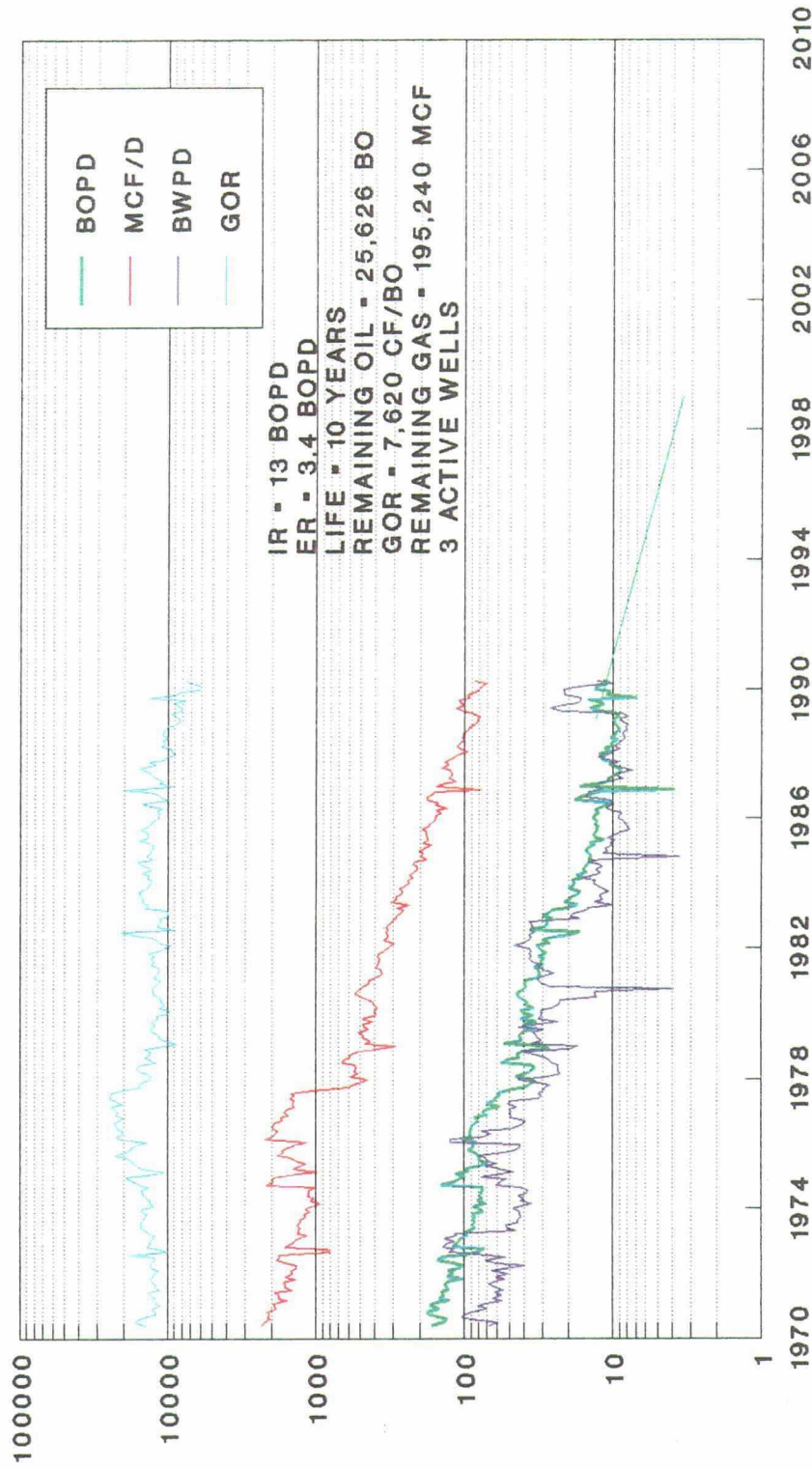


FIGURE 46 H
221

TRACT 43

ARCO OIL AND GAS CO - STATE Y

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

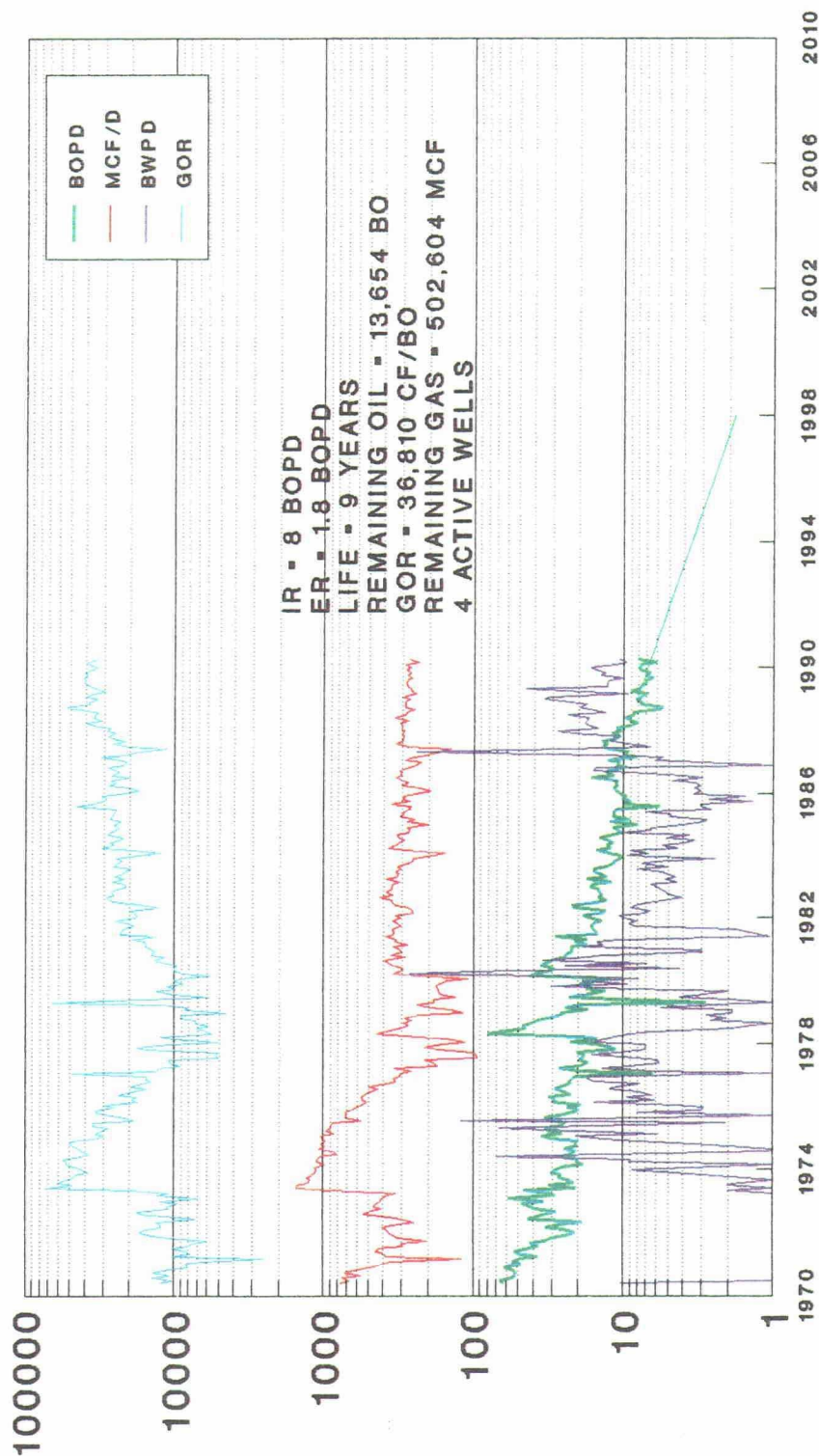


FIGURE 47 H
 222

TRACT 44 EARL R. BRUNO - CARLSON B 25 JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

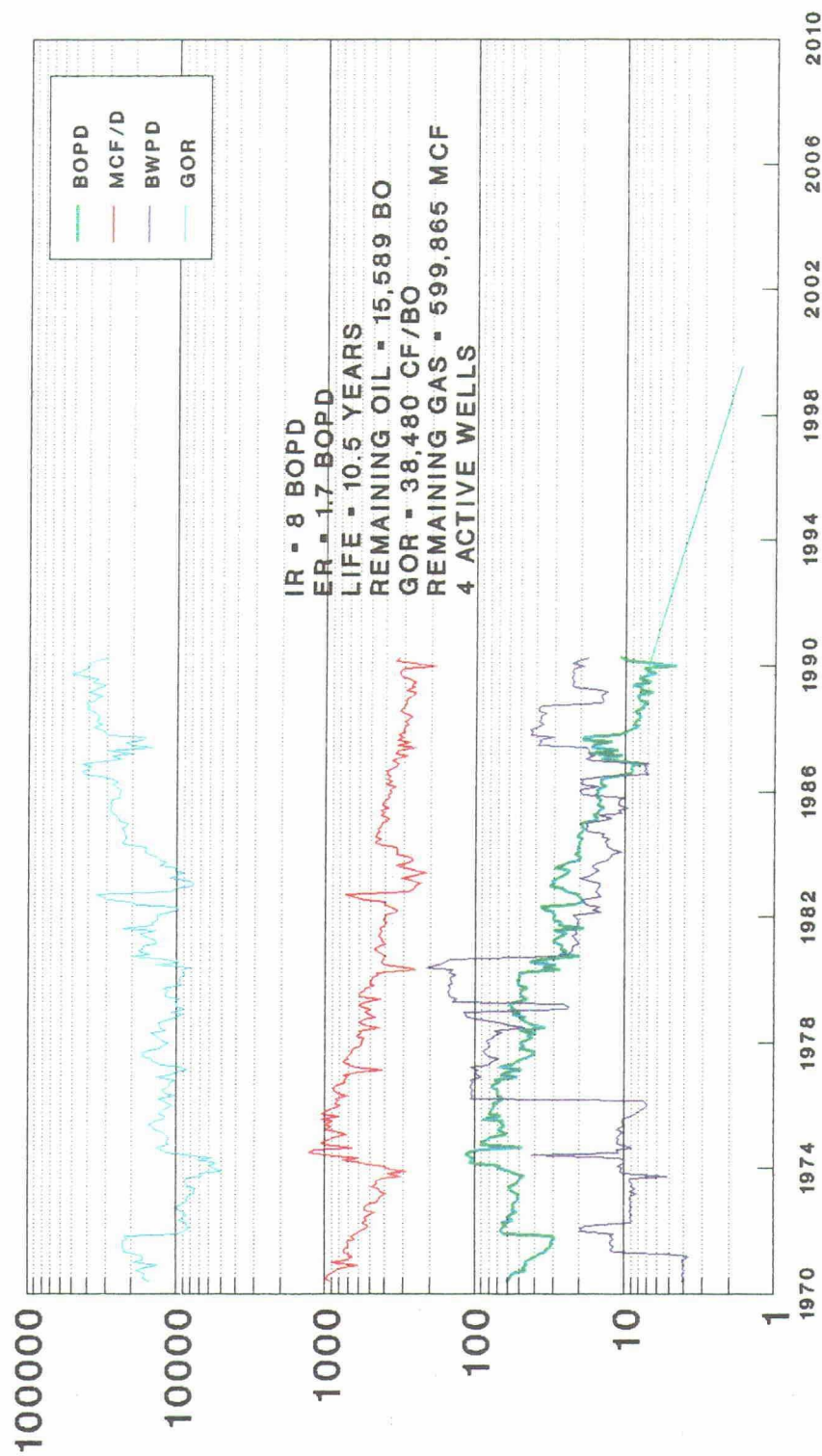


FIGURE 48 H

223

TRACT 45

TEXACO - HOBBS A #6, #7

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

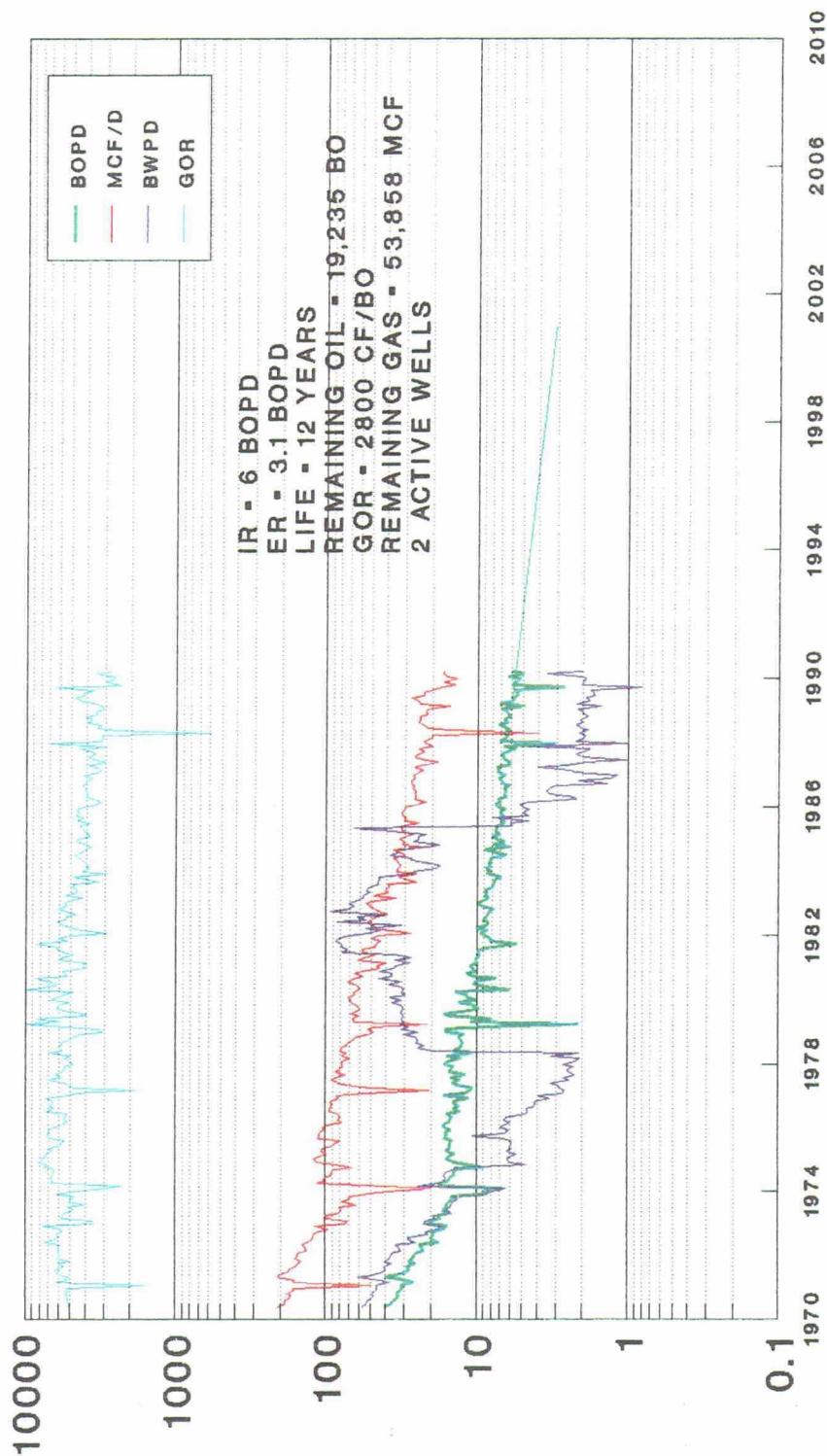


FIGURE 49 H
224

TRACT 46

AMOCO - STATE AJ #5, #6

JUSTIS BLINEBRY FIELD

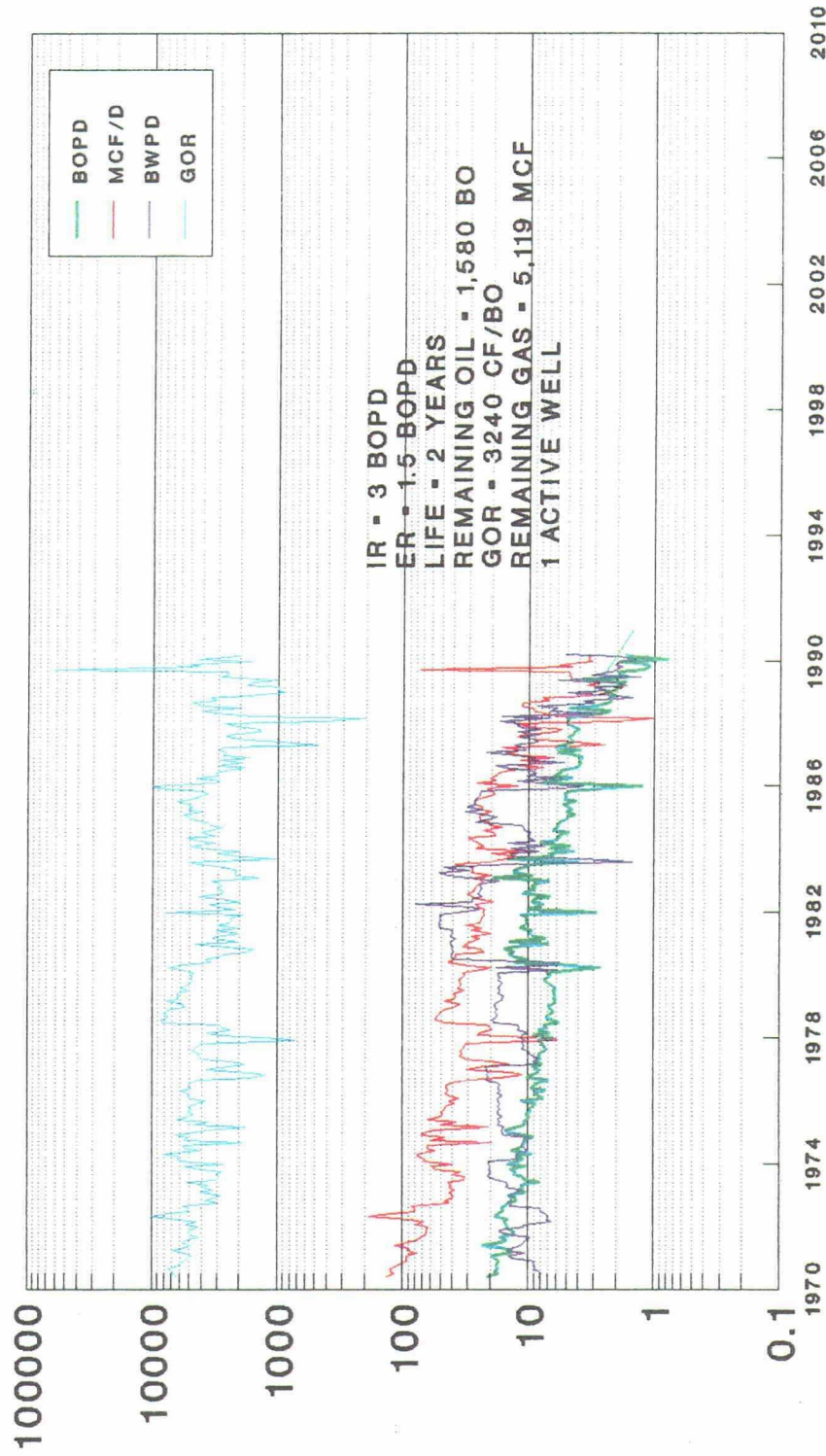


FIGURE 50 H
225

TRACT 47

ARCO - FEDERAL 35 #1

JUSTIS BLINEBRY FIELD

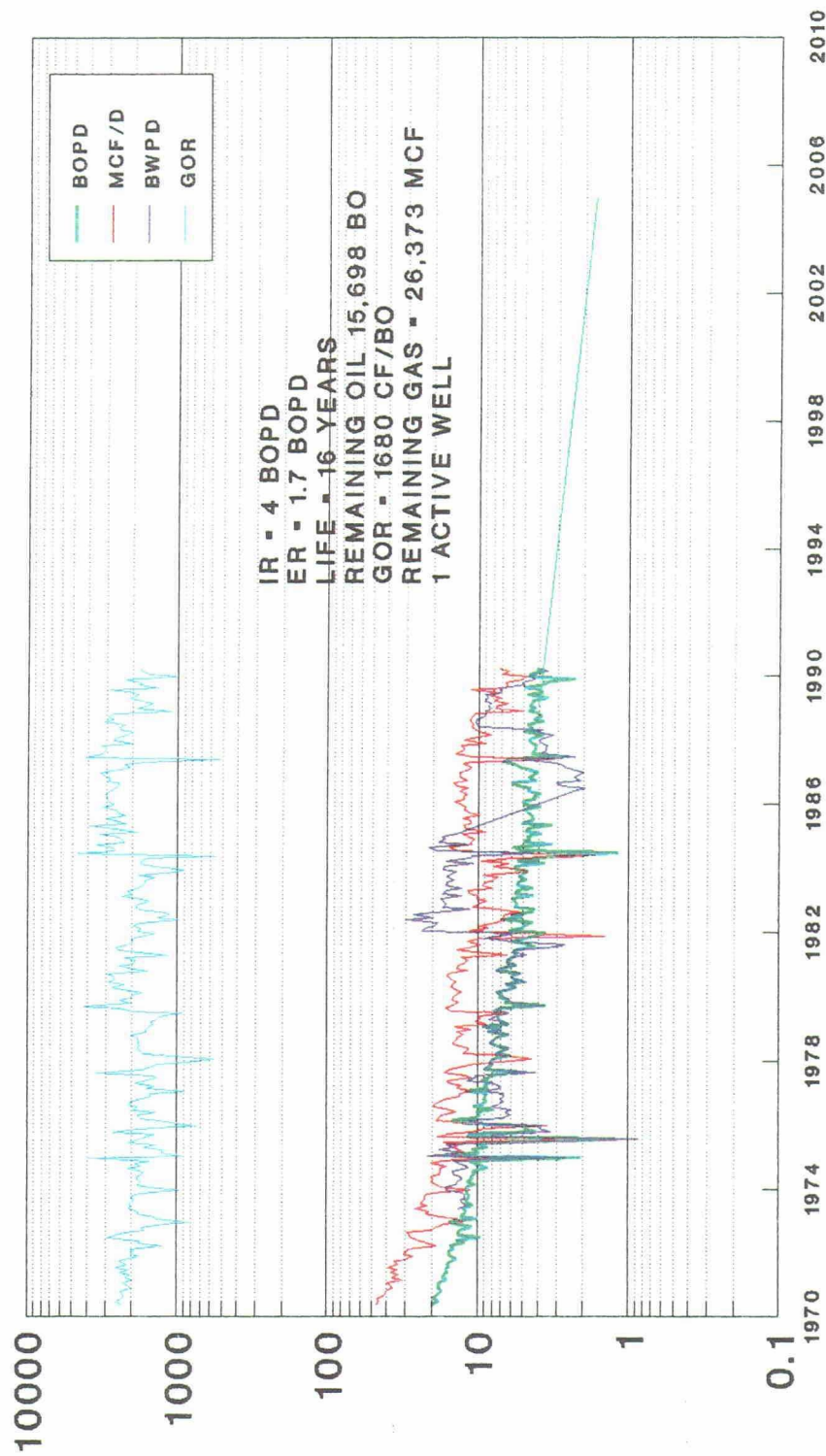


FIGURE 51 H
226

TRACT 48

UNION TEXAS - GREGORY A FEDERAL #1

JUSTIS BLINEBRY FIELD

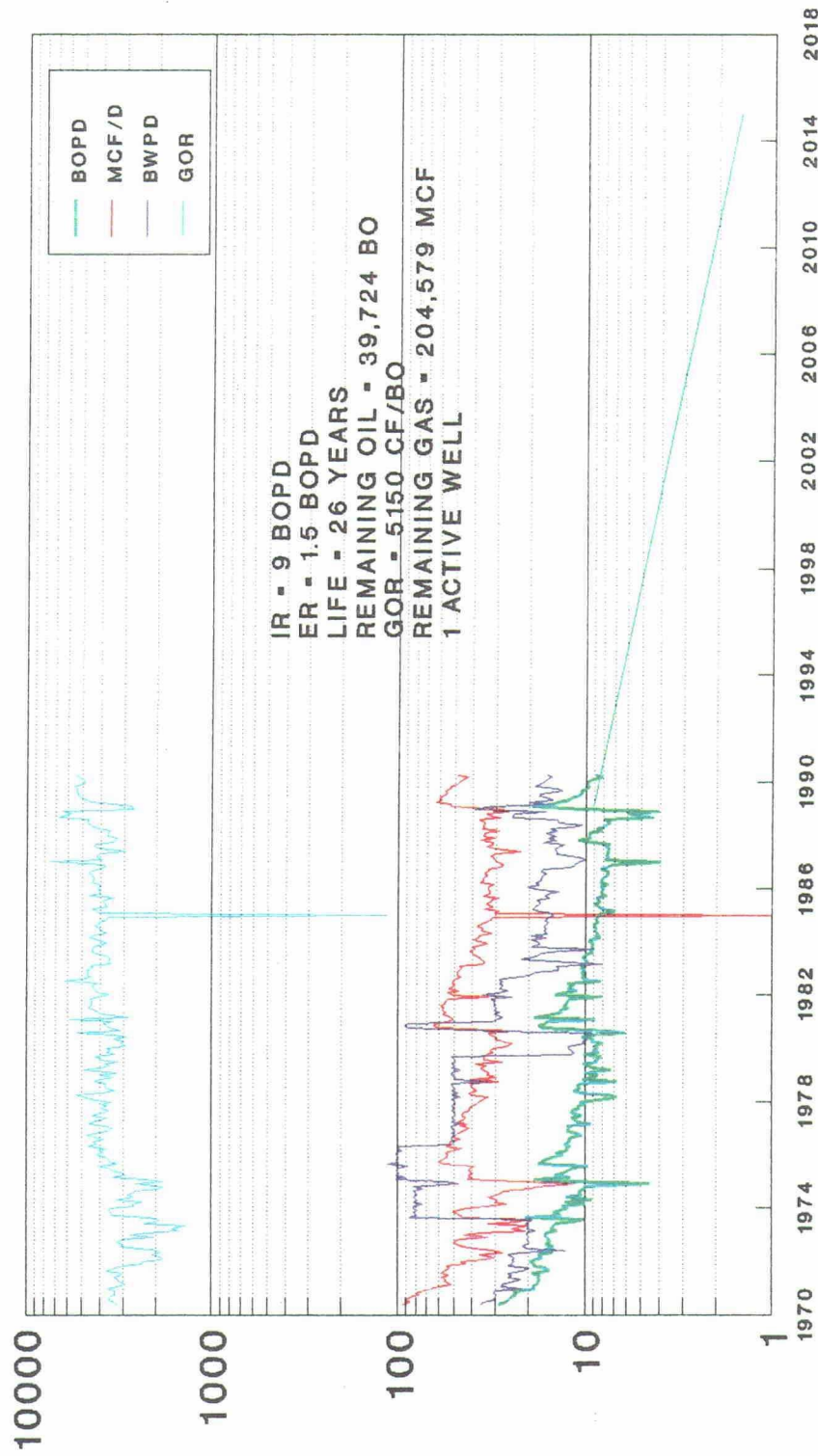


FIGURE 52 H
227

TRACT 49

CHEVRON - ARNOTT RAMSAY NCT F

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

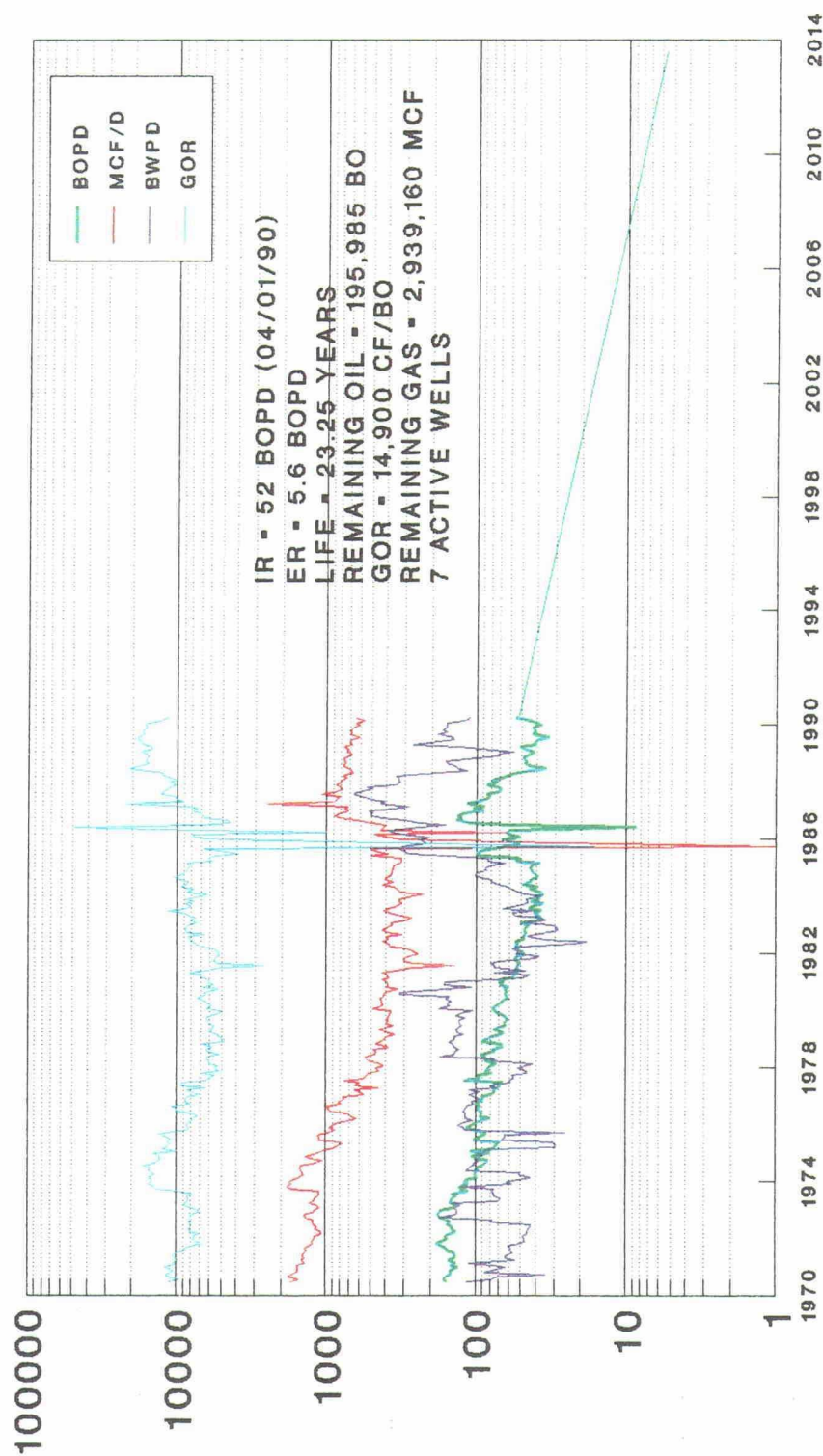


FIGURE 53 H
228

TRACT 50

CHEVRON - VINSON RAMSAY NCT B

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

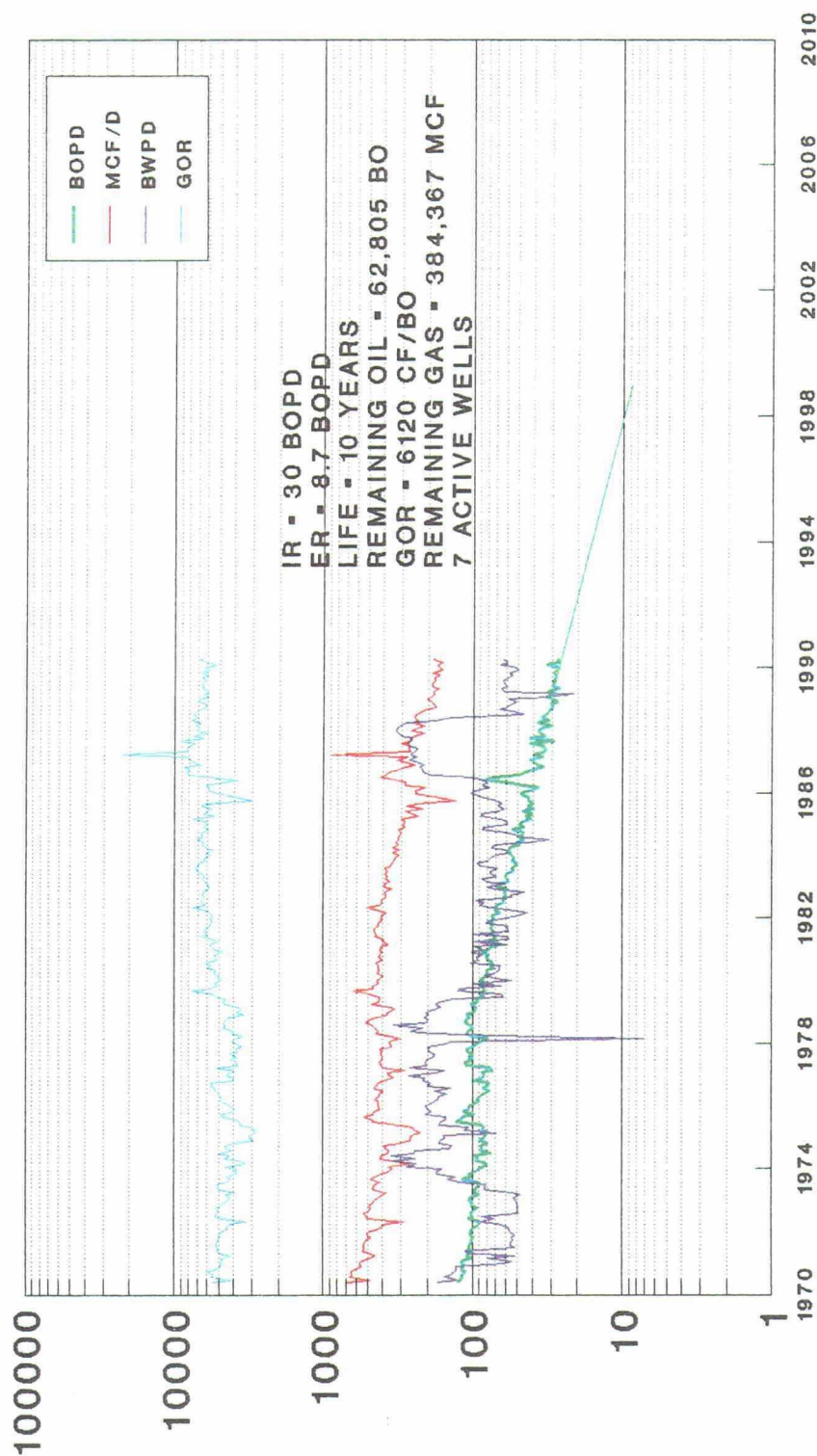


FIGURE 54 H
229

TRACT 51

FINA - GINSBERG FEDERAL #8, #9, #10, #11

JUSTIS BLINEBRY AND TUBB DRINKARD FIELDS

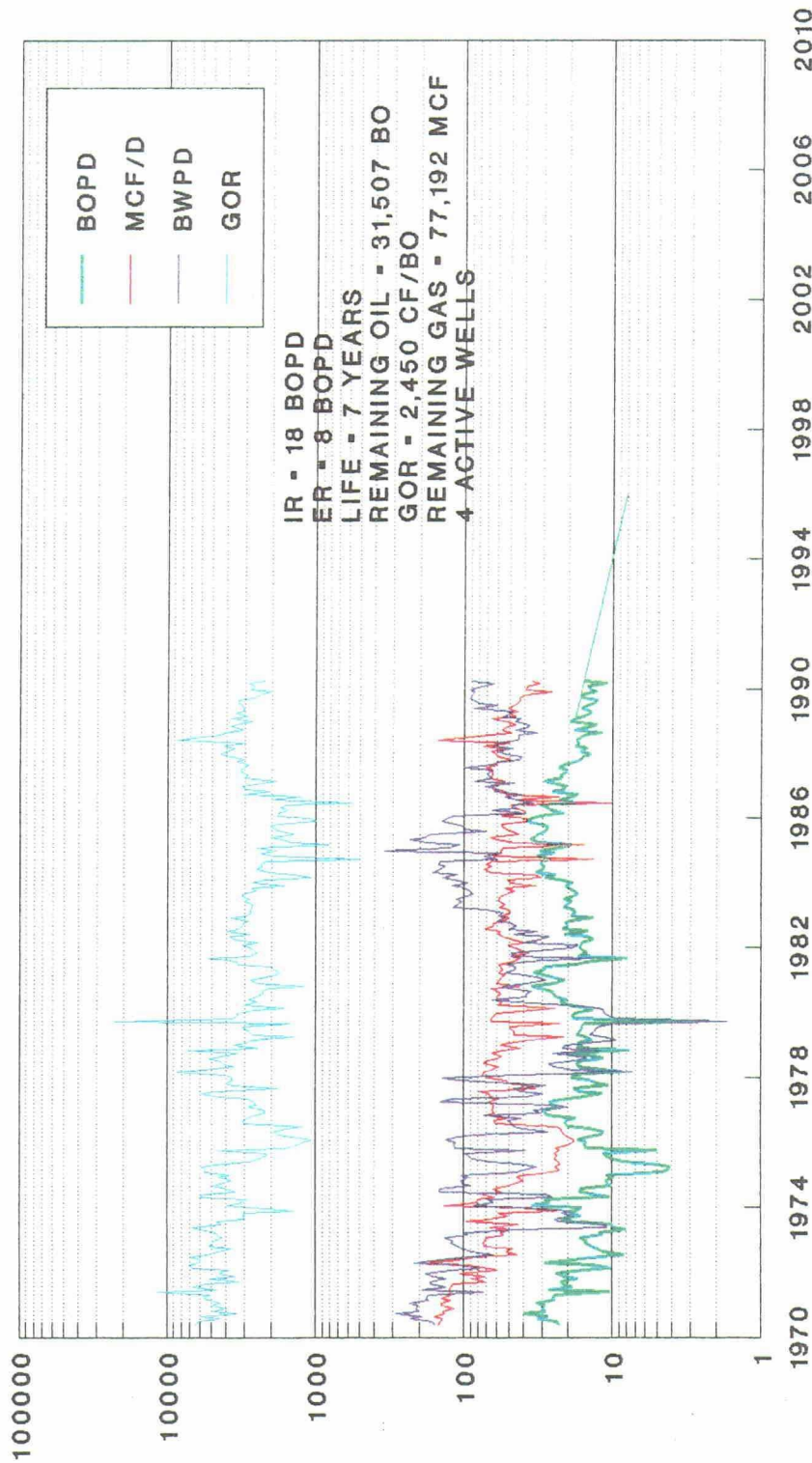
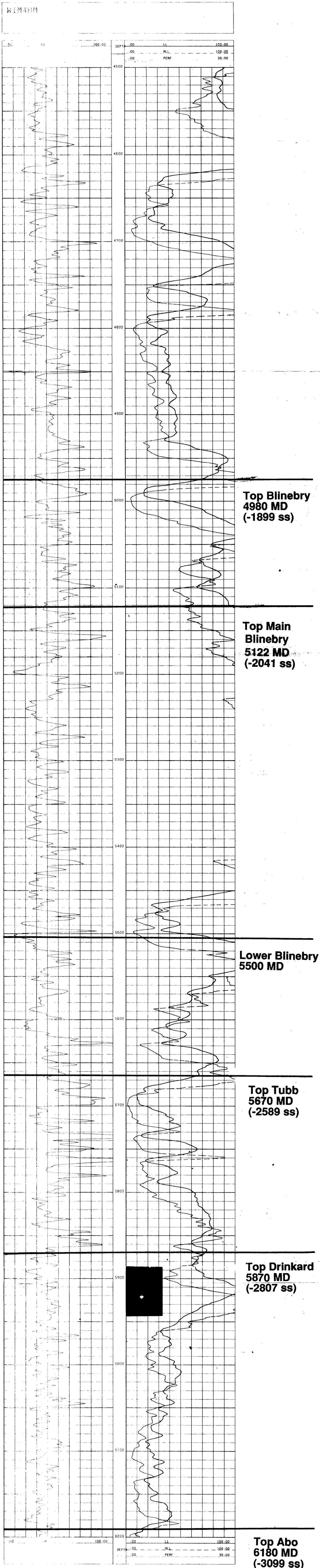


FIGURE 55 H
230

ARCO Oil and Gas
(formerly Amerada Hess)
Ida Wimberley No. 4
K.B. 3081 Section 24, T25S-R37E



BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
ARCO EXHIBIT NO. *12*
CASE NO. *10532, 10553, 10534*