QUALITY PRODUCTION CORP.

707 Shell Avenue Post Office Box 50128 Midland, Texas 79710-0128 (915) 686-0778 FAX (915) 686-1057 611 West Mahone Post Office Box 1412 Artesia, New Mexico 88211-1412 (505) 748-3352 FAX (505) 748-9869 215 South Leech Post Office Box 250 Hobbs, New Mexico 88241-0250 (505) 397-2727 FAX (505) 393-4111

December 14, 1993

State of New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87504

Case 10896

Re: The Wiser Oil Company Application for Qualification of EOR Projects Maljamar Grayburg Unit Maljamar Grayburg San Andres Pool Lea County, New Mexico

Gentlemen:

The Wiser Oil Company hereby applies for qualification of the expansion of an existing enhanced oil recovery project for the recovered oil tax rate pursuant to the New Mexico "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Section 1 through 5) and as implemented by Order No. R-9708. This project is the Maljamar Grayburg Unit, Maljamar Grayburg San Andres Pool in Lea County, New Mexico.

Following is the pertinent information pertaining to this Application and follows the procedure set out in Paragraph D of Exhibit "A" of Order No. R-9708.

- D. 4. a. The operator is The Wiser Oil Company, PO Box 1412, Artesia, NM 88211-1412, phone number 505/748-3352.
 - b. 1. A plat outlining the project area is attached "Exhibit A".
 - The project area is as follows: SW/4 NW/4, NW/4 SW/4 Section 2; NE/4, SE/4, SW/4 Section 3; S/2 NE/4, NW/4, SW/4, SE/4 Section 4; E/2 Section 8; Section 9; Section 10; SW/4, S/2 SE/4 Section 11; SW/4 Section 14; NE/4 Section 15; Township 17S, Range 32 E, Lea County, New Mexico.
 - 3. There are 3280 acres in the project area.

- 4. The subject pool and formation is Maljamar Grayburg San Andres.
- c. 1. The Maljamar Grayburg Unit was unitized and approved under Order No. R-3177 dated January 18, 1967.
- d. 1. Produced water and make up (fresh) water as required will be injected.
 - 2. Maljamar Grayburg Waterflood Project, original Order No. R-1538 dated November 27, 1959, and subsequent Orders No. R-2777 dated October 14, 1964, R-3035 dated February 9, 1966, R-3178 dated January 18, 1967.
- e. 1. a. Present producing wells are as follows: Maljamar Grayburg Unit Wells No. 1, 2, 4, 5, 8, 10, 15, 17, 19, 21, 23, (TA), 25 (TA), 27, 29, 30, 31, 35 (TA), 39 (TA), 41, 43, 45, 47, 53 (SI), 57, 59 (TA), 61, 63 (TA), 67, 70, 72, 74, and 77.
 - b. Proposed producing wells are as follows: Maljamar Grayburg Unit Wells No. 79, 80, 81, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95, 96, 98, 99, 100, 101, 106, 107, 108, 109, 110, 111, 112 and 122.
 - 2. a. Present injection wells are as follows: Maljamar Grayburg Unit Wells No. 22 and 78.
 - b. Proposed injection wells are as follows: Maljamar Grayburg Unit Wells No. 2, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 34, 35, 36, 51, 52, 53, 54, 56, 57, 58, 59, 60, 78, 150 and 151.
 - 3. The estimated capital cost of additional facilities is \$755 M.
 - 4. The estimated total project cost is \$10040 M.
 - 5. The estimated total value of the additional production that will be recovered as a result of this project is \$24776 M.
 - 6. The anticipated date for commencement of injection is January 1, 1994.
 - The type of fluid to be injected is produced water and make up (fresh) water. The anticipated volume of injection is 250 BWPD/well.

8. Waterflood operations under Order No. R-1538, in the Maljamar Grayburg Unit were curtailed in 1973-1975. Injection for disposal of produced water has continued to the present. An Independent Reservoir Engineering study conducted in June 1992 by Don Hunter of T. Scott Hickman & Associates, Inc., Midland, Texas, (copy attached) indicates that significant oil reserves remain to be recovered in the Unit area. Recovery of these additional reserves will involve reducing the well spacing to 20 acres per well (from 40 acres) and reinstitution of waterflooding operations on 40 acre 5spot patterns instead of 80 acre 5-spot patterns.

The initial two phases of re-development will involve drilling 26 20 acre infill producing wells, and preparing 36 wellbores for injection (redrill 3 wells, convert 19 existing wellbores, and utilizing 14 other wellbores). It is anticipated that this work will be completed by December 31, 1996.

f. Production data and other supporting data to show the production history and production forecast of oil, casinghead gas and water from the project area is given in the attached reservoir engineering study.

CERTIFICATION:

I hereby certify that the information stated above is true and correct to the best of my knowledge.

Perry L. Hughes, Agent for The Wiser Oil Company

15

Date

cc: Jerry Sexton w/attachments

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REDEVELOPMENT STUDY

MALJAMAR GRAYBURG UNIT MALJAMAR (GRAYBURG - SAN ANDRES) FIELD LEA COUNTY, NEW MEXICO

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T. Scott Hickman & Associates, Inc.

PETROLEUM ENGINEERS June 1, 1992

Mr. Perry Hughes Quality Production Corp. 707 Shell Avenue Midland, TX 70705

Dear Mr. Hughes:

Re: Maljamar Grayburg Unit Lea County, New Mexico

In accordance with Mr. Hughes' request, we have evaluated the Proved crude oil and gas reserves as of June 1, 1992 attributed to Phase I and II redevelopment and expansion of injection in the Maljamar Grayburg Unit in Lea County, New Mexico. Infill drilling on 20 acre well spacing and injection expansion on 5-spot patterns is recommended. This plan will require the drilling of 26 producers and 3 injectors, conversion of 19 wells to injection, return of 15 injectors to active status and associated facility work. Economic projections indicate that a capital investment of 10,040 M\$, exclusive of acquisition costs, will generate a future net revenue, after investment, of 24,776 M\$ in 17 years for a 46% annualized rate of return to 100% working interest (82.58% net revenue interest). The results of this study are discussed in the attached report as outlined in the Table of Contents.

Net oil and gas reserves are estimated quantities of crude oil, natural gas and natural gas liquid attributed to the composite revenue interests being evaluated after deduction of royalty and/or overriding royalty interests. Future net revenue was adjusted for capital expenditures, operating costs, interest reversions, ad valorem taxes and wellhead taxes, but no consideration was given to Federal income taxes or any encumbrances that might exist against the evaluated interests. Present worth future net revenue shows the time value of money at certain discount rates, but does not represent our estimate of fair market value.

The classification of non-producing reserves as Proved Undeveloped is dependent upon establishing full scale injection according to the plan as recommended by this report. The Proved Undeveloped classification is also contingent upon the likelihood that the project will receive financing and proceed ahead in a timely manner. Any prolonged delays in execution of this project in the manner prescribed by this report could lead to a reclassification of these reserves.

Reserves were determined using industry accepted methods including extrapolation of established performance trends, volumetric calculations and analogy to similar producing zones. The basis for the reserve determinations are presented in the attached report. Where applicable,

> 550 WEST TEXAS, SUITE 950 TWO FIRST CITY CENTER MIDLAND, TEXAS 79701

> > -----

Mr. Perry Hughes June 1, 1992 Page 2

the evaluator's own experience was used to check the reasonableness of the results.

In the preparation of this report, we have reviewed for reasonableness, but accepted without independent verification information furnished by Quality Production Corp. with respect to interest factors, current prices, log cross-sections and various other data. Production and injection data were obtained from commercial sources, public record, and operator's files. Well completion histories were also obtained from operator's files. The pricing and discount rate were applied at the direction of the client. The use of assumed rather than existing economic parameters affects both the cash flow projections by the difference in prices and expenses and also the reserve volumes by changing the economic limit at which production is terminated. The assumed pricing also has a major effect on the economic viability of non-developed potential and hence the volume of reserves that can be assigned to the non-producing categories.

We are qualified to perform engineering evaluations and do not claim any expertise in accounting, legal or environmental matters. As is customary in the profession, no field inspection was made of the properties nor have we verified that all operations are in compliance with any states and/or Federal conservation, pricing and environmental regulations that apply to them.

This study was performed using industry-accepted principles of engineering and evaluation that are predicated on established scientific concepts. However, the application of such principles involves extensive judgment and assumptions and is subject to changes in performance data, existing technical knowledge, economic conditions and/or statutory provisions. Consequently, our reserve estimates are furnished with the understanding that some revisions will probably be required in the future, particularly on new wells with little production history and for reserve categories other than Proved Developed Producing. Unless otherwise noted, we have based our reserve projections on current operating methods and well densities.

This report is solely for the information of and the assistance to Quality Production Corp. and their investors in evaluating the potential for infill drilling and/or pattern revisions in the Maljamar Grayburg Unit and is not to be used, circulated, quoted or otherwise referred to for any other purpose without the express written consent of the undersigned except as required by law. Persons other than those to whom this report is addressed shall not be entitled to rely upon the report unless it is Mr. Perry Hughes June 1, 1992 Page 3

accompanied by such consent. Data utilized in this report will be maintained in our files and are available for your use.

Yours very truly,

T. SCOTT HICKMAN & ASSOC., INC.

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Ven that

C. Don Hunter, P.E.

glb attachments

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The reason for the premature shut-in of injection in the MGU may in part be due to suspected injectivity problems. Makeup water for the MGU is the Ogallala aquifer, the source for most of the waterflood projects in this field, including the highly successful Conoco MCA Unit. Accepted practice is to maintain a deoxygenated makeup water system, which may not have been accomplished in the MGU.

Production performance was adversely affected by the reduced injection volumes and injection water makeup volumes after 1974. However, in spite of inadequate injection volumes and inefficient pattern operations during most of the injection period, waterflood response has been satisfactory within certain areas of the Unit. Figure 11 is the Unit rate vs. time performance graph. Figure 12 is a map which shows peak waterflood oil response for each of the producers. As shown by the map, Areas "A" and "B" have experienced significant oil response. These areas also coincide with relatively high primary oil recoveries and net pay thickness. Figures 13 and 14 are the rate vs. time performance graphs for Areas A and B, respectively, which confirms the individual well oil response but is masked by the erratic injection histories. Figure 15 is the performance graph for Area C which also shows oil response to injection, but to a lesser degree. Figure 16 is a composite of average well response for producers within Areas A and B, normalized to date of initial oil response which shows significant but unsustained response due to insufficient injection support.

The MGU injection-withdrawals ratio of 1.13 which is significantly lower than is normal for a mature waterflood. The negative effects of reservoir heterogeneity has been compounded by completion procedures as evidenced by minimal workovers during the past 10 to 15 years of operation.

A cumulative total of 4,961 MSTB have been produced from the MGU as of March 1,1992. During February 1992, the MGU produced at a rate of 36 BOPD and 10 MCFD from 17 producers.(Table 1). Proved Developed Producing oil reserves as of May 1, 1992 are estimated at 84 MSTB.

REDEVELOPMENT PERFORMANCE PREDICTION

Remaining mobile oil in place for the total MGU area is estimated to be 11,796 MSTB at the effective date of June 1, 1992 as shown by Table 2 under item II. Utilizing a conformance factor of 0.6, the MGU maximum potential under Unit-wide 20-acre spacing 5-spot waterflood pattern redevelopment is estimated at 7,078 MSTB (Table 2).

We have made a feasibility study of redeveloping the MGU through 20 acre infill drilling and reestablishing closed pattern water injection and have estimated the economics for a two-phase redevelopment within areas of highest remaining mobile oil potential. Figure 17 is a map of remaining mobile oil on a pattern basis. The ten well Phase I program exploits the high mobile oil segments within Areas "A" and "B" through patterns positioned to optimize investment costs per reserve barrel. The ten well program is considered to be the minimum number of producing wells sufficient to provide a valid test of redevelopment feasibility. The performance projection for redevelopment was based on analytical prediction techniques. Waterflood recovery was derived from volumetric calculation of remaining mobile oil within the pattern areas and from estimates of displacement efficiency as influenced by analogy. Producing rate projections were also influenced by results in analogous projects.

One of the analogous projects is the Conoco MCA Unit, which adjoins the southwest boundary of the MGU. The MCA Unit is a major Grayburg-San Andres waterflood and CO₂ project with cumulative oil production in excess of 101 MMBLS. The MCA Unit is productive in Grayburg dolomitic sands and San Andres dolomites that are equivalent interval to the producing interval in the MGU. However, the MCA Unit differs from the MGU not only by being significantly larger with an OOIP of 268 MMBLS, but also in its development history. During early primary depletion in 1942, gas injection was initiated which was successful in improving performance. Ultimate primary recovery aided by gas injection, was projected by Conoco to be 56 MMBLS or 21% of OOIP.

Water injection was initiated in 1963 and expanded to full 80-acre, 5-spot patterns by 1969. During 1970-73, 100 infill producers were drilled and waterflooding continued on inverted 9-spot patterns. Ultimate primary and secondary recovery was projected by Conoco to be 119 MMBBL or 44% OOIP.

Infill drilling occurred during active waterflood operations so incremental reserves attributed solely to infill drilling are difficult to assess. Best estimates of initial average rates for the 100 infill producers are in excess of 50 BOPD/well. Performance of the MCA Unit, through published technical engineering and geological reports, provided a basis for conformance factors and end-point saturation values used in MGU redevelopment prediction. Conoco established a CO_2 pilot during 1981-85 and expanded to full CO_2 development during 1988-89.

The Avon Turner "B" project is a depleted 40-acre 5-spot waterflood which was redeveloped with the drilling of 22 infill producing wells on 20-acre spacing during 1990-91. Production is from 3000 to 3600' in Grayburg and San Andres dolomitic sands. The net pay appears to be thicker than the MGU and the average primary recovery is higher. Core data indicates that pay quality is similar. Table 3 shows the comparative project performance between the Turner "B" project and the MGU. The 20-acre infill drilling project was designed to create 40-acre 5-spot patterns but the planned injection well conversions have not occurred. Initial oil rates for the 22 infill producers were high, averaging 95 BOPD/well. However, the deferral in injection well conversions caused inadequate injection support resulting in relatively sharp production declines. Ultimate oil recovery from the 22 infill wells is projected to average 55 MBBL/well under current reduced injection support, but four of the infill wells located within apparently pressured areas will achieve ultimate recoveries ranging from 100 to 150 MBBL/well. It is understood that the current operator plans to initiate the injection ventor store action action action wells areas and the injection well.

Table 2 item II(b) is the recovery calculations summary for MGU Phases I and II. Remaining mobile oil at the effective date of June 1, 1992 is 4,208 MSTB. Recoverable oil is 2,525 MSTB, or 97 MSTB/pattern. This estimate is based on a volumetric recovery efficiency of 60%, derived from the evaluator's experience with similar projects. Producing rate forecasts were based upon rate-time performance comparison on an average well basis for infill well performance for analogous projects (Figure 18).

REDEVELOPMENT PLAN AND ECONOMICS

The twenty-six well redevelopment well schedule and preliminary investment schedules are set forth on Tables 4, 5 and 6. The Phase I and II areas are shown by Figure 19.

Investment costs for drilling, workovers and the re-establishment of injection and the projected operating costs are based on data furnished by QPC and supplemented by the evaluator's experience for similar projects. Investment costs do not include acquisition costs or costs of financing.

Initial water injection requirements of 2100-2200 BWPD are estimated for Phase I and 2500-2600 BWPD for Phase II.. The most likely water source will be the Ogallala aquifer. Chevron currently owns Ogallala water rights plus water wells and equipment on the east offsetting Section 1. These water rights are separate from MGU ownership and will permit the withdrawal of 215 ac-ft/year, or approximately 4569 BWPD, which should be adequate for Phase I and II requirements. QPC will acquire these rights as a separate entity and will offer to furnish makeup water to the MGU. For purposes of this evaluation, the cost to the MGU was estimated at \$.08/BBL.

The price and escalation scheme were applied at the direction of QPC. An initial oil price of \$17.50/BBL, after adjustments for gravity and grade, was held constant through 1992. An oil price of \$18.50/BBL was applied for 1993. Beginning January 1, 1994, oil pricing was escalated at 5 % per annum to a maximum of \$50/BBL. A starting gas price of \$1.00/MCF and held constant through 1992. A gas price of \$1.10/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF annum to a gas price of \$5.00.

Lease operating expenses of \$1000/month for producer and \$650/month for injector were estimated by QPC based on anticipated operating conditions and include overhead. Expenses were escalated starting January 1, 1993 at 4% per annum until the primary product reached the maximum price. No equipment salvage value or costs were included for the property. Investments were not escalated at direction of QPC.

Incremental economics for the composite of Phases I and II indicate that a capital investment of 10,040 M\$ will generate a 10% discounted future net revenue of 11,138 M\$ resulting in a 45.7% rate of return and a 3.59 year payout. A summary of reserves and economics is shown by Table 7. The oil rate forecasts are shown by Figures 20, 21 and 22. Tables 8 through 10 are the reserves and cash flow projections for Total Proved,

Proved Developed Producing and Proved Undeveloped, respectively. Tables 11 and 12 are the summaries for Phases I and II, Proved Undeveloped categories, respectively. Figure 20 is the rate vs. time oil production forecast for the MGU. Figures 21 and 22 are the rate vs. time projections for Phase I and II, respectively.

The classification of non-producing reserves as Proved Undeveloped is dependent upon establishing full scale injection according to the plan as recommended by this report. The Proved Undeveloped classification is also contingent upon the likelihood that the project will receive financing and proceed ahead in a timely manner. Any prolonged delays in execution of this project in the manner prescribed by this report could lead to a reclassification of these reserves.

Table 1

Project Performance Summary MALJAMAR UNIT Maljamar (Grayburg-San Andres) Field Lea County, New Mexico

Initial Completion Date	1944
Unitization Date	23-Jun-66
Initial Water Injection Date	1962
Total Well Completions: Producers Injectors Total	43 35 78
Active Well Completions @ 3-1-92 Producers Injectors Total	17 2 19
Unitized Area (Acres)	3350
Average Spacing (Acres/Well)	40
OOIP (MSTB)	40368
Cumulative Oil Production @ 3-1-92 (MBBL)	4961
Cumulative Oil Production @ 3-1-92 (BBL/acre)	1481
Average Oil Cumulative Per Well (MBBL)	64
Feb 92 Oil Rate- Total Unit (BOPD)	36
Feb 92 Oil Rate- Per Well (BOPD)	2.1
Ultimate Primary Oil Recovery (MBBL)	2255
Ultimate Primary Oil Recovery (BBL/Acre)	673
Recovery Factor (%)	5.6
Average Oil Recovery Per Well (MBBL/Well)	29
Cumulative Secondary Oil Recovery @ 3-1-92 (MBBL)	2706
Ultimate Secondary Oil Recovery Under Current Mode (MBBL)	2793
Average Ultimate Secondary Per Well (MBBL)	65
Secondary : Primary Ratio	1.24
Ultimate Oil Recovery Under Current Mode (MBBL)	5048
Estimated Recovery Factor (%)	12.50
Remaining Oil Recovery Under Current Mode @ 6-1-92 (MBBL)	84
Cumulative Gas Production @ 3-1-92 (MMCF)	3662
Cumulative GOR (SCF/STB)	738
Feb 92 Gas Rate (MCFPD)	10
Feb 92 GOR (SCF/BBL)	289

Table 1

Project Performance Summary MALJAMAR UNIT

Cumulative Water Production @ 3-1-92 (MBBL)	6197
Cumulative WOR (Volume/Volume)	1.25
Cumulative Watercut (%)	55.5
Feb 92 Water Rate (BWPD)	55
Feb 92 WOR (Volume/Volume)	1.53
Feb 92 Watercut (%)	60.5
Cumulative Water Injection @ 3-1-92 (MBBL)	18408
Cumulative Injection-Secondary Oil Recovery Ratio (STB/STB)	6.80
Cumulative Injection-Withdrawal Balance (RBBL/RBBL)	1.13
Feb 92 Injection Rate- Total Unit (BWPD)	53
Feb 92 Injection Rate- Per Well (BWPD)	27

Recovery Calculation Summary Maljamar Grayburg Unit Lea County, New Mexico

Original Oil-in-Place, N where A = Unit Area (Ac) h = Net pay (ft) $\emptyset = Porosity (dec.)$ $S_{wi} = Connate water saturation (dec.)$ $B_{oi} = Initial formation volume factor$

 $N = 7758 \text{Ah} \emptyset (1-S_{wi})/B_{oi}$ = 7758(113530)(.10)(1-.45)/1.2 = 40,368 MSTB

NOTE: This is an approximation of OOIP, calculated from currently available data base i.e. limited quantitative logs and core data

I <u>Ultimate Recoveries Under Current Mode of Operations</u> Effective Date:	June 1, 1992
Encenve Date.	June 1, 1772
Cumulative Oil Production @ 6-1-92 (MSTB)	4965
Cumulative Recovery Factor (%)	12.3
Ultimate Primary Recovery (MSTB)	2255
Primary Recovery Factor (%)	5.6
Cumulative Secondary Recovery (MSTB)	2710
Ultimate Secondary Recovery (MSTB)	2793
Secondary: Primary Ratio	121
Combined Ultimate Primary plus Secondary (MSTB)	5048
Recovery Factor (%)	12.5

II <u>Redevelopment Potential Under Phase I and II Redevelopment</u> Effective Date:

June 1, 1992

Estimated Oil Saturation at June 1, 1992, S_{0i} where:

RF = Recovery Factor at June 1, 1992 = 4965/40368 = .123

 B_0 = Formation Volume Factor at Estimated current bottom-hole pressure

$$S_{0} = (1-RF)(B_{0}/B_{0i})(1-Sw)$$

= (1-.123)(1.12/1.2)(1-.45)
= 0.450

(a) Unit Remaining mobile oil at June 1, 1992; N_m where:

 S_{or} = Residual oil saturation, dec.

$$N_{m} = 7758Ah \oslash (S_{o} - S_{or})/B_{o}$$

= 7758(113,530)(0.10)(.45-.30)/1.12
= 11,796 MSTB

Estimated maximum potential recoverable oil, based on estimates of volumetric sweep efficiency , $E_{\rm V\rm i}$

where:

Npw = recoverable oil

Ev = volumetric sweep efficiency assuming 5-spot patterns on 20-acre well spacing

 $N_{pw} = N_m E_v$ = (11,796)(0.6) = 7078 MSTB

(b) Phase I and II areas remaining mobile oil at June 1, 1992, from 26-well infill drilling program

Effective Date:	June 1, 1992
Cumulative Unit Oil Production at June 1, 1992 (MSTB)	4965
N_{m} , (MSTB)	4208
Incremental Recovery at $E_{v} = 0.6$ (MSTB)	2525
Recovery Per Producer Pattern (MSTB)	97
Ultimate Unit primary and secondary recovery (MSTB)	7573
Ultimate Recovery Factor (%)	18.8

TABLE ²

Comparison of Similar Reservoirs Pre-Infill Drilling Waterflood Performance Maljamar (Grayburg-San Andres) Field

	Maljamar Unit	Avon Turner-B
Effective Date:	3/1/92	1/1/90
Total Well Completions:		
Producers	43	33
Injectors	35	16
Total	78	49
Injector-Producer Ratio	1.23	0.49
Unitized Area (Acres)	3350	1320
Average Spacing (Acres/Well)	40	40
OOIP (MSTB)	40368	*NA
Cumulative Oil Production (MBBL)	4961	4103
Cumulative Oil Production (BBL/acre)	1481	3109
Average Oil Cumulative Per Well (MBBL)	64	84
Ultimate Primary Oil Recovery (MBBL)	2255	2059
Ultimate Primary Oil Recovery (BBL/acre)	673	1560
Ultimate Primary Recovery Factor (%)	5.6	*NA
Average Oil Recovery Per Well (MBBL)	29	42
Cumulative Secondary Oil Recovery (MBBL)	2706	2044
Ultimate Secondary Oil Recovery (MBBL)	2793	2044
Average Ultimate Secondary Per Well (MBBL)	65	62
Secondary: Primary Ratio	1.24	1.00
Ultimate Oil Recovery (MBBL)	5048	4103
Estimated Recovery Factor (%)	12.5	-
Cumulative Water Production (MBBL)	6197	4747
Cumulative WOR	1.25	1.16
Cumulative Watercut (%)	55.5	53.6
Cumulative Water Injection (MBBL)	18408	24482
Cumulative Injection-Secondary Oil Ratio (STB/STB)	6.8	11.9
Cumulative Injection-Withdrawal Balance (RBBL/RBBL)	1.13	2.67

*NA= data not available

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY MALJAMAR UNIT REDEVELOPMENT PLAN PHASE 1

				INJE	CTIO	N WELL							
	Drill	Prod	ucer								Facilit	у	Cum
		Unit		Drill		Conve	rt		Worl	over		Total	Total
inv	Well	Loc	Inv	Well		Well		1V.	Well		Inv	lnv.	Inv
Date	No.	S-G	(\$M)	No.	(\$M)	No.	(\$M)	No.	(\$M)	(\$M)	(\$M)	(\$M)
D92	95	3 - 0	260									260	260
D92											100	100	360
D92	106	10-C	260									260	620
J93											80	80	700
J93											100	100	800
J93	96	3-N	260				12	50			25	335	1135
J93							51	8			25		1240
J93							53	3			25		1300
F93	87	4- E	260			1	10	3			25	320	1620
F93									22			20	1640
F93									20			20	1660
F93	88	4-K	260						16			295	1955
F93									50) 150		150	2105
F93	93	3 - J	260						54	125		385	2490
M93							8	3			25	60	2550
M93				11X	2 00) 2	25	8			25		
M93	92	3 - K	260						52	2 125		385	3320
M93							21	3.			25		
M93				7X	200)	6	8	0		25	305	3685
M93	89	4-J	260									260	3945
Ap93	101	4-M	260			-	27	8	0 13	100	25	465	4410
Ap93												0	4410
Ap93	79	9 4-D	260			1	15	3.	5 36	5 80	25	400	4810
TOTAL	10)	2600	2	400)]	10	54	5 9	735	530	4810	

INJECTION WELL WORK

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY MALJAMAR UNIT REDEVELOPMENT PLAN PHASE II

INJECTION WELL WORK

			INJECTION WELL WORK									
	Drill Prod	ucer										Cum
	Unit		Drill		Conver			Work		Facilit	-	Total
Inv	Well Loc	Inv	Well		Well	lnv.		Well		Inv	lnv.	lnv
Date	No. S-G	(\$M)	No.	(\$M)	No.	(\$M)		No.	(\$M)	(\$M)	(\$M)	(\$M)
Nv93	107 10-B	260									260	260
Nv93											0	260
Nv93	111 10-G	260									260	520
Dc93	86 4-F	260									260	780
Dc93											0	780
Dc93	108 10-A				11		35			25		
Dc93	90 27-I	260			19	9	75			25	360	
Jn94	85 4-G	260									260	
Jn94								56	75		75	1795
Jn94	91 3 - L	260									260	2055
Jn94	112 10-F	260									260	2315
Fb94	98 27-P	260			5		35	60	70	25	390	2705
Fb94	110 10-H	260			5	7	35			25	320	3025
Mr94	81 3-G	260				4	35			25	320	3345
Mr94	8 0 3-H	260			-	5	35			25	320	3665
Mr94			58X	200) :	2	35			25	260	3925
Ap94	99 27-0	260			3:	5	40			25	325	4250
Ap94	100 27-N	260			4	9	40	34	25	25	350	4600
Ap94								28	60		60	4660
My94	109 10-I	260						18	50		310	4970
My94	122 27-K	260									260	5230
TOTAL	16	4160	1	200) '	9 :	365	5	280	225	5230	

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY

MALJAMAR UNIT REDEVELOPMENT PLAN

PHASES I & II

	Drill Prod	ucer	INJECTION WELL WORK							Cum
1	No. wells	lnv (\$M)	Drill No. wells	Inv (\$M)	Conver No. wells	t Inv. (\$M)	Work No. wells	lnv.	Facility Inv (\$M)	Total Inv (\$M)
TOTAL	26	6760	3	600	1	9 91(0 14	1015	755	10040

Well Status Under Red	evelopment:		
PRODUCERS		INJECTORS	
Drill	26	Drill	3
Existing	0	Convert	19
		Existing	14
Total	26	Total	36

Table 7

Summary of Economics - Escalated Case Redevelopment Project Maljamar Grayburg Unit Lea County, New Mexico

	Proved Developed Producing	Proved Undeveloped	Total Proved
Effective Date:		1-Jun-92	
Interest: Working , % Net Revenue, %			
Gross Reserves: Oil, MBBL Gas, MMCF	84 42	2525 1263	2609 1305
Net Reserves: Oil, MBBL Gas, MMCF	70 34	2085 1043	2155 1077
Net Operating Revenue, M\$	1559	51003	52562
Expenses: Wellhead Taxes, M\$ Operating Costs, M\$ Total, M\$	103 826 929	3385 12801 16186	3488 13627
	929	10100	17115
*Investments, M\$	0	10040	10040
Future Net Revenue: Undiscounted, M\$ Discounted @ 10%, M\$	629 431	24776 11138	25405 11569
**Payout , Years		3.59	-
Annualized Rate of Return, %	-	45.66	-
Income/Investment Ratio: Undiscounted Discounted @ 10%	-	3.47 2.25	

*Investments do not include Unit acquisition costs of 1.25MM\$ **Payout Calculated From Effective Date TOTAL MALJAMAR GRAYKURG UNIT (PROVED) TABLE 8 DATE: 05/22/92 MALJAMAR (GRAYFURG SAN ANDRES) TINE: 13:34.31 LEA, NH FILE: TOT OPR: CHEVRON U S A INC. GET : 0 RESERVES AND ECONOMICS ------MALJAMAR GRAYRURG UNIT T. SCOTT HICKNAN & ASSOC ESCALATED - N/D ACR COSTS AS DF JUNE 1, 1992 PETROLEUM EXCINEERS 10.00 PCT ND-YR DIL, MARL GAS, NMCF DIL, MARL GAS, MMCF \$78 \$70 REVENUES OF TAXES EXPENSES COSTS, NS BTAX, NS BTAX, NS --------3.100 17.50 1.00 111.565 7.404 3.754 54. 656 500.000 -450.495 -426.688 12-92 7.506 6.198 58.264 96.229 48.115 18.50 1.10 1833.163 121.677 445, 599 4810,000 -3544, 113 -3701, 968 12-93 116, 528 12-94 341.981 170.990 282.408 141.204 19.00 1.13 5524.491 366.688 834.188 4730.000 -406.385 -4170.141 12-95 349.734 174.867 288.810 144.405 19.95 1.19 5932.213 393.750 877.116 .000 4661.347 -694.393 148.658 245.526 122.761 20.94 1.25 5295.308 351.477 12-96 297, 318 888. 334 .000 4055,497 2054.693 126.707 209.268 104.634 21.99 1.31 4738.992 314.550 12-97 253, 412 923, 867 .000 3500.575 4211.896

90.211 23.09 1.37 4290.070 284.754

77.954 24.25 1.44 3892.562 258.370

67.383 25.46 1.51 3532.899 234.496

50.392 28.07 1.67 2912.900 193.346

HET DIL REVENUES (MS)

PROJECT LIFE (YEARS)

DISCOUNT PATE (PCT)

GROSS DIL HELLS

GROSS GAS WELLS

FROSS HELLS

NET GAS REVENUES (115)

58.263 26.73 1.59 3207.448 212.894 1009.819

43.597 29.47 1.75 2646.126 175.636 979.682

37, 744, 30, 94, 1, 84, 2405, 394, 159, 658, 964, 433

32.299 32.49 1.93 2161.276 143.455 931.299

21,962 34,12 2,03 1543,082 102,421 655,148

1304.276 2154.144 1077.070 23.70 1.41 52561.641 3488.780 13627.887 10040.000 25404.974 11569.247

 HET GAS REVENUES (N\$)
 1517.403
 DISC

 TOTAL
 REVENUES (N\$)
 52561.641
 RATE

51044.238

960, 822

933. 635

970. 978

981. 427

. 0

2.0

5.0

8.0

10.0

12.8

15.0

18.0 20.0

25.0

1044.024 23.27 1.38 50027.489 3320.576 12411.003 10040.000 24255.910 11313.908

33.045 37.24 2.21 2534.152 168.204 1216.884 .000 1149.064 11569.247

1517.403 DISC

17.131

10.000

46.000

.000

46.000

.000 3044.494 5917.483

.000 2700.557 7292.854

.000 2327.425 8370.432

.000 1984.735 9205.810

. COO 1738, 127 9370. 884

.000 1490.808 10387.466

.000 1281.303 10794.652

.000 1086.522 11107.007

785.513 11313.908

. 099

-----PRESENT NORTH PROFILE------

16942,842 40.0

13448.150 45.0

BTAX, MS

25404.974

PH OF NET DISC PH OF NET

RATE

21527.512 35.0 1540.503

11569.247 50.0 -181.236

9972.588 60.0 -795.830

7998,226 70.0 -1185,480 6416.794 80.0 -1435.616

5533.763 90.0 -1595.951

3779.034 100.0 -1696.783

30.0 2497.095

BTAX, NS

814, 157

254.705

12-98

12-99

12- 0

12-1

12-2

12-3

12- 4

12-5

12- 6

S TOT

REM.

TOTAL

CUN.

ULT.

218, 483

188, 793

163. 194

141, 106

122, 844

105, 589

91.412

78, 223

53, 189

80, 034

2608, 551

4965, 828

2528.517

109.241 180.423

78,553 116,525

52.794 87.195

1264.259 2088.052

94.399

81.598

61.022

45.706

39.112

26.594

40.017

3664, 589

7573, 579 4968, 865

BTAX RATE OF RETURN (PCT) 47.92

BTAX PAYDUT YEARS 3.53 BTAX PAYDUT YEARS (DISC) 3.84 BTAX WET INCOME/INVEST 3.53 BTAX WET INCOME/INVEST (DISC) 2.30

155.910

134.766

100.785

75.488

43.924

64.597

66.092

HALJAMAR (GRAYBURG SAN ANDRES) TINE: 13:34.31 LEA, MA FILE: TOT OPR: CHEVRON U S A INC. GET#: 1 RESERVES AND ECONOMICS - - - - - - - -_ _ _ - - - - - - - - - -T. SCOTT HICKNAN & ASSOC MALJAMAR GRAYBURG UNIT AS DF JUNE 1, 1992 ESCALATED - H/B ACR COSTS PETROLEUM ENGINEERS 10.00 PCT -END- ---GROSS PRODUCTION---- WET PRODUCTION---- DIL GAS NET OPER SEVEADVE NET OPER CAPITAL CASH FLOW CUM. DISC ND-YR DIL, NRKL GAS, NNCF DIL, NBKL GAS, NMCF \$/R \$/N REVEXUES NF TAXES EXPEXSES COSTS, N\$ BTAX, N\$ BTAX, N\$ 111,565 12-92 7, 588 3,754 6.198 3,100 17,50 1,00 7,404 54 656 . 009 49 505 48 154 4.804 18.50 1.10 183.032 12.149 93. 600 11. 635 5.817 9.608 . 000 77.283 117.892 12-93 12-94 10, 238 5.119 8.455 4.227 19.00 1.13 165.397 10.978 71.099 . 000 83, 320 186, 223 7.440 3.720 19.95 1.19 152.819 10.143 . 000 68,733 9.010 4, 505 12-95 73.943 237.474 12-96 7,929 3.964 6.548 3.273 20.94 1.25 141.221 9.374 50, 383 . 009 81.464 292.696 6.977 2.881 21.99 1.31 12-97 3, 489 5.762 130, 484 8, 661 52. 398 . 880 69.425 335.479 5.070 2.535 23.09 1.37 . 000 12-98 6.140 3.070 120.554 8.002 54, 494 58.058 368,094 5, 403 2.701 4. 462 12-99 2.230 24.25 1.44 111.400 7.395 56. 675 . 888 47.330 392.109 3.927 1.964 25.46 1.51 102.947 6.833 58, 942 . 888 12- 0 4, 755 2.378 37.172 407.319 2,092 3,455 1.728 26.73 1.59 95.103 6.312 61.299 . 600 27.492 12-1 4. 184 420.870 12-2 3, 682 1, 841 3, 041 1, 520 28, 07 1, 67 87.891 5.834 63. 751 . 000 18.306 427.875 12-3 1.620 2.676 1.338 29.47 1.75 81,210 5,390 66. 301 . 600 9. 519 431.206 3, 240 75.042 4.981 . 000 1.108 12- 4 1.426 2, 355 1.178 30.94 1.84 68. 953 431.556 2.852 12-5 12- 6 **68,997 34,498 21**,91 1,30 1558,665 103,456 83, 551 41.776 . 898 628,715 431.556 S TOT 826. 494 . 000 . 000 . 000 .000.00.00 .000 .000 . 880 431.556 REN. . 000 . 000 68.997 34.498 21.94 1.30 1558.665 103.456 826. 494 . 000 628.715 431.556 TOTAL 83, 551 41.776 -----PRESENT HORTH PROFILE------**RET DIL REVENUES (M\$)** 1513.786 CUH. 4965.028 3664.589 HET GAS REVENUES (MS) 44.879 DISC PH OF NET DISC PH OF KET 1558.665 ULT. 5048, 579 3706.365 TOTAL REVENUES (MS) RATE rtax, ns RATE RTAX, NS -------------______

TABLE 9

HALJAMAR GRAYBURG UNIT (PDP)

. 0 100,00 628,715 257.724 RTAX RATE OF RETURN (PCT) PRBJECT LIFE (YEARS) 12.583 30.0 . 00 DISCOUNT RATE (PCT) 10.000 578.151 35.8 234, 156 RTAX PAYDUT YEARS 2.0 . 00 BTAX PAYOUT YEARS (DISC) GROSS DIL HELLS 20,000 5.0 514.187 40.0 214.755 . 00 GROSS GAS WELLS . 000 8.0 461.574 45.0 198.555 BTAX NET INCOME/INVEST RTAX HET INCOME/INVEST (DISC) . 00 GROSS HELLS 20.000 10.0 431.556 50.0 184.861 12.0 404.889 60.0 163.049 370.157 146.509 INITIAL N.I. FRACTION 1.000000 INITIAL NET DIL FRACTION . 825800 15. 0 70.0 18.0 1.000000 FINAL NET DIL FRACTION . 825800 340.628 80.0 133.575 FINAL N.I. FRACTION . 825800 20. 0 12- 1-91 90.0 123.197 PRODUCTION START DATE INITIAL NET GAS FRACTION 323.335 7.00 FINAL NET GAS FRACTION . 825800 25.0 286.802 100.0 114.691 MONTHS IN FIRST LINE

DATE: 05/22/92

TOTAL MALJAMAR CRAYBURG UNIT (PUD) TABLE 10 DATE: 05/22/92 TIME: 13:34.31 MALJAMAR (GRAYBURG SAN ANDRES) FILE: TOT LEA, XM DPR: CHEVRDN U S A INC. GET #: 0 RESERVES AND ECONDHICS -----MALJAMAR GRAYBURG UNIT T. SCOTT HICKMAN & ASSOC ESCALATED - W/D ACR COSTS AS DF JUNE 1, 1992 PETROLEUM ENGINEERS --PRICES--- ------OPERATIONS, M\$-----10.00 PCT

						Z2	U	TKN: IML91	114			10.00	rv I
			KET PRO Dil, MBRL						NET OPER Expenses				
12-92	000	. 000	.000	000	 00	 00	. 000		. 000	500.000	-500.000		 942
12-93	104. 893		86.621	43.311						4810.000			
12-93	331.743	165.871	273.953	136.977					763. 089	4730.000	-489.705		
12-94	340.724	170.362	281.370				5779.394		002 172	3730.000	4592.614		
12-96	289. 389	144. 694	238.978				5154.087		837. 951	. 000 . 030	3974.033		
12-97	246. 435	123. 218	203. 506	101.753	21.99	1.31	4608.508	305.889		. 000		3876.	. 417
12-98	212. 343	106.171	175.353	87.676	23.09	1.37	4169.516	276.752	906. 328	. 000	2986.436	5549.	. 479
12-99	183. 395	91.698	151.448	75.724	24.25	1.44	3781.162	250.975	876. 960	. 030	2653.227	6900.	. 745
12- 0	158. 439	79.220	130.839	65.419	25.46	1.51	3429.952	227.663	912.036	. 000	2290.253	7961.	. 113
12- 1	136. 922	68.461	113.070	56.535	26.73	1.59	3112. 345	206.582	948. 520	. 000	1957.243	8784.	. 920
12- 2	118. 362						2825.009						
12- 3	102.349						2564.916						
12- 4	88. 560												
12- 5							2161.276						
12- 6	53. 189	26.594	43.924	21.962	34. 12	2.03	1543.082	102.421	655.148	. 000	785.513	10982	. 352
S TOT	2444. 966	1222. 483	2019.055	1009.526	23. 31	1.39	48468.824	3217.120	11584. 509	10040.000	23627.195	10882	. 352
REM.	80. 034	40.017	66.092	33.046	37.24	2.21	2534.152	168.204	1216. 884	. 000	1149.064	11137.	. 691
TOTAL	2525, 000	1262.500	2085.147	1042.572	23.75	1.41	51002.976	3385.324	12801. 393	10040.000	24776.259	11137	. 691
CUM.	. 000	. 600)						
				KET GAS)			PH OF HET		PN DF	
ULT.	2525.000	1262.500						51002.976		BTAX, MS		BTAX,	
BTAX I	RATE OF RETU	RH (PCT)	45. 66	PROJECT	LIFE (YEARS)		17.131	. 0	24776.259		2239	. 371
BTAX I	AYOUT YEARS		3. 59	DISCOUNT	RATE	(PCT)		10.000	2.0	20949.361		1306	
BTAX I	AYOUT YEARS	(DISC)	3. 93	EKOZZ DI	L WELL	2		26.000	5.0	16428.655	40.0	599	. 402
BTAX I	ET INCOME/IN	NVEST	3. 59 3. 93 3. 47 2. 25	CKOZZ CA	IS MELL	2		. 000	8.0	12985.576			
BTAX 1	ET INCOME/II	WVEST (DISC)	2. 25	CKOZZ NE	LT2			26.000	10.0	11137.691		-366	
									12.8	9567.699			
									15.8	7628.069		-1331	
									18.0	6076.165	80.0	-1569	. 171

 20.0
 5210.428
 90.0
 -1719.148

 25.0
 3492.232
 100.0
 -1811.474

MALJAMAR GR UNIT - PHASE I (PUD) MALJAMAR (GRAYBURG SAN ANDRES) LEA, XM UPR: CHEVRON U S A INC.

DATE: 05/22/92 TIME: 13:34.31 FILE: TOT Get 1: 2

RESERVES AND ECONOMICS

MALJAMAR CRAYBURG UNIT ESCALATED - N/D ACR COSTS -----

AS DF JUNE 1, 1992

T. SCOTT HICKMAN & ASSOC PETROLEUM ENGINEERS

					PRIC	ES		ERATIONS,	N\$			10.00 PCT
-EKD -	GROSS PR	ODUCTION	HET PRO	DUCTIEN	DIL	GAS	KET OPER	SEV+ADV+	NET OPER	CAPITAL	CASH FLOW	CUN. DISC
MD-YR	DIL, NRRL	GAS, MMCF	DIL, MRRL	GAS, MMCF	\$/B	\$/X	REVENUES	WF TAXES	EXPENSES	COSTS, M\$		rtax, ns
12-92	. 000	. 000	. 000	. 000	17.50	1.00	. 000	. 000	. 000	500.000	-500.000	-474.842
12-93	87. 982	43. 9 91	72.656	36.328				91.870	343. 998	4310.000	-3361.771	-3589.619
12-94	160. 108	80.054	132.217	66.109	19.00	1.13	2586. 442	171.675	361. 624	. 600	2053.143	-1905.593
12-95	150, 063	75.031	123. 922	61.961					376.089	. 600	2000.343	-414.031
12-96	129. 416	64.708	106.872	53.436	20.94	1.25	2304.931	152.990	387.155	. 009	1764.786	782.258
12-97	110. 457	55, 229	91. 215	45.608				137.105	402. 641	. 000	1525.870	1722.564
12-98	96. 763	48.381	79.907	39.953					418.746	. 000	1355.155	2481.749
12-99	85. 151	42, 576	70.318	35.159					402. 686	. 000	1236. 396	3111, 435
12- 0	74. 932	37.466	61.879	30,939					418. 792	. 000	1095.698	3618.734
12- 1	65. 941	32.971	54. 454	27.227	26.73	1.59	1498.891	99.489	435, 545	. 000	963.857	4024, 423
12- 2	58. 028	29.014	47.920	23.960					419. 413	. 000	873.647	4358.714
12- 3	51.065	25, 532	42.169	21.084					395.188	. 000	799.582	4636.851
12- 4	44. 937	22. 468	37.109	18.554					410. 995	. 000	692.981	4855, 992
12- 5	39.756	19.879	32.831	16.416					427. 435	. 000	598.110	5027.938
12- 6	36. 367	18.183	30.032	15.016	34.12	2.03	1055.046	70.028	444. 532	. 000	540. 486	5169.192
S TOT	1190. 966	595, 493	983.501	491.750	23, 37	1.39	23663.810	1570.688	5644. 839	4810.000	11638.283	5169.192
REN.	80. 034	40.017	66.092	33.046	37.24	2.21	2534.152	168.204	1216. 884	. 000	1149.064	5424. 531
TOTAL	1271.000	635,500	1049.593	524.796	24. 24	1.44	26197.962	1738.892	6861.723	4810.000	12787.347	5424. 531
CUM.	. 000	. 000		NET DIL	REVENUI	ES (MS))	25441.598		PRESENT N	IDRTH PROFIL	.E3
				XET GAS	REVENU	ES (#\$)) }	756.372	DISC	PH DF NET		PN DF NET
ULT.	1271.000	635,500		TOTAL	REVENU	ES (N\$))	26197.962	RATE	BTAX, MS		BTAX, MS
		RN (PCT)	39. 55	PROJECT				17.131	. 0	12787.347		814.330
BTAX P	PAYDUT YEARS		3. 49 3. 93	DISCOUNT	RATE	(PCT)		10.000	2.0	10684.716	35.0	333, 491
BTAX P	AYDUT YEARS	(DISC)	3. 93	GROSS DI	L WELLS	2		10.000		8236.684	40.0	-32.894
BTAX N	ET INCOME/II	rvest	3. 66	GROSS GA	S NELL	2		.000	8.0	6400.531	45.8	-316.372
BTAX N	ET INCOME/IN	WEST (DISC)	2. 22	GROSS NE	LLS			10.000		5424.531	50. 0	-538.768
									12.0	4601 . 386	60.0	-855.815
INITIA	N. N. I. FRACI	108	1.000000				IDN			3591 . 332	70.0	-1060. 388
			1.000000	FIXAL				. 825800		2788.195		-1194.299
		DATE	1- 1-93	INITIAL				. 825800		2341.801	90.0	-1281.980
MONTHS	S IN FIRST L	IKE	7.00	FINAL	NET GA	S FRACI	IDN	. 825800	25. 0	1458.214	100.0	-1338.457

INV N/D ACQUISITION COSTS

MALJAMAR GR UNIT - PHASE II (PUD) MALJAMAR (GRAYKURG SAM ANDRES) LEA, HM DPR: CHEURDN U S A INC.

TABLE 12

DATE: 05/22/92 TIME: 13:34.31 File: TDT Get#: 3

RESERVES AND ECONDMICS

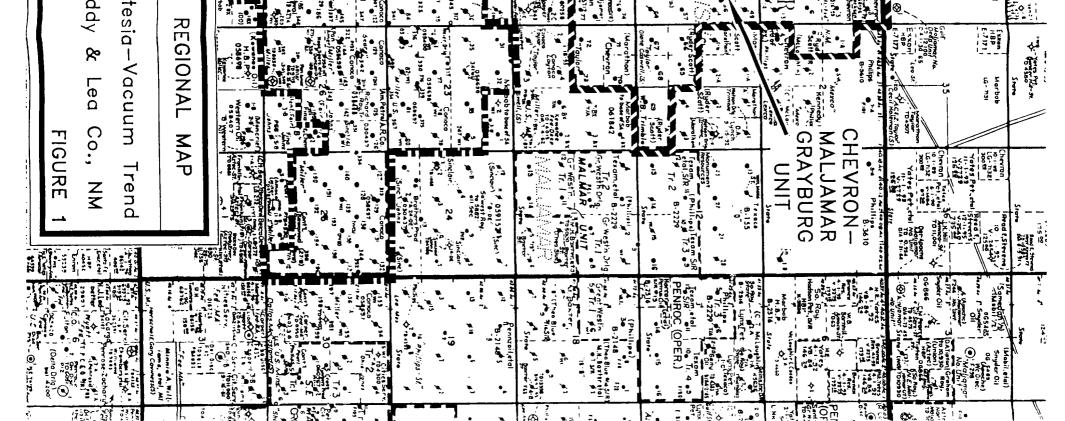
MALJAMAR GRAYBURG UNIT ESCALATED - N/D ACQ COSTS

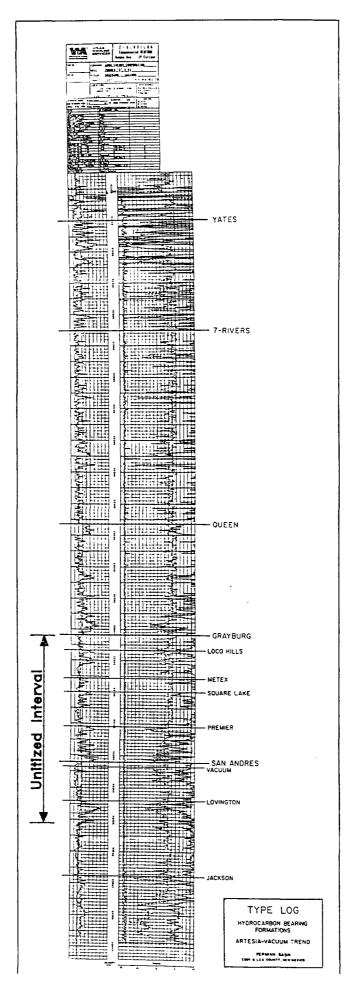
AS OF JUNE 1, 1992

T. SCOTT HICKNAN & ASSOC PETROLEUM ENGINEERS

					PRIC	ES	08	ERATIONS,	#\$			10.00 PCT
-ЕЖД -	GROSS PR	ODUCTI OX	KET PROI	DUCTION	BIL	GAS	NET OPER	SEV+ADV+	NET DPER	CAPITAL	CASH FLOW	CUM. DISC
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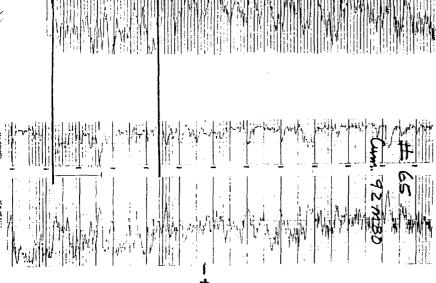
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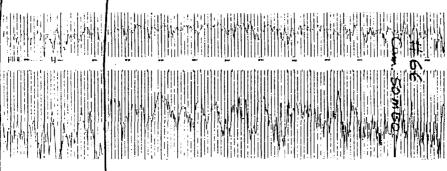


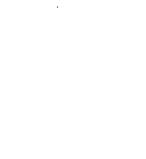


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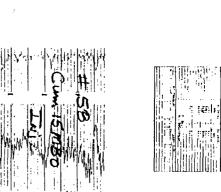
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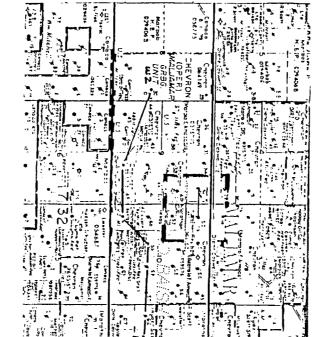




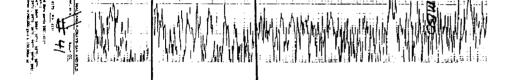
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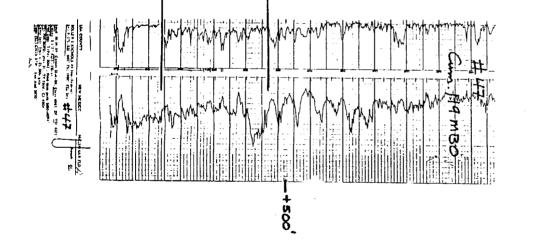
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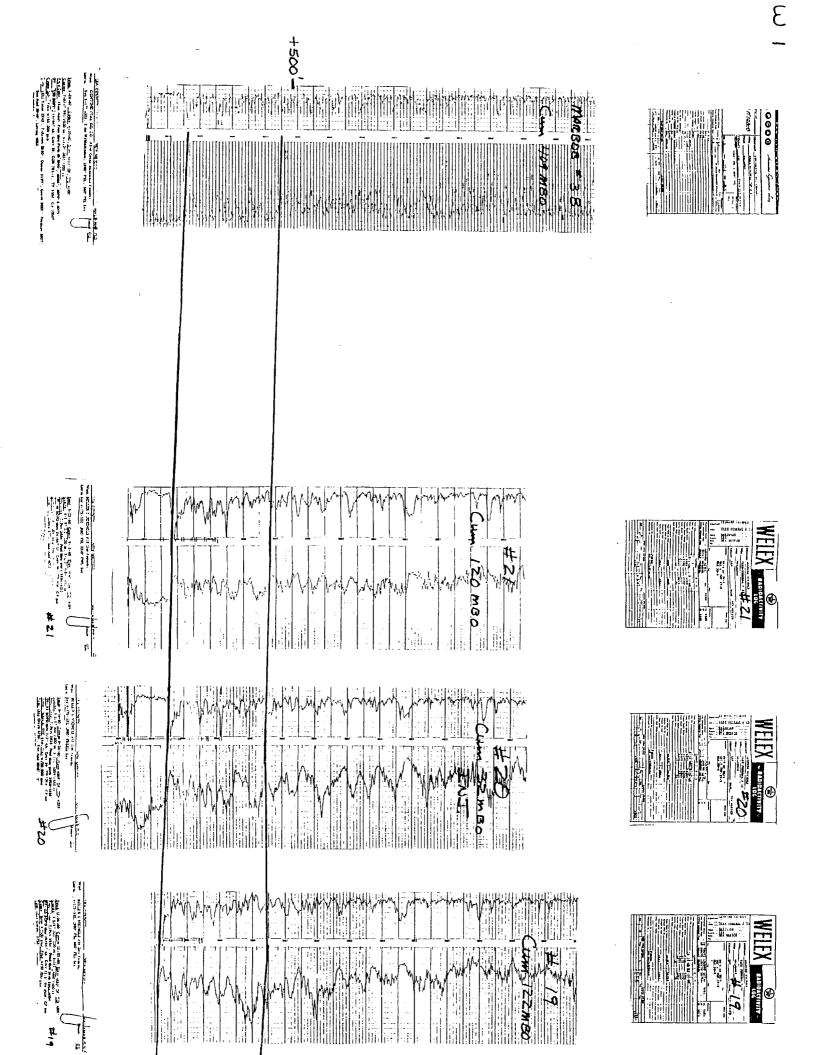


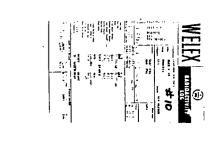


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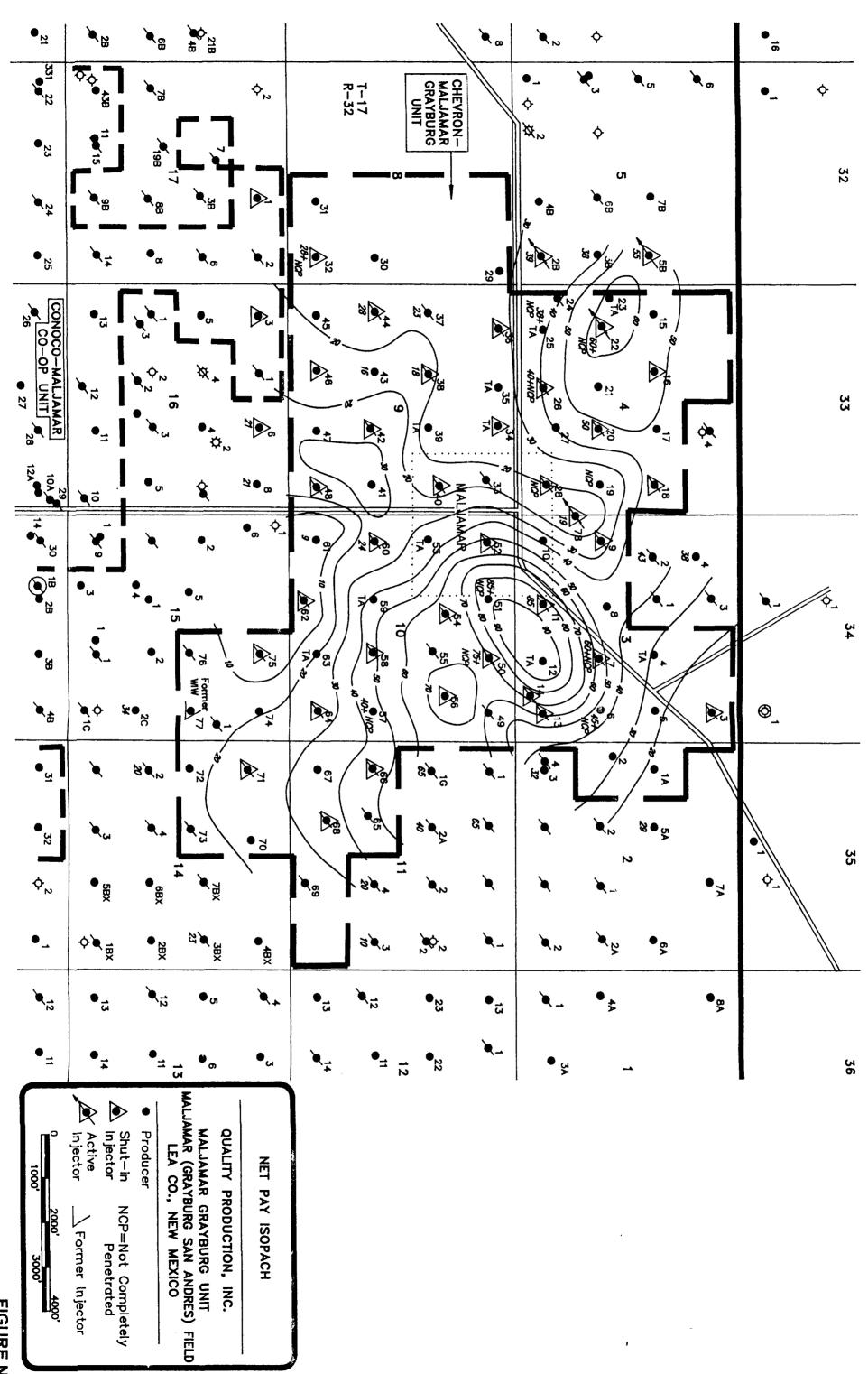


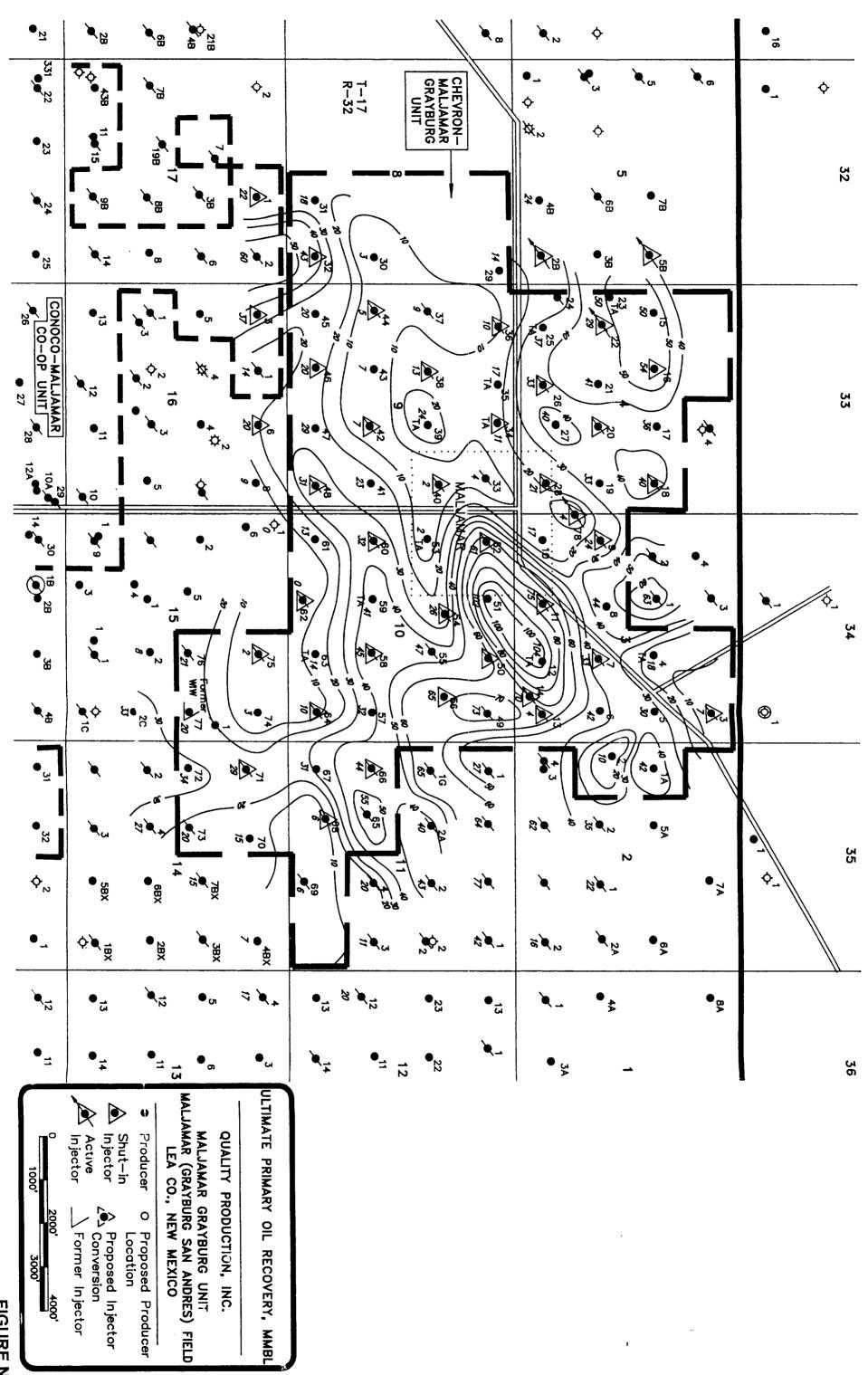
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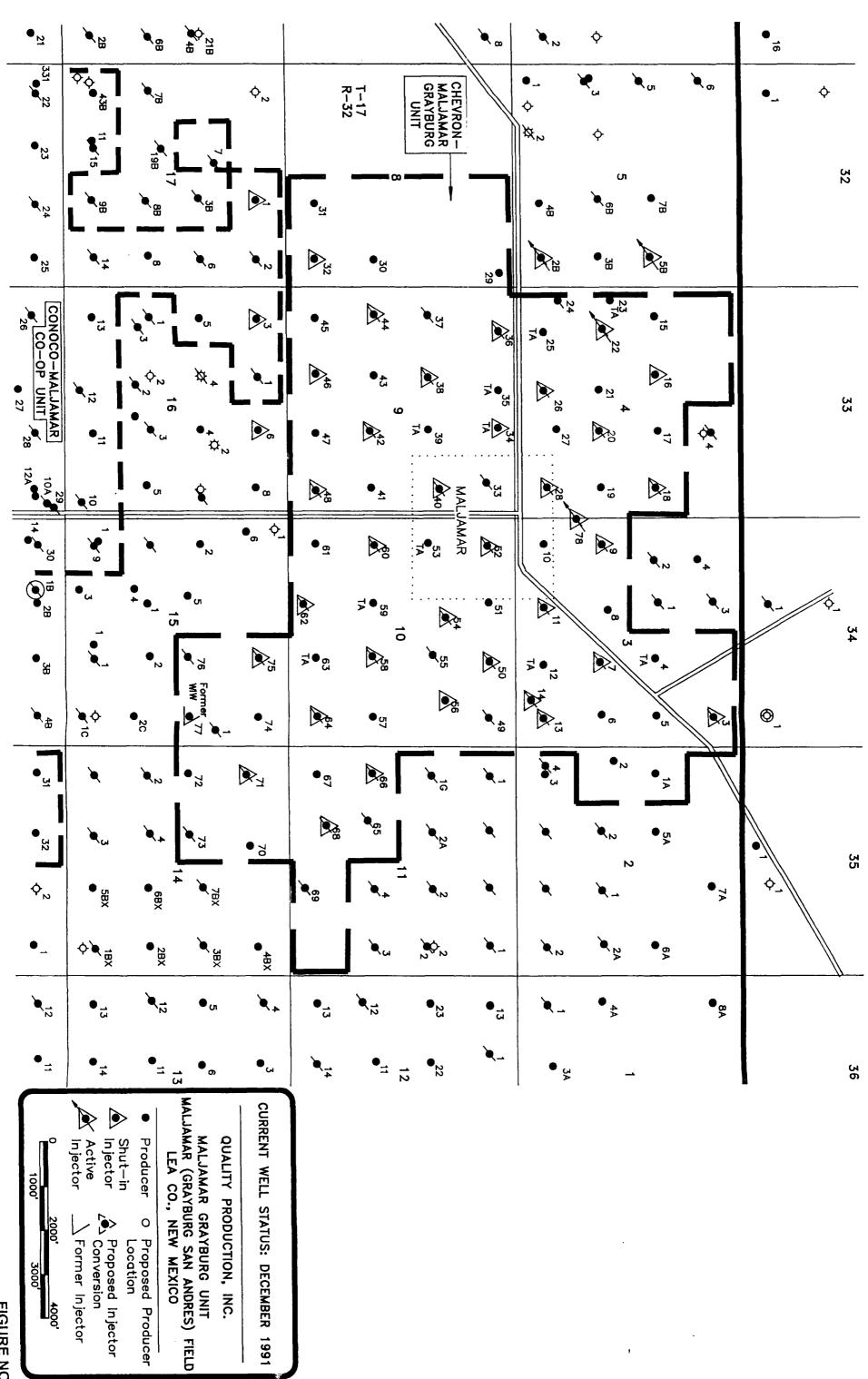
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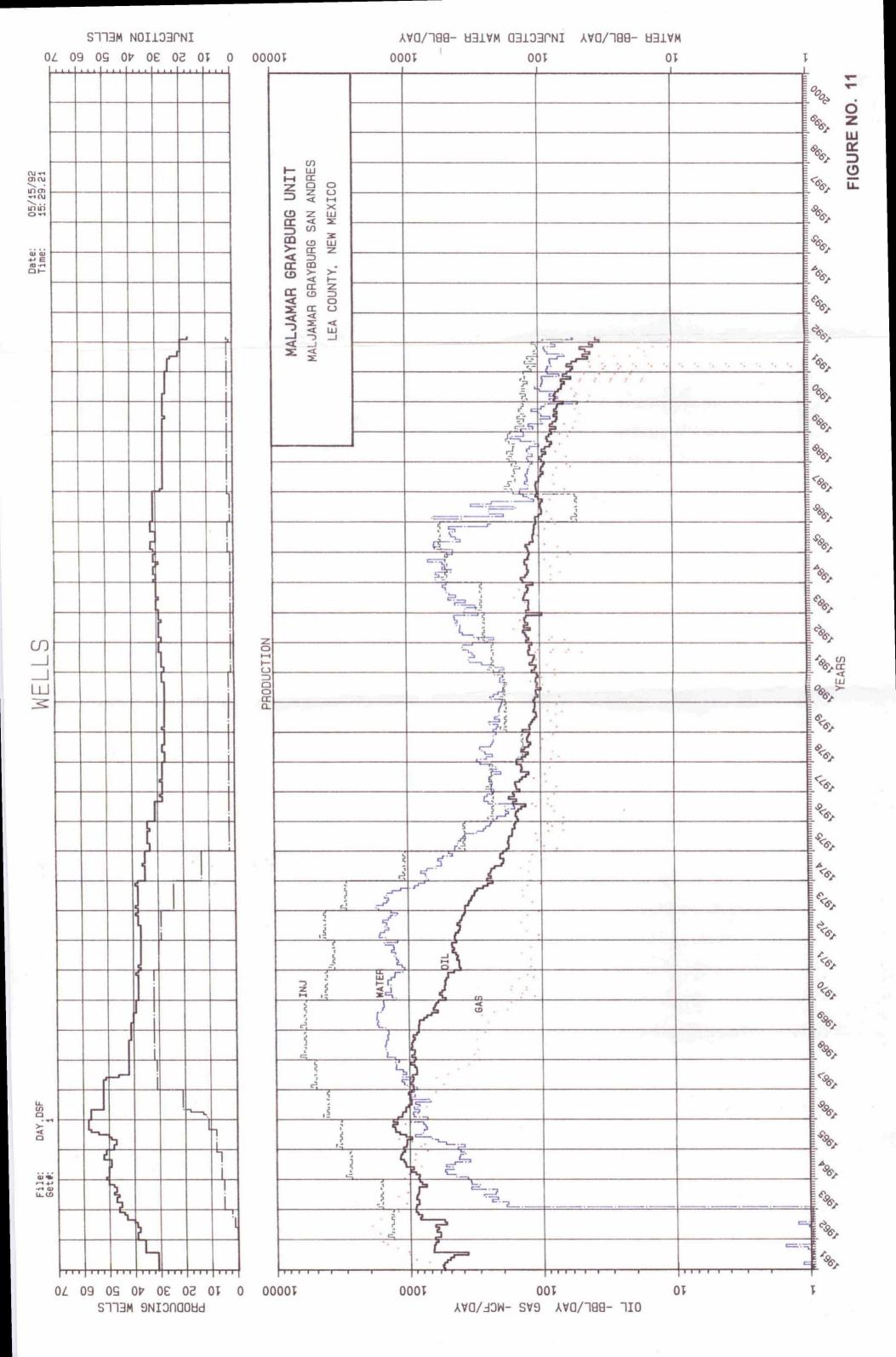
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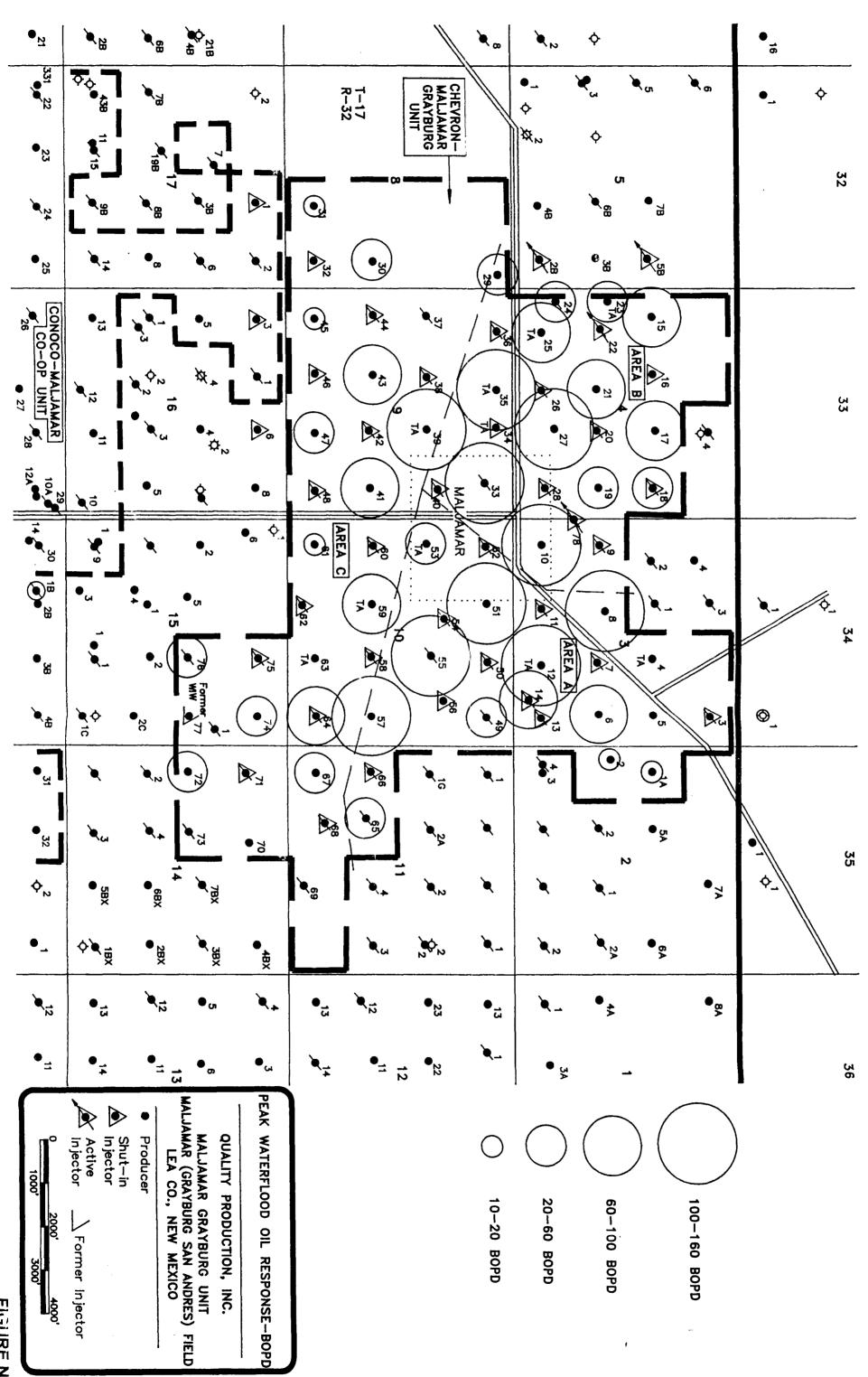
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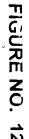


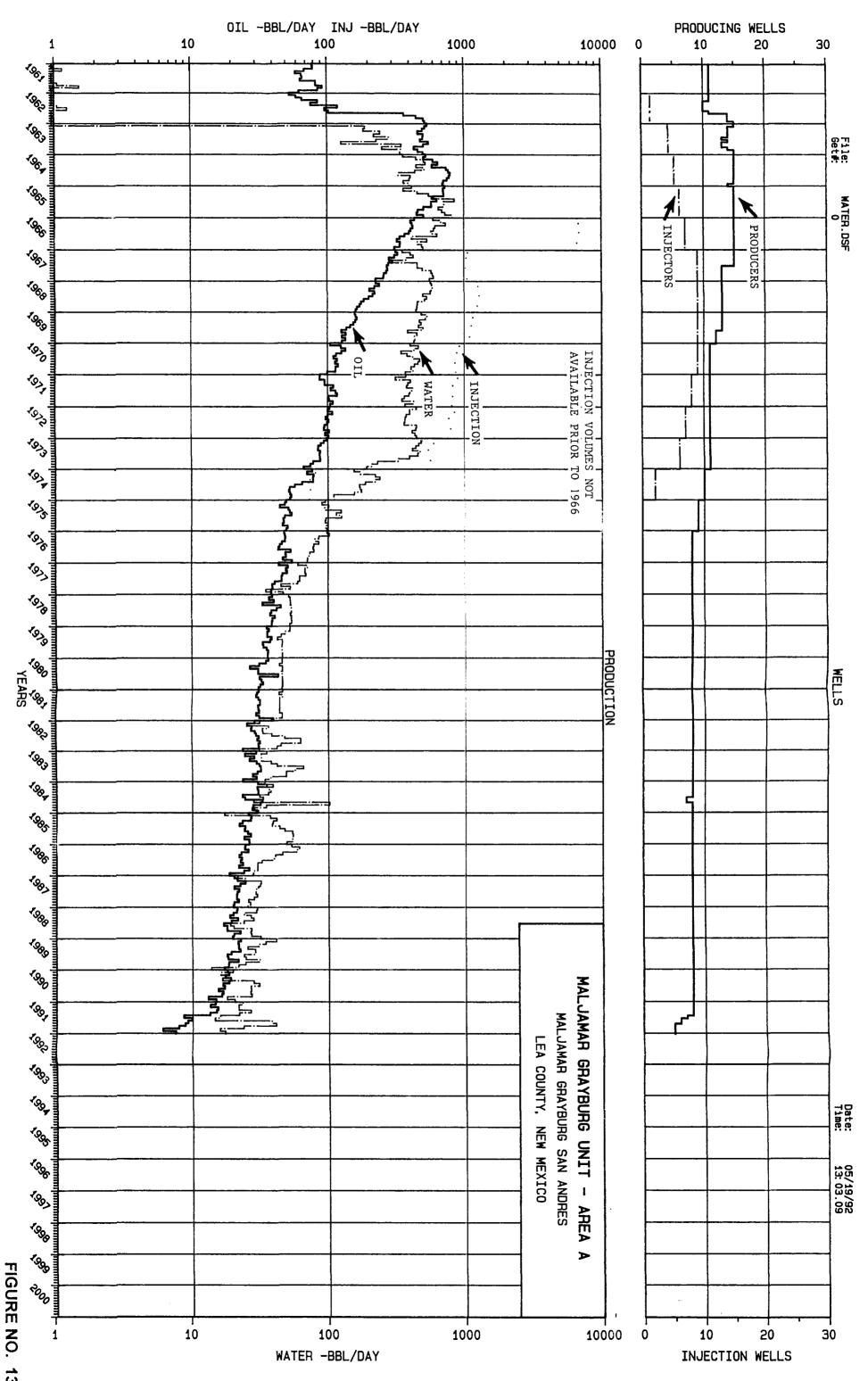




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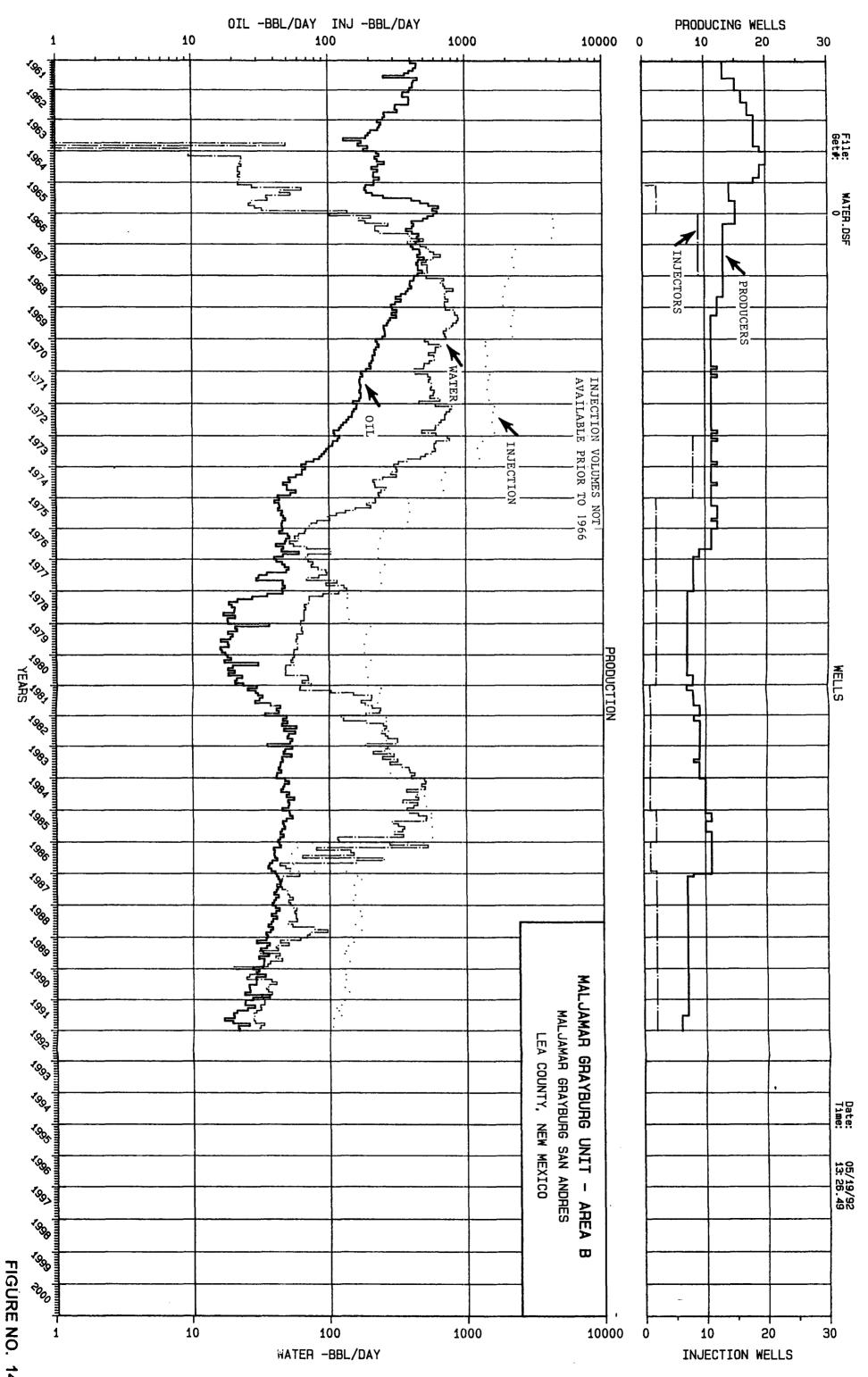
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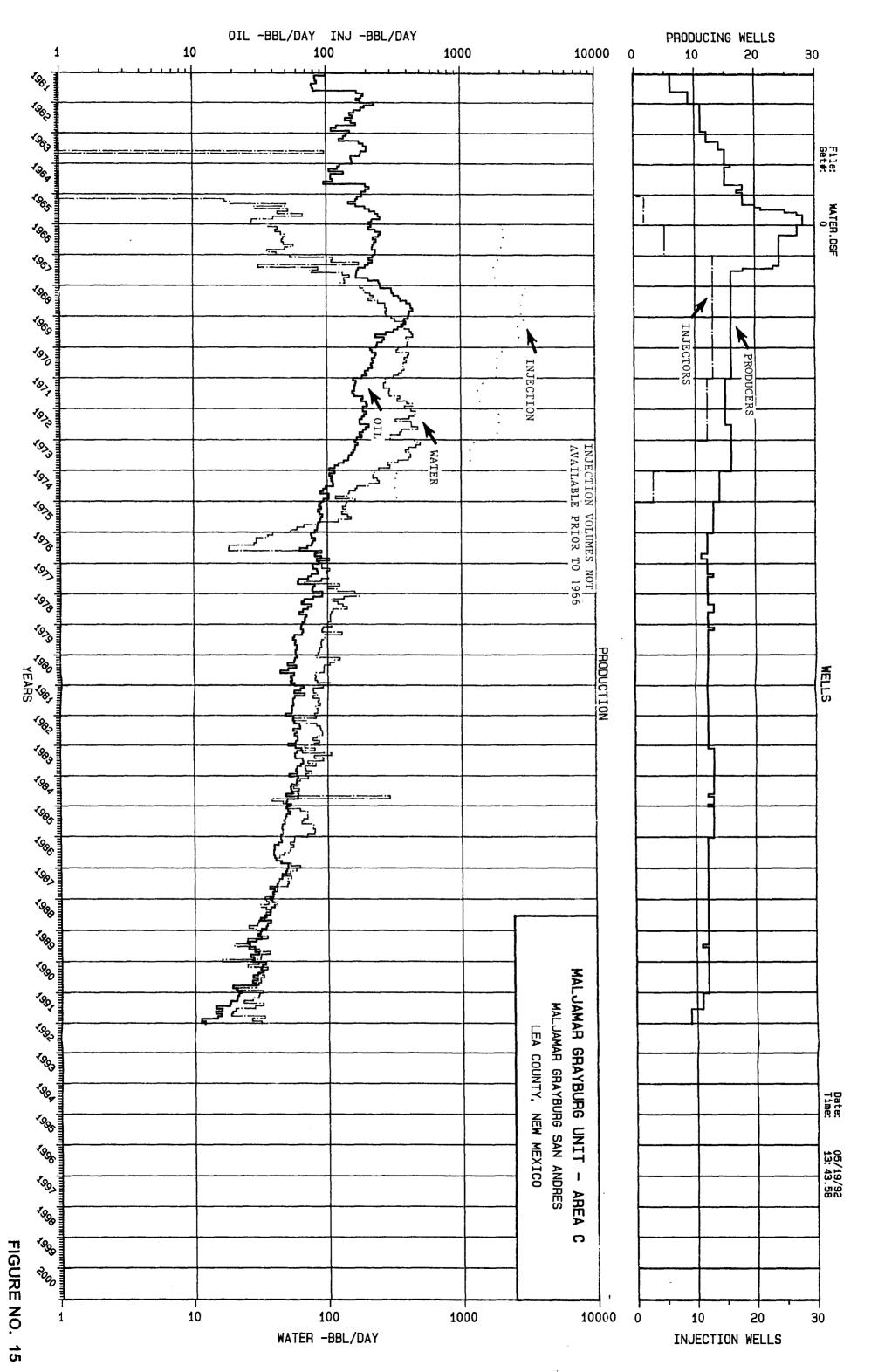
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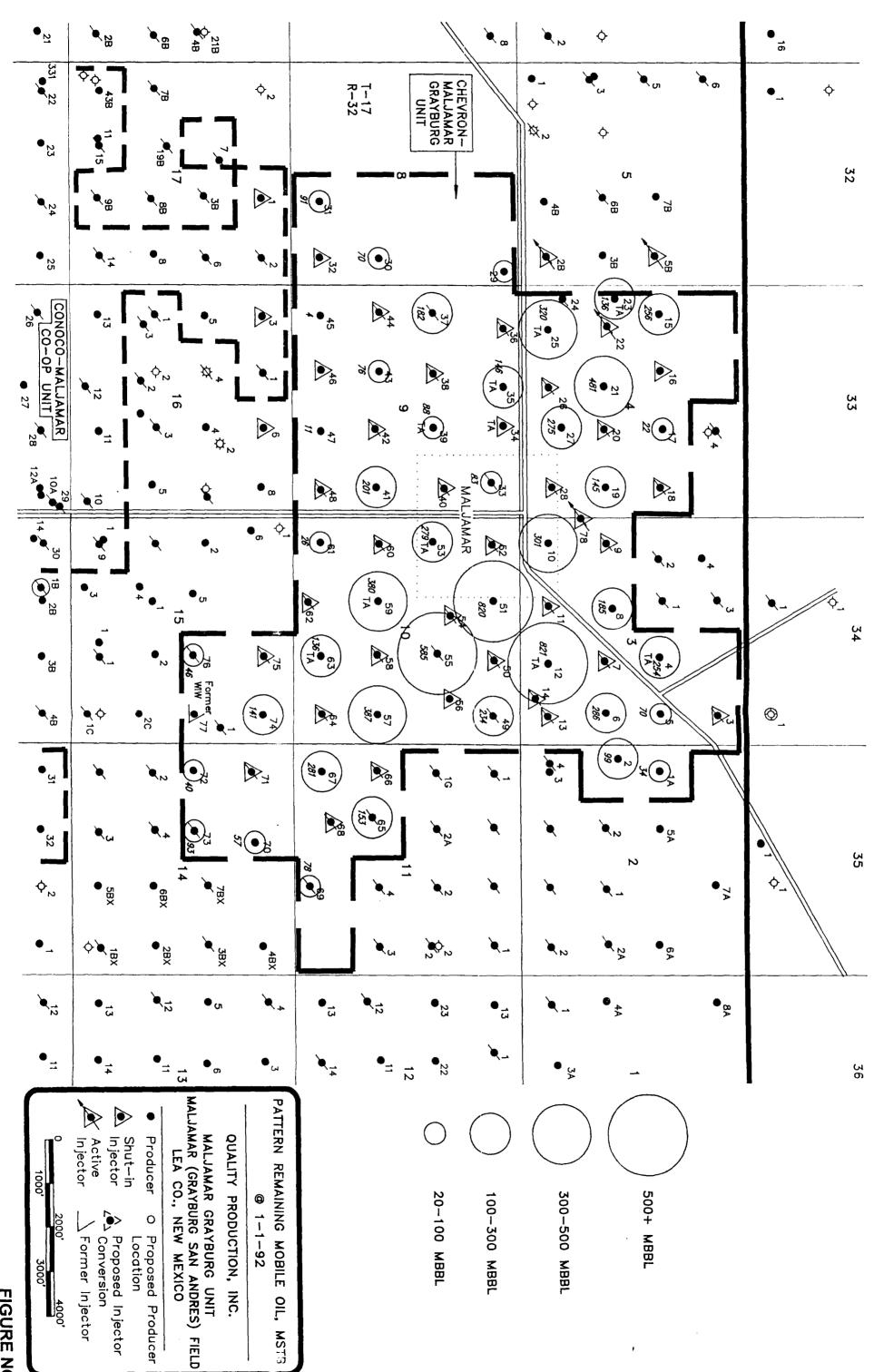


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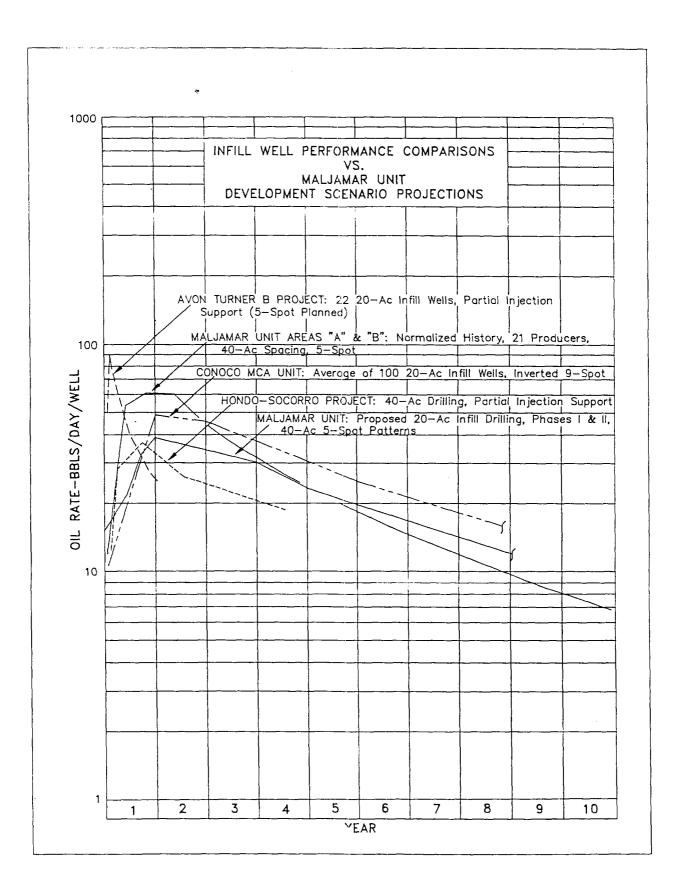
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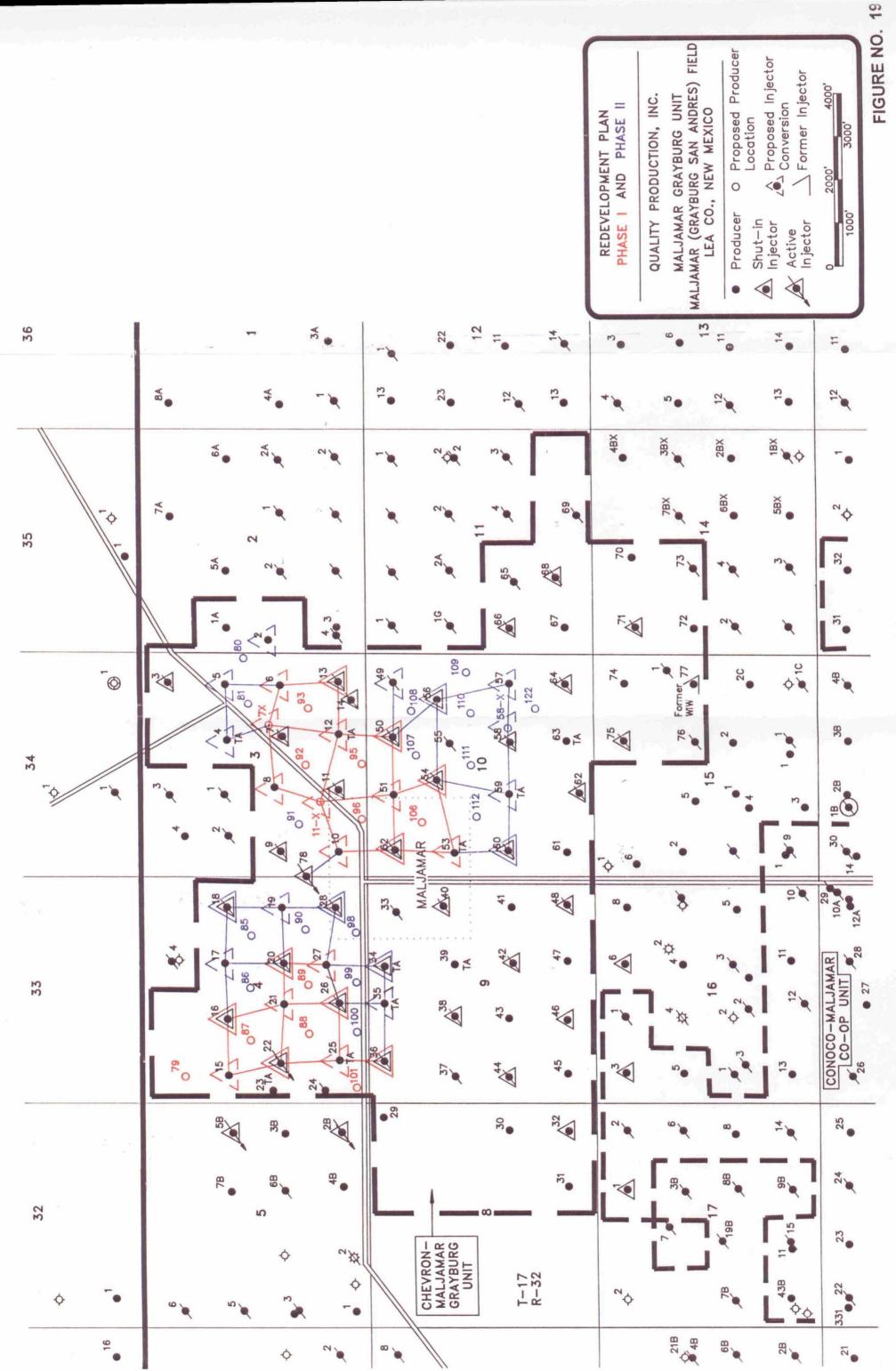
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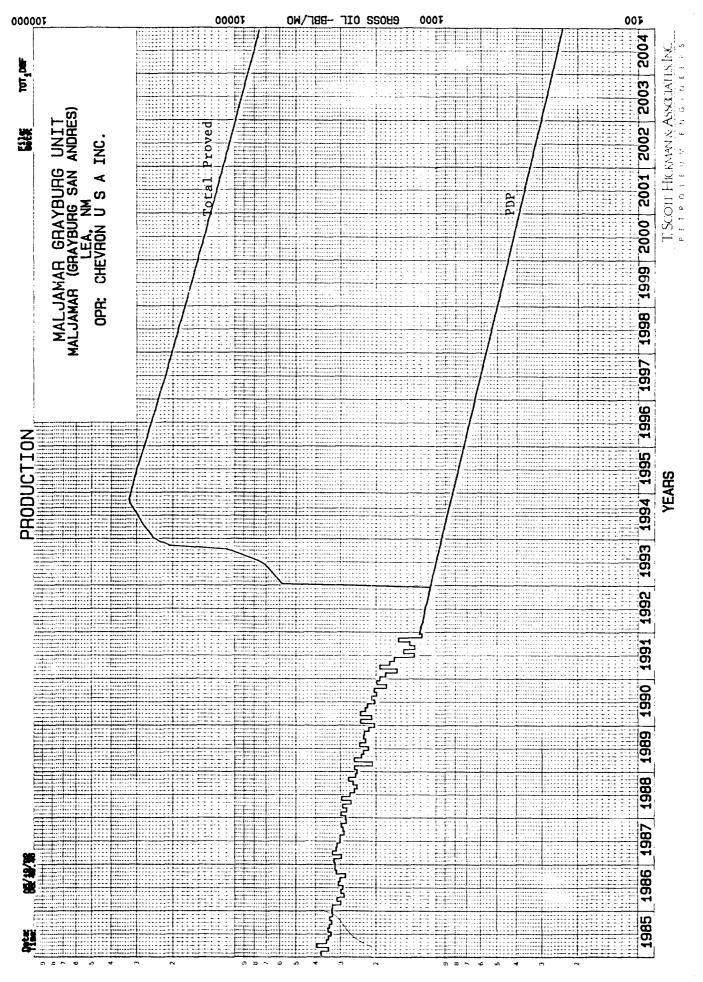
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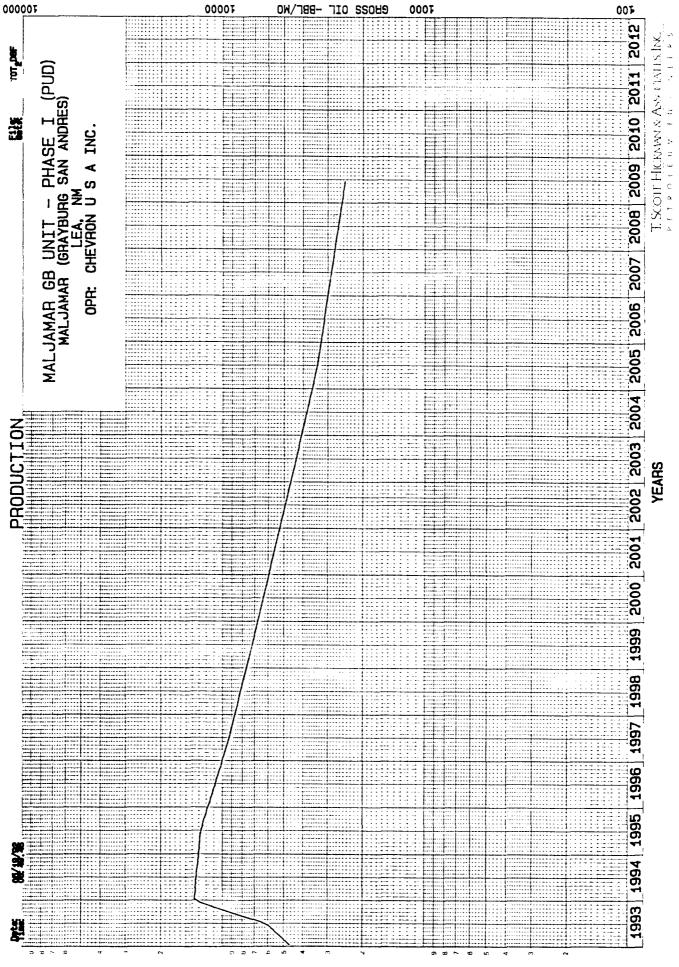


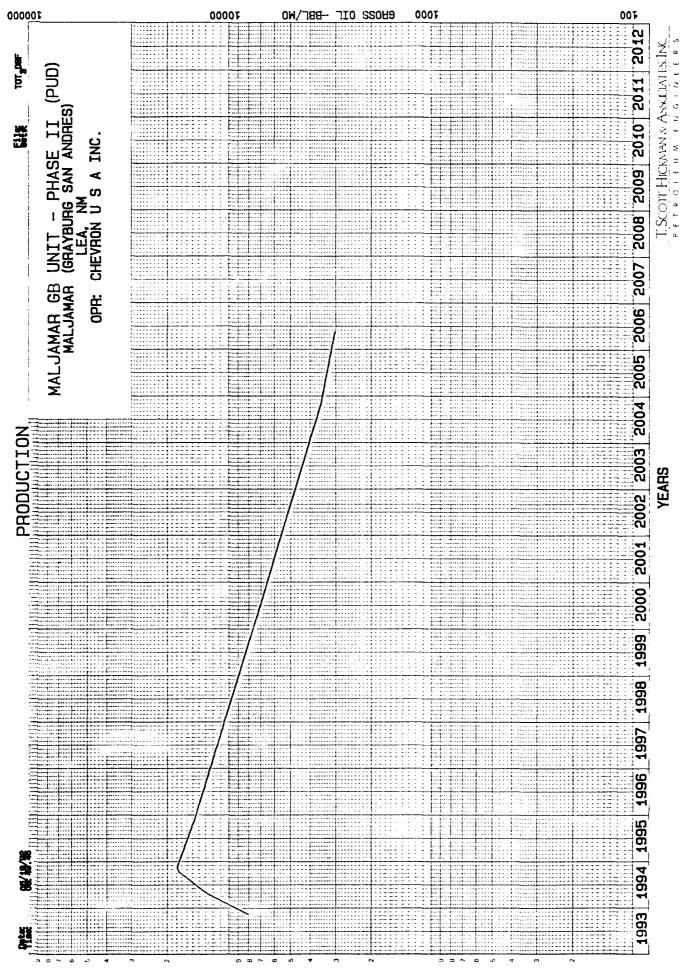
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QUALITY PRODUCTION CORP.

707 Shell Avenue Post Office Box 50128 Midland, Texas 79710-0128 (915) 686-0778 FAX (915) 686-1057 611 West Mahone Post Office Box 1412 Artesia, New Mexico 88211-1412 (505) 748-3352 FAX (505) 748-9869 215 South Leech Post Office Box 250 Hobbs, New Mexico 88241-0250 (505) 397-2727 FAX (505) 393-4111

December 14, 1993

State of New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87504

Re: The Wiser Oil Company Application for Qualification of EOR Projects Maljamar Grayburg Unit Maljamar Grayburg San Andres Pool Lea County, New Mexico

Gentlemen:

The Wiser Oil Company hereby applies for qualification of the expansion of an existing enhanced oil recovery project for the recovered oil tax rate pursuant to the New Mexico "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Section 1 through 5) and as implemented by Order No. R-9708. This project is the Maljamar Grayburg Unit, Maljamar Grayburg San Andres Pool in Lea County, New Mexico.

Following is the pertinent information pertaining to this Application and follows the procedure set out in Paragraph D of Exhibit "A" of Order No. R-9708.

- D. 4. a. The operator is The Wiser Oil Company, PO Box 1412, Artesia, NM 88211-1412, phone number 505/748-3352.
 - b. 1. A plat outlining the project area is attached "Exhibit A".
 - The project area is as follows: SW/4 NW/4, NW/4 SW/4 Section 2; NE/4, SE/4, SW/4 Section 3; S/2 NE/4, NW/4, SW/4, SE/4 Section 4; E/2 Section 8; Section 9; Section 10; SW/4, S/2 SE/4 Section 11; SW/4 Section 14; NE/4 Section 15; Township 17S, Range 32 E, Lea County, New Mexico.
 - 3. There are 3280 acres in the project area.

- 4. The subject pool and formation is Maljamar Grayburg San Andres.
- c. 1. The Maljamar Grayburg Unit was unitized and approved under Order No. R-3177 dated January 18, 1967.
- d. 1. Produced water and make up (fresh) water as required will be injected.
 - Maljamar Grayburg Waterflood Project, original Order No. R-1538 dated November 27, 1959, and subsequent Orders No. R-2777 dated October 14, 1964, R-3035 dated February 9, 1966, R-3178 dated January 18, 1967.
- e. 1. a. Present producing wells are as follows: Maljamar Grayburg Unit Wells No. 1, 2, 4, 5, 8, 10, 15, 17, 19, 21, 23, (TA), 25 (TA), 27, 29, 30, 31, 35 (TA), 39 (TA), 41, 43, 45, 47, 53 (SI), 57, 59 (TA), 61, 63 (TA), 67, 70, 72, 74, and 77.
 - b. Proposed producing wells are as follows: Maljamar Grayburg Unit Wells No. 79, 80, 81, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95, 96, 98, 99, 100, 101, 106, 107, 108, 109, 110, 111, 112 and 122.
 - 2. a. Present injection wells are as follows: Maljamar Grayburg Unit Wells No. 22 and 78.
 - b. Proposed injection wells are as follows: Maljamar Grayburg Unit Wells No. 2, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 34, 35, 36, 51, 52, 53, 54, 56, 57, 58, 59, 60, 78, 150 and 151.
 - 3. The estimated capital cost of additional facilities is \$755 M.
 - 4. The estimated total project cost is \$10040 M.
 - 5. The estimated total value of the additional production that will be recovered as a result of this project is \$24776 M.
 - 6. The anticipated date for commencement of injection is January 1, 1994.
 - The type of fluid to be injected is produced water and make up (fresh) water. The anticipated volume of injection is 250 BWPD/well.

8. Waterflood operations under Order No. R-1538, in the Maljamar Grayburg Unit were curtailed in 1973-1975. Injection for disposal of produced water has continued to the present. An Independent Reservoir Engineering study conducted in June 1992 by Don Hunter of T. Scott Hickman & Associates, Inc., Midland, Texas, (copy attached) indicates that significant oil reserves remain to be recovered in the Unit area. Recovery of these additional reserves will involve reducing the well spacing to 20 acres per well (from 40 acres) and reinstitution of waterflooding operations on 40 acre 5spot patterns instead of 80 acre 5-spot patterns.

The initial two phases of re-development will involve drilling 26 20 acre infill producing wells, and preparing 36 wellbores for injection (redrill 3 wells, convert 19 existing wellbores, and utilizing 14 other wellbores). It is anticipated that this work will be completed by December 31, 1996.

f. Production data and other supporting data to show the production history and production forecast of oil, casinghead gas and water from the project area is given in the attached reservoir engineering study.

CERTIFICATION:

I hereby certify that the information stated above is true and correct to the best of my knowledge.

Perry L. Hughes, Agent for The Wiser Oil Company

17/15/93

Date

cc: Jerry Sexton w/attachments

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REDEVELOPMENT STUDY

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MALJAMAR GRAYBURG UNIT MALJAMAR (GRAYBURG - SAN ANDRES) FIELD LEA COUNTY, NEW MEXICO

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T. SCOTT HICKMAN & ASSOCIATES, INC.

PETROLEUM ENGINEERS June 1, 1992

Mr. Perry Hughes Quality Production Corp. 707 Shell Avenue Midland, TX 70705

Dear Mr. Hughes:

Re: Maljamar Grayburg Unit Lea County, New Mexico

In accordance with Mr. Hughes' request, we have evaluated the Proved crude oil and gas reserves as of June 1, 1992 attributed to Phase I and II redevelopment and expansion of injection in the Maljamar Grayburg Unit in Lea County, New Mexico. Infill drilling on 20 acre well spacing and injection expansion on 5-spot patterns is recommended. This plan will require the drilling of 26 producers and 3 injectors, conversion of 19 wells to injection, return of 15 injectors to active status and associated facility work. Economic projections indicate that a capital investment of 10,040 M\$, exclusive of acquisition costs, will generate a future net revenue, after investment, of 24,776 M\$ in 17 years for a 46% annualized rate of return to 100% working interest (82.58% net revenue interest). The results of this study are discussed in the attached report as outlined in the Table of Contents.

Net oil and gas reserves are estimated quantities of crude oil, natural gas and natural gas liquid attributed to the composite revenue interests being evaluated after deduction of royalty and/or overriding royalty interests. Future net revenue was adjusted for capital expenditures, operating costs, interest reversions, ad valorem taxes and wellhead taxes, but no consideration was given to Federal income taxes or any encumbrances that might exist against the evaluated interests. Present worth future net revenue shows the time value of money at certain discount rates, but does not represent our estimate of fair market value.

The classification of non-producing reserves as Proved Undeveloped is dependent upon establishing full scale injection according to the plan as recommended by this report. The Proved Undeveloped classification is also contingent upon the likelihood that the project will receive financing and proceed ahead in a timely manner. Any prolonged delays in execution of this project in the manner prescribed by this report could lead to a reclassification of these reserves.

Reserves were determined using industry-accepted methods including extrapolation of established performance trends, volumetric calculations and analogy to similar producing zones. The basis for the reserve determinations are presented in the attached report. Where applicable,

> 550 WEST TEXAS, SUITE 950 TWO FIRST CITY CENTER MIDLAND, TEXAS 79701

Mr. Perry Hughes June 1, 1992 Page 2

the evaluator's own experience was used to check the reasonableness of the results.

In the preparation of this report, we have reviewed for reasonableness, but accepted without independent verification information furnished by Quality Production Corp. with respect to interest factors, current prices, log cross-sections and various other data. Production and injection data were obtained from commercial sources, public record, and operator's files. Well completion histories were also obtained from operator's files. The pricing and discount rate were applied at the direction of the client. The use of assumed rather than existing economic parameters affects both the cash flow projections by the difference in prices and expenses and also the reserve volumes by changing the economic limit at which production is terminated. The assumed pricing also has a major effect on the economic viability of non-developed potential and hence the volume of reserves that can be assigned to the non-producing categories.

We are qualified to perform engineering evaluations and do not claim any expertise in accounting, legal or environmental matters. As is customary in the profession, no field inspection was made of the properties nor have we verified that all operations are in compliance with any states and/or Federal conservation, pricing and environmental regulations that apply to them.

This study was performed using industry-accepted principles of engineering and evaluation that are predicated on established scientific concepts. However, the application of such principles involves extensive judgment and assumptions and is subject to changes in performance data, existing technical knowledge, economic conditions and/or statutory provisions. Consequently, our reserve estimates are furnished with the understanding that some revisions will probably be required in the future, particularly on new wells with little production history and for reserve categories other than Proved Developed Producing. Unless otherwise noted, we have based our reserve projections on current operating methods and well densities.

This report is solely for the information of and the assistance to Quality Production Corp. and their investors in evaluating the potential for infill drilling and/or pattern revisions in the Maljamar Grayburg Unit and is not to be used, circulated, quoted or otherwise referred to for any other purpose without the express written consent of the undersigned except as required by law. Persons other than those to whom this report is addressed shall not be entitled to rely upon the report unless it is Mr. Perry Hughes June 1, 1992 Page 3

accompanied by such consent. Data utilized in this report will be maintained in our files and are available for your use.

Yours very truly,

T. SCOTT HICKMAN & ASSOC., INC.

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C. Don Hunter, P.E.

glb attachments

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The reason for the premature shut-in of injection in the MGU may in part be due to suspected injectivity problems. Makeup water for the MGU is the Ogallala aquifer, the source for most of the waterflood projects in this field, including the highly successful Conoco MCA Unit. Accepted practice is to maintain a deoxygenated makeup water system, which may not have been accomplished in the MGU.

Production performance was adversely affected by the reduced injection volumes and injection water makeup volumes after 1974. However, in spite of inadequate injection volumes and inefficient pattern operations during most of the injection period, waterflood response has been satisfactory within certain areas of the Unit. Figure 11 is the Unit rate vs. time performance graph. Figure 12 is a map which shows peak waterflood oil response for each of the producers. As shown by the map, Areas "A" and "B" have experienced significant oil response. These areas also coincide with relatively high primary oil recoveries and net pay thickness. Figures 13 and 14 are the rate vs. time performance graphs for Areas A and B, respectively, which confirms the individual well oil response but is masked by the erratic injection histories. Figure 15 is the performance graph for Area C which also shows oil response to injection, but to a lesser degree. Figure 16 is a composite of average well response for producers within Areas A and B, normalized to date of initial oil response which shows significant but unsustained response due to insufficient injection support.

The MGU injection-withdrawals ratio of 1.13 which is significantly lower than is normal for a mature waterflood. The negative effects of reservoir heterogeneity has been compounded by completion procedures as evidenced by minimal workovers during the past 10 to 15 years of operation.

A cumulative total of 4,961 MSTB have been produced from the MGU as of March 1,1992. During February 1992, the MGU produced at a rate of 36 BOPD and 10 MCFD from 17 producers.(Table 1). Proved Developed Producing oil reserves as of May 1, 1992 are estimated at 84 MSTB.

REDEVELOPMENT PERFORMANCE PREDICTION

Remaining mobile oil in place for the total MGU area is estimated to be 11,796 MSTB at the effective date of June 1, 1992 as shown by Table 2 under item II. Utilizing a conformance factor of 0.6, the MGU maximum potential under Unit-wide 20-acre spacing 5-spot waterflood pattern redevelopment is estimated at 7,078 MSTB (Table 2).

We have made a feasibility study of redeveloping the MGU through 20 acre infill drilling and reestablishing closed pattern water injection and have estimated the economics for a two-phase redevelopment within areas of highest remaining mobile oil potential. Figure 17 is a map of remaining mobile oil on a pattern basis. The ten well Phase I program exploits the high mobile oil segments within Areas "A" and "B" through patterns positioned to optimize investment costs per reserve barrel. The ten well program is considered to be the minimum number of producing wells sufficient to provide a valid test of redevelopment feasibility.

The performance projection for redevelopment was based on analytical prediction techniques. Waterflood recovery was derived from volumetric calculation of remaining mobile oil within the pattern areas and from estimates of displacement efficiency as influenced by analogy. Producing rate projections were also influenced by results in analogous projects.

One of the analogous projects is the Conoco MCA Unit, which adjoins the southwest boundary of the MGU. The MCA Unit is a major Grayburg-San Andres waterflood and CO₂ project with cumulative oil production in excess of 101 MMBLS. The MCA Unit is productive in Grayburg dolomitic sands and San Andres dolomites that are equivalent interval to the producing interval in the MGU. However, the MCA Unit differs from the MGU not only by being significantly larger with an OOIP of 268 MMBLS, but also in its development history. During early primary depletion in 1942, gas injection was initiated which was successful in improving performance. Ultimate primary recovery aided by gas injection, was projected by Conoco to be 56 MMBLS or 21% of OOIP.

Water injection was initiated in 1963 and expanded to full 80-acre, 5-spot patterns by 1969. During 1970-73, 100 infill producers were drilled and waterflooding continued on inverted 9-spot patterns. Ultimate primary and secondary recovery was projected by Conoco to be 119 MMBBL or 44% OOIP.

Infill drilling occurred during active waterflood operations so incremental reserves attributed solely to infill drilling are difficult to assess. Best estimates of initial average rates for the 100 infill producers are in excess of 50 BOPD/well. Performance of the MCA Unit, through published technical engineering and geological reports, provided a basis for conformance factors and end-point saturation values used in MGU redevelopment prediction. Conoco established a CO_2 pilot during 1981-85 and expanded to full CO_2 development during 1988-89.

The Avon Turner "B" project is a depleted 40-acre 5-spot waterflood which was redeveloped with the drilling of 22 infill producing wells on 20-acre spacing during 1990-91. Production is from 3000 to 3600' in Grayburg and San Andres dolomitic sands. The net pay appears to be thicker than the MGU and the average primary recovery is higher. Core data indicates that pay quality is similar. Table 3 shows the comparative project performance between the Turner "B" project and the MGU. The 20-acre infill drilling project was designed to create 40-acre 5-spot patterns but the planned injection well conversions have not occurred. Initial oil rates for the 22 infill producers were high, averaging 95 BOPD/well. However, the deferral in injection well conversions caused inadequate injection support resulting in relatively sharp production declines. Ultimate oil recovery from the 22 infill wells is projected to average 55 MBBL/well under current reduced injection support, but four of the infill wells located within apparently pressured areas will achieve ultimate recoveries ranging from 100 to 150 MBBL/well. It is understood that the current operator plans to initiate the injection well conversions as originally planned. Table 2 item II(b) is the recovery calculations summary for MGU Phases I and II. Remaining mobile oil at the effective date of June 1, 1992 is 4,208 MSTB. Recoverable oil is 2,525 MSTB, or 97 MSTB/pattern. This estimate is based on a volumetric recovery efficiency of 60%, derived from the evaluator's experience with similar projects. Producing rate forecasts were based upon rate-time performance comparison on an average well basis for infill well performance for analogous projects (Figure 18).

REDEVELOPMENT PLAN AND ECONOMICS

The twenty-six well redevelopment well schedule and preliminary investment schedules are set forth on Tables 4, 5 and 6. The Phase I and II areas are shown by Figure 19.

Investment costs for drilling, workovers and the re-establishment of injection and the projected operating costs are based on data furnished by QPC and supplemented by the evaluator's experience for similar projects. Investment costs do not include acquisition costs or costs of financing.

Initial water injection requirements of 2100-2200 BWPD are estimated for Phase I and 2500-2600 BWPD for Phase II.. The most likely water source will be the Ogallala aquifer. Chevron currently owns Ogallala water rights plus water wells and equipment on the east offsetting Section 1. These water rights are separate from MGU ownership and will permit the withdrawal of 215 ac-ft/year, or approximately 4569 BWPD, which should be adequate for Phase I and II requirements. QPC will acquire these rights as a separate entity and will offer to furnish makeup water to the MGU. For purposes of this evaluation, the cost to the MGU was estimated at \$.08/BBL.

The price and escalation scheme were applied at the direction of QPC. An initial oil price of \$17.50/BBL, after adjustments for gravity and grade, was held constant through 1992. An oil price of \$18.50/BBL was applied for 1993. Beginning January 1, 1994, oil pricing was escalated at 5 % per annum to a maximum of \$50/BBL. A starting gas price of \$1.00/MCF and held constant through 1992. A gas price of \$1.10/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994, gas price of \$1.00/MCF was applied for 1993. Beginning January 1, 1994,

Lease operating expenses of \$1000/month for producer and \$650/month for injector were estimated by QPC based on anticipated operating conditions and include overhead. Expenses were escalated starting January 1, 1993 at 4% per annum until the primary product reached the maximum price. No equipment salvage value or costs were included for the property. Investments were not escalated at direction of QPC.

Incremental economics for the composite of Phases 1 and II indicate that a capital investment of 10,040 M\$ will generate a 10% discounted future net revenue of 11,138 M\$ resulting in a 45.7% rate of return and a 3.59 year payout. A summary of reserves and economics is shown by Table 7. The oil rate forecasts are shown by Figures 20, 21 and 22. Tables 8 through 10 are the reserves and cash flow projections for Total Proved,

Proved Developed Producing and Proved Undeveloped, respectively. Tables 11 and 12 are the summaries for Phases I and II, Proved Undeveloped categories, respectively. Figure 20 is the rate vs. time oil production forecast for the MGU. Figures 21 and 22 are the rate vs. time projections for Phase I and II, respectively.

The classification of non-producing reserves as Proved Undeveloped is dependent upon establishing full scale injection according to the plan as recommended by this report. The Proved Undeveloped classification is also contingent upon the likelihood that the project will receive financing and proceed ahead in a timely manner. Any prolonged delays in execution of this project in the manner prescribed by this report could lead to a reclassification of these reserves.

Table 1

Project Performance Summary MALJAMAR UNIT Maljamar (Grayburg-San Andres) Field Lea County, New Mexico

Initial Completion Date	1944
Unitization Date	23-Jun-66
Initial Water Injection Date	1962
Total Well Completions: Producers Injectors Total	43 35 78
Active Well Completions @ 3-1-92 Producers Injectors Total	17 2 19
Unitized Area (Acres)	3350
Average Spacing (Acres/Well)	40
OOIP (MSTB)	40368
Cumulative Oil Production @ 3-1-92 (MBBL)	4961
Cumulative Oil Production @ 3-1-92 (BBL/acre)	1481
Average Oil Cumulative Per Well (MBBL)	64
Feb 92 Oil Rate- Total Unit (BOPD)	36
Feb 92 Oil Rate- Per Well (BOPD)	2.1
Ultimate Primary Oil Recovery (MBBL)	2255
Ultimate Primary Oil Recovery (BBL/Acre)	673
Recovery Factor (%)	5.6
Average Oil Recovery Per Well (MBBL/Well)	29
Cumulative Secondary Oil Recovery @ 3-1-92 (MBBL)	2706
Ultimate Secondary Oil Recovery Under Current Mode (MBBL)	2793
Average Ultimate Secondary Per Well (MBBL)	65
Secondary : Primary Ratio	1.24
Ultimate Oil Recovery Under Current Mode (MBBL)	5048
Estimated Recovery Factor (%)	12.50
Remaining Oil Recovery Under Current Mode @ 6-1-92 (MBBL)	84
Cumulative Gas Production @ 3-1-92 (MMCF)	3662
Cumulative GOR (SCF/STB)	738
Feb 92 Gas Rate (MCFPD)	10
Feb 92 GOR (SCF/BBL)	289

Table 1

Project Performance Summary MALJAMAR UNIT

Cumulative Water Production @ 3-1-92 (MBBL)	6197
Cumulative WOR (Volume/Volume)	1.25
Cumulative Watercut (%)	55.5
Feb 92 Water Rate (BWPD)	55
Feb 92 WOR (Volume/Volume)	1.53
Feb 92 Watercut (%)	60.5
Cumulative Water Injection @ 3-1-92 (MBBL)	18408
Cumulative Injection-Secondary Oil Recovery Ratio (STB/STB)	6.80
Cumulative Injection-Withdrawal Balance (RBBL/RBBL)	1.13
Feb 92 Injection Rate- Total Unit (BWPD)	53
Feb 92 Injection Rate- Per Well (BWPD)	27

i

Recovery Calculation Summary Maljamar Grayburg Unit Lea County, New Mexico

Original Oil-in-Place, N where A = Unit Area (Ac) h = Net pay (ft) $\emptyset = Pcrosity (dec.)$ $S_{wi} = Connate water saturation (dec.)$ $B_{oi} = Initial formation volume factor$

> $N = 7758 \text{Ah} \emptyset (1-S_{\text{wi}})/B_{\text{oi}}$ = 7758(113530)(.10)(1-.45)/1.2 = 40,368 MSTB

NOTE: This is an approximation of OOIP, calculated from currently available data base i.e. limited quantitative logs and core data

I <u>Ultimate Recoveries Under Current Mode of Operations</u>	
Effective Date:	June 1, 1992
Cumulative Oil Production @ 6-1-92 (MSTB)	4965
Cumulative Recovery Factor (%)	12.3
Ultimate Primary Recovery (MSTB)	2255
Primary Recovery Factor (%)	5.6
Cumulative Secondary Recovery (MSTB)	2710
Ultimate Secondary Recovery (MSTB)	2793
Secondary: Primary Ratio	1.24
Combined Ultimate Primary plus Secondary (MSTB)	5048
Recovery Factor (%)	12.5

II <u>Redevelopment Potential Under Phase I and II Redevelopment</u> Effective Date:

June 1, 1992

Estimated Oil Saturation at June 1, 1992, S_{oi} where:

B₀ = Formation Volume Factor at Estimated current bottom-hole pressure

$$S_{0} = (1-RF)(B_{0}/B_{0i})(1-Sw)$$

= (1-.123)(1.12/1.2)(1-.45)
= 0.450

(a) Unit Remaining mobile oil at June 1, 1992; N_m where:

 $S_{or} = Residual oil saturation, dec.$

$$N_{m} = 7758 \text{Ah} \oslash (S_{o} - S_{or}) / B_{o}$$

= 7758(113,530)(0.10)(.45-.30)/1.12
= 11,796 MSTB

Estimated maximum potential recoverable oil, based on estimates of volumetric sweep efficiency , $E_{\rm VI}$

where:

Npw = recoverable oil

Ev = volumetric sweep efficiency assuming 5-spot patterns on 20-acre well spacing

 $N_{pW} = N_m E_V$ = (11,796)(0.6) = 7078 MSTB

(b) Phase I and II areas remaining mobile oil at June 1, 1992, from 26-well infill drilling program

Effective Date:	June 1, 1992
Cumulative Unit Oil Production at June 1, 1992 (MSTB)	4965
N_{m} , (MSTB)	4208
Incremental Recovery at $E_{v} = 0.6$ (MSTB)	2525
Recovery Per Producer Pattern (MSTB)	97
Ultimate Unit primary and secondary recovery (MSTB)	7573
Ultimate Recovery Factor (%)	18.8

Comparison of Similar Reservoirs Pre-Infill Drilling Waterflood Performance Moliamer (Crawburg San Andree) Field

Maljamar (Grayburg-San Andres) Field

	Maljamar Unit	Avon Turner-B
Effective Date:	3/1/92	1/1/90
Total Well Completions:		
Producers	43	33
Injectors	35	16
Total	78	49
Injector-Producer Ratio	1.23	0.49
Unitized Area (Acres)	3350	1320
Average Spacing (Acres/Well)	40	40
OOIP (MSTB)	40368	*NA
Cumulative Oil Production (MBBL)	4961	4103
Cumulative Oil Production (BBL/acre)	1481	3109
Average Oil Cumulative Per Well (MBBL)	64	84
Ultimate Primary Oil Recovery (MBBL)	2255	2059
Ultimate Primary Oil Recovery (BBL/acre)	673	1560
Ultimate Primary Recovery Factor (%)	5.6	*NA
Average Oil Recovery Per Well (MBBL)	29	42
Cumulative Secondary Oil Recovery (MBBL)	2706	2044
Ultimate Secondary Oil Recovery (MBBL)	2793	2044
Average Ultimate Secondary Per Well (MBBL)	65	62
Secondary: Primary Ratio	1.24	1.00
Ultimate Oil Recovery (MBBL)	5048	4103
Estimated Recovery Factor (%)	12.5	-
Cumulative Water Production (MBBL)	6197	4747
Cumulative WOR	1.25	1.16
Cumulative Watercut (%)	55.5	53.6
Cumulative Water Injection (MBBL)	18408	24482
Cumulative Injection-Secondary Oil Ratio (STB/STB)	6.8	11.9
Cumulative Injection-Withdrawal Balance (RBBL/RBBL)	1.13	2.67

*NA= data not available

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY MALJAMAR UNIT REDEVELOPMENT PLAN PHASE I

INJECTION	WELL	WORK	

		_		INDE	CHO	AAAEF	.L V	vorr	`					_
	Drill	Produ	ucer									Facilit	-	Cum
		Unit		Drill		Conv	ert			Work			Total	Total
Inv	Well		Inv	Well		Well		lnv.		Well		Inv	lnv.	Inv
Date	No.	S-G	(\$M)	No.	(\$M)	No.		(\$M)		No.	(\$M)	(\$M)	(\$M)	(\$M)
D92	95	3-0	260										260	260
D92		50	200									100		
D92	106	10-C	260									100	260	
J93	100	10 0	200									80		
J93												100		
J93	96	3-N	260				12		50			25		
J93		••••					51		80			25		
J93							53		35			25		
F93	87	4-E	2 60				10		35			25		
F93		. –								22	20		20	
F93										20			20	
F93	88	3 4-K	260							16			295	
F93										50			150	
F93	93	3-J	260							54	125		385	2490
M93							8		35			25	60	2550
M93				11X	200)	25		80	26	80	25	385	2935
M93	92	2 3-K	26 0							52	125		385	3320
M93							21		35			25	60	3380
M93				7X	200	1	6		80			25	305	3685
M93	89) 4-J	260										260	3945
Ap93	101	4-M	260				27		80	13	100	25	465	4410
Ap93													0	4410
Ap93	79) 4-D	260				15		35	36	80	25	400	4810
TOTAL	10)	2600	2	400)	10	:	545	9	735	530	4810	

TABLE 5

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY MALJAMAR UNIT REDEVELOPMENT PLAN PHASE II

INJECTION WELL WORK

	Drill Prod	lucer	1140			WORN	•					Cum
	Unit		Drill		Conver	t	v	Nork	over	Facilit	v	Total
lnv	Well Loc	lnv	Well	Inv	Well	Inv.		Nell		Inv	Inv.	Inv
Date	No. S-G	(\$M)	No.	(\$M)	No.	(\$M)		NO.	(\$M)	(\$M)	(\$M)	(\$M)
Nv93	107 10-B	260									260	260
Nv93											0	260
Nv93	111 10-G	i 260									260	520
Dc93	86 4-F	260									260	780
Dc93											0	780
Dc93	108 10-A	260			1	7	35			25	320	1100
Dc93	90 27 - I	260			1	9	75			25	360	1460
Jn94	85 4- G	260									260	1720
Jn94								56	75		75	1795
Jn94	91 3-L	260									260	2055
Jn94	112 10-F	260									260	2315
Fb94	98 27-P	260			5	9	35	60	70	25	390	2705
Fb94	110 10-H	260			5	7	35			25	320	3025
Mr94	81 3-G	260				1	35			25	320	3345
Mr94	80 3 - H	260				5	35			25	320	3665
Mr94			58X	200		2	35			25	260	3925
Ap94	99 27 - 0	260			3.	5	40			25	325	4250
Ap94	100 27-N	260			4	9	40	34	25	25	350	4600
Ap94								28	60		60	4660
My94	109 10 - I	260						18	50		310	4970
My94	122 27 - K	260									260	5230
TOTAL	16	4160	1	200	9	93	65	5	280	225	5230	

TABLE 6

PROPOSED INVESTMENT SCHEDULE AND WELL SUMMARY

MALJAMAR UNIT REDEVELOPMENT PLAN

PHASES I & II

	Drill Prod	lucer	INJE	стю	WELL	WORK				Cum
	No. wells	lnv (\$M)	Drill No. wells	Inv (\$M)			Work No. wells	Inv.	Facility Inv (\$M)	Total Inv (\$M)
TOTAL	26	6760	3	600	1	99	10 14	1015	755	10040

Well Status Under Rede	velopment:		
PRODUCERS		INJECTORS	
Drill	26	Drili	3
Existing	0	Convert	19
		Existing	14
Total	26	Total	36

Table 7

Summary of Economics - Escalated Case Redevelopment Project Maljamar Grayburg Unit Lea County, New Mexico

	Proved Developed Producing	Proved Undeveloped	Total Proved
Effective Date:		1-Jun-92	
Interest: Working , % Net Revenue, %			
Gross Reserves: Oil, MBBL Gas, MMCF	84 42	2525 1263	2609 1305
Net Reserves: Oil, MBBL Gas, MMCF	70 34	2085 1043	2155 1077
Net Operating Revenue, M\$	1559	51003	52562
Expenses: Wellhead Taxes, M\$ Operating Costs, M\$ Total, M\$	103 826 929	3385 12801 16186	3488 13627 17115
*Investments, M\$	0	10040	10040
Future Net Revenue: Undiscounted, M\$ Discounted @ 10%, M\$	629 431	24776 11138	25405 11569
**Payout , Years		- 3.59	-
Annualized Rate of Return, %		45.66	-
Income/Investment Ratio: Undiscounted Discounted @ 10%		3.4 7 2.25	-

*Investments do not include Unit acquisition costs of 1.25MM\$ **Payout Calculated From Effective Date

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MALJAMAR GRAYBURG UNIT ESCALATED - N/D ACR COSTS					 A:	T. SCOTT HICKMAN & ASSOC Petroleum engineers						
110-Y R	DIL, MRRL	NDUCTIEN Cas, NNCF	HET PRO BIL, MBRL	DUCTION Gas, MMCF	S/R	Gas \$/n	NET OPER Revenues	SEU+ADU+ NF TAXES	NET OPER Expenses	CAPITAL Custs, M\$	Cash Flon Btax, n\$	10.00 PCT CUN. DISC BTAX, M\$
12-92		3. 754	6.198				111.565		 54. 656	580.000	-450.495	-426.688
12-93	116. 528	58.264	96.229	48.115	18.50	1.10	1833.163	121.677	445. 599	4810.000	-3544.113	-3701.968
12-94	341. 981	170.990	282.408	141.204	19.00	1.13	5524, 491	366. 688	834, 188	4730.000	-406.385	-4170.141
12-95	349, 734	174.867	288.810	144.405	19.95	1.19	5932.213	393,750	877.116	. 800	4661.347	-694. 393
12-96	297. 318	148.658	245.526	122.761	20.94	1.25	5295.308	351.477	888. 334	. 000	4055.497	2054, 893
12-97	253. 412	126.707	209.268	104.634	21.99	1.31	4738.992	314, 550	923. 867	. 000	3500. 575	4211.896
12-98	218. 483	109.241	180.423	90.211	23.09	1.37	4290.070	284.754	960. 822	. 000	3044.494	5917.483
12-99	188. 798	94. 399	155.910	77.954	24.25	1.44	3892.562	258.370	933 . 635	. 000	2700.557	7292.854
12- 0	163. 194	81.598	134.766	67.383	25.46	1.51	3532.899	234. 496	970. 978	. 000	2327.425	8370.432
12- 1	141.106	70.553	116.525	58.263	26.73	1.59	3207.448	212.894	1009.819	. 000	1984.735	9205.810
12- 2		61.022	100.785	50.392	28.07	1.67	2912.900	193.346	981. 427	. 000	1738.127	9370.884
12- 3			87.195		29.47	1.75	2646.126	175.636	979. 682	. 669	1490.808	10387.466
12- 4		45.706	75. 488	37.744	30.94	1.84	2405.394	159.658	964. 433	. 000	1281.303	10794. 652
12- 5	78. 223	39.112	64.597	32.299	32.49	1.93	2161.276	143. 455	931. 299	. 000	1086.522	11107.097
12- 6	53, 189	26.594	43.924	21.962	34.12	2.03	1543.082	102.421	655.148	. 000	785.513	11313.908
S TOT	2528. 517	1264.259	2088.052	1044.024	23. 27	1.38	50027.489	3320.576	12411. 003	10040.000	24255.910	11313.908
REM.	80. 034	40.017	66.092	33.045	37.24	2.21	2534.152	168.204	1216. 884	. 600	1149.064	11569.247
TOTAL	2608. 551	1304.276	2154.144	1077.070	23.70	1.41	52561.641	3489.780	13627.887	10040.000	25404.974	11569.247
cun.	4965. 028	3664.589		NET DIL	REVENU	ES (N\$))	51.044. 238		PRESENT 1	IORTH PROFIL	.E
				WET GAS				1517,403	DISC	PN DF HET	DISC	PN OF HET
ULT.	7573. 579	4968 .865		TOTAL	REVENU	ES (N\$))	52561.641	RATE	BTAX, MS	RATE	BTAX, MS
	RATE OF RETUR		47.92					17.131	. 0	25404.974	30.0	2497.095
	PAYDUT YEARS		3. 53	DISCOUNT				10.000	2.0	21527.512	35.0	1540, 503
BTAX I	PAYDUT YEARS	(DISC)	3.84					46.000	5.0	16942.842	40.0	814, 157
	NET INCOME/IN		3. 53			2		.000	8.0	13448.150	45.0	254.705
BTAX 1	KET INCOME/IN	WEST (DISC)	2. 30	GROSS HE	LLS			46.000	10.0	11569.247	50.0	-181.236
									12. 0	9972.588	60.0	-795.830
									15. 0	7998.226	70.0	-1185. 480
									18.0	6416.794	80.0	-1435. 61 6
									00 0	5533 723	00 0	-1505 051

TOTAL MALJAMAR GRAYKURG UNIT (PROVED)

5533.763 90.0 -1595.951

3779.034 100.0 -1696.783

20.0

25.0

DATE: 05/22/92

MALJAMAR GRAYRURG UNIT (PDP) MALJAMAR (GRAYRURG SAN ANDRES) LEA, NM

DPR: CHEVRON U S A INC.

MALJAMAR GRAYBURG UNIT

ESCALATED - H/D ACR COSTS

TABLE 9

DATE: 05/22/92 TIME: 13:34.31 FILE: TBT SET#: 1

RESERVES AND ECONDMICS

AS DF JUNE 1, 1992

T. SCUTT HICKMAN & ASSUC PETRULEUM ENGINEERS

					PRIC	æs	BP	ERATIONS,	H\$			10. 00 PCT
	GROSS PR		NET PRO Dil, MBBL			gas \$/m	NET GPER Revenues		NET OPER Expenses	CAPITAL Custs, MS		CUM. DISC BTAX, NS
12-92	7, 506	3.754	6.198	3.100	17.50	1.00	111.565	7.404	54. 656	. 009	49.505	48.154
12-93	11. 635	5.817	9.608		18.50		183.032	12.149	93. 600	. 000	77.283	117.892
12-94	10. 238	5.119	8.455		19.00		165.397	10.978	71.099	. 000	83.320	186.223
12-95	9.010	4, 505	7.440		19.95		152.819	10.143	73. 943	. 000	68.733	237.474
12-96	7. 929	3.964	6.548	3.273	28.94	1.25	141.221	9.374	50. 383	. 009	81.464	292.696
12-97	6. 977	3. 489	5.762	2.881	21.99	1.31	130.484	8. 661	52. 398	. 000	69.425	335. 479
12-98	6.140	3.070	5.070	2.535	23.09	1.37	128, 554	8.002	54, 494	. 000	58.058	368.004
12-99	5. 403	2.701	4. 462		24.25		111.400	7, 395	56. 675	. 000	47, 330	392.109
12- 0	4, 755	2. 378	3.927	1.964	25.46	1.51	102.947	6.833	58. 942	. 030	37.172	407.319
12- 1	4. 184	2.092	3, 455	1.728	26.73	1.59	95.103	6.312	61.299	. 000	27.492	420.870
12- 2	3. 682	1.841	3.041		28.07		87.891	5.834		. 000	18.306	427.875
12- 3	3. 240	1.620	2.676		29.47		81.210	5.390		. 600	9.519	431.206
12- 4	2. 852	1.426	2.355	1.178	30.94	1.84	75.042	4.981	68. 953	. 000	1.108	431.556
12- 5												
12- 6												
S TOT	83, 551	41.776	68.997	34.498	21.94	1.30	1558.665	103. 456	826. 494	. 090	628.715	431, 556
REM.	. 000	. 000	. 000	. 000	. 00	. 00	. 000	. 000	. 000	. 000	. 000	431, 556
TOTAL	83. 551	41.776	68.997	34.498	21.94	1.30	1558.665	103.456	826. 494	. 000	628.715	431, 556
CUH.	4965. 028	3664, 589)			PRESENT I	IORTH PROFIL	
				KET GAS				44.879	DISC	PH DF NET		PN OF NET
ULT.	5048. 579	3706. 365		TOTAL	REVENUI	ES (N\$)		1558.665	RATE	rtax, h\$	RATE	rtax, Ms
BTAX F	ATE OF RETUR	(PCT)	100.00	PROJECT	LIFE (YEARS)		12.583	. 0	628.715		257.724
BTAX F	AYDUT YEARS		. 00	DISCOUNT	RATE	(PCT)		10.000	2.0	578.151	35.0	234.156
RTAX F	AYOUT YEARS	(0150)	. 00		L WELLS	S		20.000	5.0	514.187	40.0	214. 755
RTAX)	ET INCOME/IN	WEST	. 00	CRUSS CA	S WELLS	2		. 000	8.0	461.574	45.0	198.555
rtax }	ET INCOME/IN	WEST (DISC)	. 00	GROSS NE	LLS			20.000	10.0	431.556	50.0	184.861
									12.0	404.889	60.0	163.049
INITIA	N. H. I. FRACT		1.000000	INITIAL				. 825800	15.0	370.157	70.0	146.509
FINAL	N.I. FRACI		1.000000		NET DII			. 825800	18.0	340.628		133, 575
	TIDH STARF D		12- 1-91	IXITIAL				. 825800	20.0	323.335	90.0	123.197
MONTHS	S IN FIRST LI	INE	7.00	FINAL	NET CA	S FRACI	KUIN	. 825800	25.0	286.802	100.0	114.691

TUTAL NALJANAR GRAYBURG UNIT (PUD) NALJANAR (GRAYBURG SAN ANDRES) LEA, NM DPR: CHEVRDH U S A INC.

DATE: 05/22/92 TIME: 13:34.31 FILE: TDT GET#: 0

MALJAMAR GRAYBURG UNIT ESCALATED - N/D ACQ COSTS RESERVES AND ECONDMICS

AS DF JUNE 1, 1992

T. SCOTT	HICKNAN	ŧ	ASSBC
PETROLEU	IN ENGINE	R	\$

									N\$			10.00 PCT
			KET PRO			CAS	KET OPER		NET OPER			
MD-YR	OIL, MKRL	Gas, hhcf	DIL, HBRL	GAS, MMCF	\$/B 	\$/X	REVENUES	NF TAXES	EXPENSES	COSTS, M\$	BTAX, KS	BTAX, H\$
12-92	. 000	. 000	. 000	. 000			. 000	. 000	. 000	500.000	-500.000	-474. 842
12-93	104. 893	52.447	86.621	43.311			1650.131	109.528	351. 999	4810.000	-3621.396	-3819.850
12-94	331. 743	165.871	273. 953	136.977	19.00	1.13	5359.094	355.710	763. 089	4730.000	-489.705	-4356.364
12-95	340. 724	170.362	281.370	140.685	19.95	1.19	5779.394	383.607	803.173	. 000	4592.614	-931.867
12-96	289. 389	144. 694	238.978	119.488	20.94	1.25	5154.087	342.103	837. 951	. 000	3974.033	1761.997
12-97	246. 435	123. 218	203.506	101.753	21.99	1.31	4608.508	305.889	871. 469	. 000	3431.150	3876.417
12-98	212. 343	106.171	175.353	87.676	23.09	1.37	4169.516	276.752	906. 328	. 000	2986. 436	5549.479
12-99	183. 395	91.698	151.448	75.724	24.25	1.44	3781.162	250.975	876.960	. 000	2653.227	6900.745
12- O	158. 439	79.220	130.839	65.419	25.46	1.51	3429.952	227.663	912. 036	. 000	2290.253	7961.113
12- 1	136. 922	68.461	113.070	56.535	26.73	1.59	3112.345	206.582	948. 520	. 000	1957.243	8784.920
12- 2	118. 362	59.181	97.744	48.872	28.07	1.67	2825.009	187.512	917. 676	. 000	1719.821	9442.989
12-3	102. 349	51, 174	84.519	42.259	29.47	1.75	2564.916	170.245	913. 381	. 000	1481.289	9958 , 260
12- 4	88. 560	44. 280	73.133	36.566	30.94	1.84	2330.352	154.677	895. 4 80	. 000	1280.195	10363.096
12- 5	78. 223	39.112	64. 597	32.299	32.49	1.93	2161.276	143, 455	931. 299	. 000	1086.522	10675.451
12- 6	53. 189	26.594	43.924	21.962	34. 12	2.03	1543.082	102.421	655.148	. 000	785.513	10982.352
s tot	2444. 966	1222. 483	2019.055	1009.526	23. 31	1.39	48468.824	3217.120	11584. 509	10040.000	23627.195	10882 . 352
REM.	80. 034	40.017	66.092	33.046	37.24	2.21	2534.152	168.204	1216. 884	. 000	1149.064	11137.691
TOTAL	2525. 000	1262.500	2085.147	1042.572	23.75	1.41	51002.976	3385.324	12801. 393	10040.000	24776.259	11137.691
CUM.	. 000	. 000						49530.452		PRESENT &	IDRTH PROFIL	E
				KET GAS	REVENU	ES (NS))	1472.524	DISC	PH DF HET	DISC	PH DF NET
ULT.	2525. 000	1262.500		TOTAL	REVERU	ES (M\$))	51002.976	RATE	BTAX, MS	RATE	RTAX, MS
BTAX F	ATE OF RETUR	EN (PCT)	45. 66	PROJECT	LIFE (YEARS)		17.131	. 0	24776.259	30.0	2239.371
BTAX F	AYDUT YEARS		3. 59	DISCOUNT	RATE	(PCT)		10.000	2. 0	20949.361	35.0	1306.347
BTAX F	AYOUT YEARS	(DISC)	3. 93	EROSS DI	L WELL	2		26.000	5.0	16428.655	40.0	599.402
				GROSS GA	S HELL	2		. 000	8.0	12985.576	45.0	56.150
BTAX X	ET INCOME/I)	WEST (DISC)	2. 25	GROSS NE	LLS			26.000	10.0	11137.691	50.0	-366.097
									12.8	9567.699	60.0	-958.879
									15.0	7628.069	70.0	-1331.989

 18.0
 6076.166
 80.0
 -1569.191

 20.0
 5210.428
 90.0
 -1719.148

 25.0
 3492.232
 100.0
 -1811.474

MALJAMAR CR UNIT - PHASE I (PUD) MALJAMAR (GRAYBURG SAN ANDRES) LEA, NM DPR: CHEVREN U S A INC.

DATE: 05/22/92 TIME: 13:34.31 FILE: TDT GET#: 2

RESERVES AND ECONOMICS

MALJAMAR GRAYBURG UNIT ESCALATED - N/B ACQ COSTS -----

AS DF JUNE 1, 1992

T. SCOTT HICKMAN & ASSOC PETROLEUM ENGINEERS

					PRIC	ES	DP	ERATIONS	N\$			10.00 PCT
	GROSS PR DIL, MKRL		NET PRO DIL, MBBL			gas \$/n	NET OPER Revenues		NET OPER Expenses			CUH. DISC BTAX, M\$
 12-92	. 000	. 000	. 000		 17.50	1 00	 . 000	. 000	. 000	500.000	-500.000	-474.842
12-93	87.982	43.991	72.656	36.328			1384.097		343. 998	4310.000	-3361.771	-3589.619
12-94	160.108	80.054	132.217	66.109			2586.442	171.675	361.624	-510.000	2053.143	-1905.593
12-95	150.063	75.031	123.922	61.961			2545.382	168.950	376. 089	. 603	2000.343	-414.031
12-96	129. 416	64.708	106.872	53.436			2304.931	152.990	387.155	. 000	1764.786	782.258
12-97	110. 45?	55.229	91.215	45.608	21.99	1.31	2055. 616	137.105	402. 641	. 000	1525.870	1722.564
12-98	96. 763	48. 381	79.907	39.953	23.09	1.37	1900.015	126.114	418.746	. 000	1355.155	2481.749
12-99	85, 151	42.576	70.318	35.159	24. 25	1.44	1755.611	116.529	402. 686	. 008	1236.396	3111.435
12- 0	74. 932	37.466	61.879	30.939	25.46	1.51	1622.161	107.671	418. 792	. 000	1095.698	3618.734
12- 1	65. 941	32.971	54, 454	27.227	26.73	1.59	1 498. 891	99.489	435, 545	. 000	963.857	4024.423
12- 2	58. 028	29.014	47.920	23.960				91.930	419. 413	. 000	873.647	4358.714
12- 3	51.065	25, 532	42.169	21.084			1279.711	84.941	395. 188	. 000	799.582	4636 , 851
12- 4	44, 937	22.468	37.109	18.554				78.436	410. 995	. 000	692.981	48 55.992
12- 5	39.756	19.879	32.831	16.416				72.910	427. 435	. 000	598.110	5027.938
12- 6	36. 367	18.183	30.032	15.016	34.12	2.03	1055.046	70.028	444. 532	. 000	540.486	5169.192
S TOT	1190. 966	595, 493	983.501	491.750	23. 37	1.39	23663.810	1570.688	5644. 839	4810.000	11638.283	51 69. 192
REM.	80. 034	40.017	66. 092	33.046	37. 24	2.21	2534.152	168.204	1216. 884	. 000	1149.064	5424. 531
TOTAL	1271.000	635, 500	1049.593	524.796	24. 24	1.44	26197.962	1738.892	6861.723	4810.000	12787.347	5424. 531
CUM.	. 000	. 000)			PRESENT I	IDRTH PROFIL	
)			PN DF NET	DISC	PN OF NET
ULT.	1271.000	635.500		TUTAL	REVENU	ES (M\$))	26197.962	RATE	BTAX, MS	RATE	BTAX, M\$
BTAX I	ATE OF RETUR	NA (PCT)	39. 55						. 0	12787.347	30.0	814.330
	PAYOUT YEARS		3. 49							10684.716	35.0	333, 491
BTAX F	PAYOUT YEARS	(DISC)	3. 93	CROSS DI				10.000		8236.684	40.0	-32, 894
BTAX 1	ET INCOME/IN	AVEST	3. 66	GRUSS GA		S		.000		6400.531	45.0	-316.372
RTAX)	ET INCOME/IN	WEST (DISC)	2. 22	GROSS HE	LLS			10.009	10.0	5424.531	50.0	-538 .768
									12.0	4681.336	60.0	-855.815
	AL W.I. FRACT	10%	1.000000	INITIAL				. 825800		3591.332	70.0	-1060.388
	W.I. FRACT	KOI	1.000000	FINAL	NET DI			. 825800		2788.195	80.0	-1194.299
	TION START I	DATE	1- 1-93	INITIAL				. 825809		2341.801	90.0	-1281.980
REATHS	S IN FIRST L	INE	7.00	FINAL	NET GA	S FRACI	TION	. 825800	25.0	1458.214	100.0	-1338.457

INU N/D ACQUISITION COSTS

MALJAMAR GR UNIT - PHASE II (PUD) TIME: 13:34.31 MALJAMAR (GRAYKURG SAX ANDRES) LEA, MM FILE: TOT OPR: CHEVRON U S A INC. GET#: 3 RESERVES AND ECONDRICS -----MALJAMAR GRAYBURG UNIT T. SCOTT HICKMAN & ASSOC ESCALATED - N/B ACR CBSTS AS DF JUNE 1, 1992 PETROLEUM ENGINEERS 10.00 PCT ND-YR DIL, MAKL GAS, NMCF DIL, MAKL GAS, NMCF \$/K \$/N REVENUES NF TAXES EXPENSES COSTS, N\$ BTAX, N\$ BTAX, N\$ -------------. 960 . 000 . 000 12-92 . 000 .000 .000 17.50 1.00 . 000 . 090 . 000 . 808 12-93 16. 911 8,456 13.965 6.983 18.50 1.10 266.034 17.658 8.001 500,000 -259.625 -230.231

85,817 141,736 12-94 171. 635 70.868 19.00 1.13 2772.652 184.035 401.465 4730.000 -2542.848 -2450.771
 95.331
 157.448
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 450.796
 12-95 190. 661 .000 2592.271 -517.836 12-96 159, 973 .000 2209.247 979.739 12-97 135, 978 67, 989 112, 291 56,145 21,99 1,31 2542,892 168,784 468,828 .000 1905.280 2153.853
 135. 978
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 2542. 892
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 115. 580
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 3789. 310
 12-98 98. 244 12-99 83. 507 41,754 68,960 34.480 25.46 1.51 1807.791 119.992 493. 244 .000 1194, 555 4342, 379 12- 0 12-1 78, 981 35,490 58,616 29.308 26.73 1.59 1613.454 107.093 512. 975 .000 993.386 4760.497

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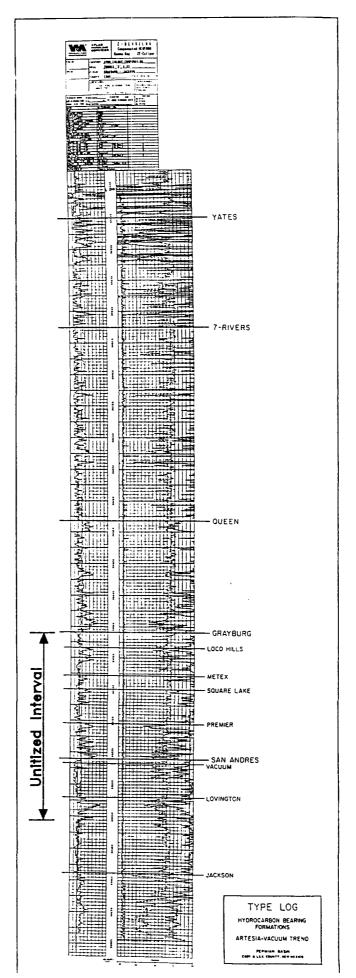
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 12-2 60. 334 .000 846.174 5084.275 51, 284 25, 642 42, 350 21, 175 29, 47 1, 75 1285, 205 85, 305 5321.409 12-3 . 000 21.812 36.024 18.012 30.94 1.84 1147.890 76.191 12- 4 43. 623 484, 485 587.214 5507.104 19.233 31.766 15.883 32.49 1.93 1062.821 12-5 38, 467 78, 545 503.864 . 800 488.412 5647.513 8.411 13.892 12- 6 16. 822 6.946 34.12 2.03 488.036 32.393 210. 616 . 800 245.027 5713.160 S TOT 1254.060 627.000 1035.554 517.776 23.26 1.38 24805.014 1646.432 5939.670 5230.000 11988.912 5713.160 . 000 .000 . 000 . 000 .000 .000 REN .000 .00 .00 . 000 .000 5713.160 517.776 23.26 1.38 24805.014 1646.432 5939.670 5230.000 11988.912 5713.160 TOTAL 1254.000 627,000 1035.554 24088.862 CUN. . 000 -----PRESENT NORTH PROFILE-----. 000 HET DIL REVENUES (MS) HET GAS REVENUES (MS) 716, 152 DISC PH OF NET DISC PH OF NET TUTAL REVENUES (MS) 24805.014 RATE rtax, ns RATE BTAX, NS ULT. 1254.000 627.000 56.26 PROJECT LIFE (YEARS) 3.48 DISCOUNT RATE (PCT) -------------____ ----14.056 . 0 11988.912 30.0 1425.041 RTAX RATE OF RETURN (PCT) 10,000 2.0 10264.645 35.0 972.856 RTAX PAYOUT YEARS
 BTAX PAYDUT YEARS (DISC)
 3.93
 GROSS DIL NELLS

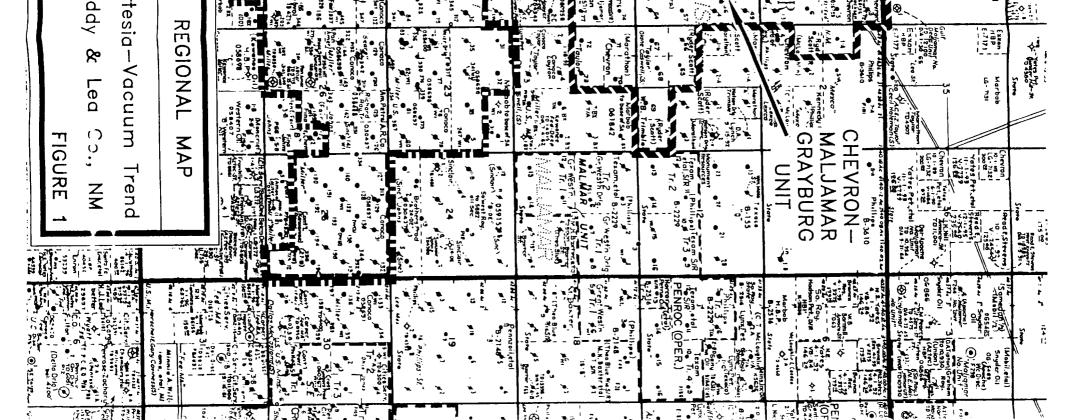
 BTAX HET INCOME/INVEST
 3.29
 GROSS GAS HELLS
 16.000 5.0 8191.971 40.0 632.206 GROSS GAS WELLS GROSS WELLS 372.522 . 000 8.0 6585.045 45.0 BTAX HET INCOME/INVEST (DISC) 2.28 16.000 10.0 5713.160 50.0 172.671 12.0 4966.313 60.0 -103.064 1.000000 INITIAL NET DIL FRACTION 1.000000 FINAL NET DIL FRACTION 11- 1-93 INITIAL NET GAS FRACTION 7.00 FINAL NET GAS FRACTION . 825800 15.0 4036.737 70.0 -271.691 INITIAL N.I. FRACTION FINAL N.I. FRACTION . 825800 18.0 3287.971 80.0 -374.892 . 825800 . 825800 20.0 2868.627 90.0 -437.168 PRODUCTION START DATE 25.0 2034.018 100.0 BULL TERIA NI CHTNOM -473.017

TABLE 12

DATE: 05/22/92



And a constant of the same of	Anadoria yates bet
	Votes Pet - Mana Income
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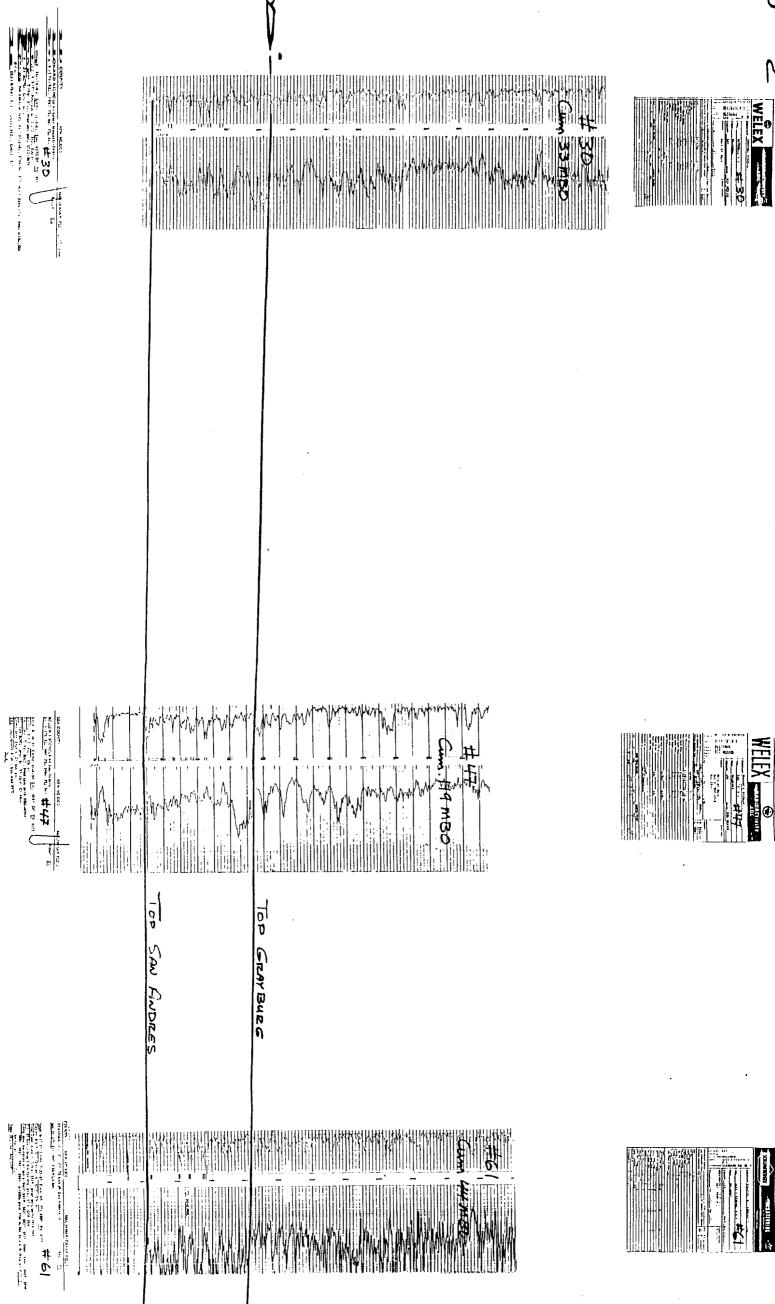
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FIGURE NO





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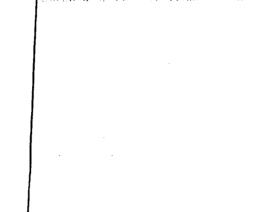
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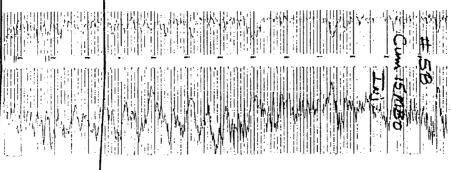
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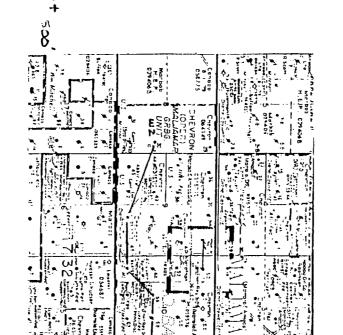
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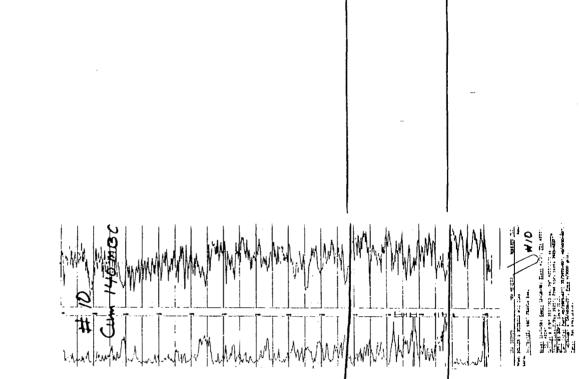








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[24] B. M. Carnellonali, Pres (28) 29, 22 (19) (2011) 1.1 (2011); A. J. S. Carnellonali, 2010 (2011) 1.1 (2011); A. S. S. Carnellonali, 2010 (2011); A. D. Carnellonali, 2010); A. Carnellonali, 2010 (2011); A. D. Carnellonali, 2010; Carnellonali, 2010); A. D. D. S. Carnellonali, 2010; Carnellonali, 2010.

FIGURE 5



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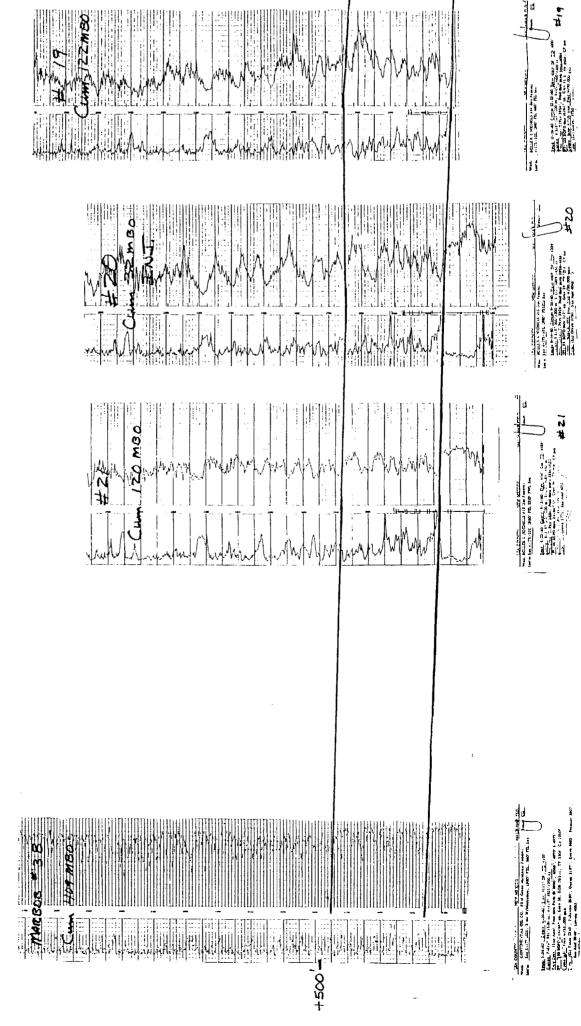
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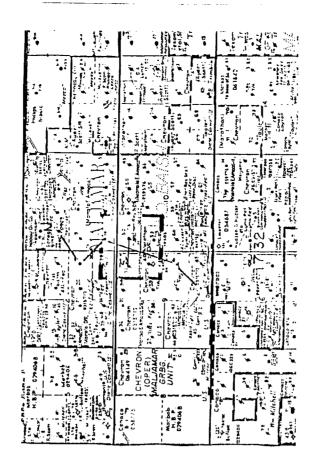
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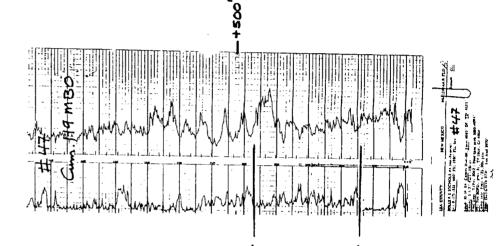


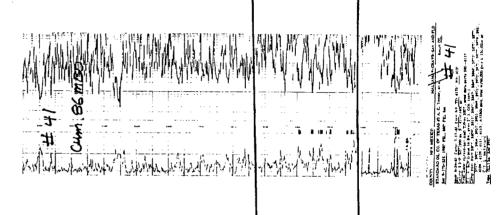


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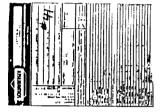


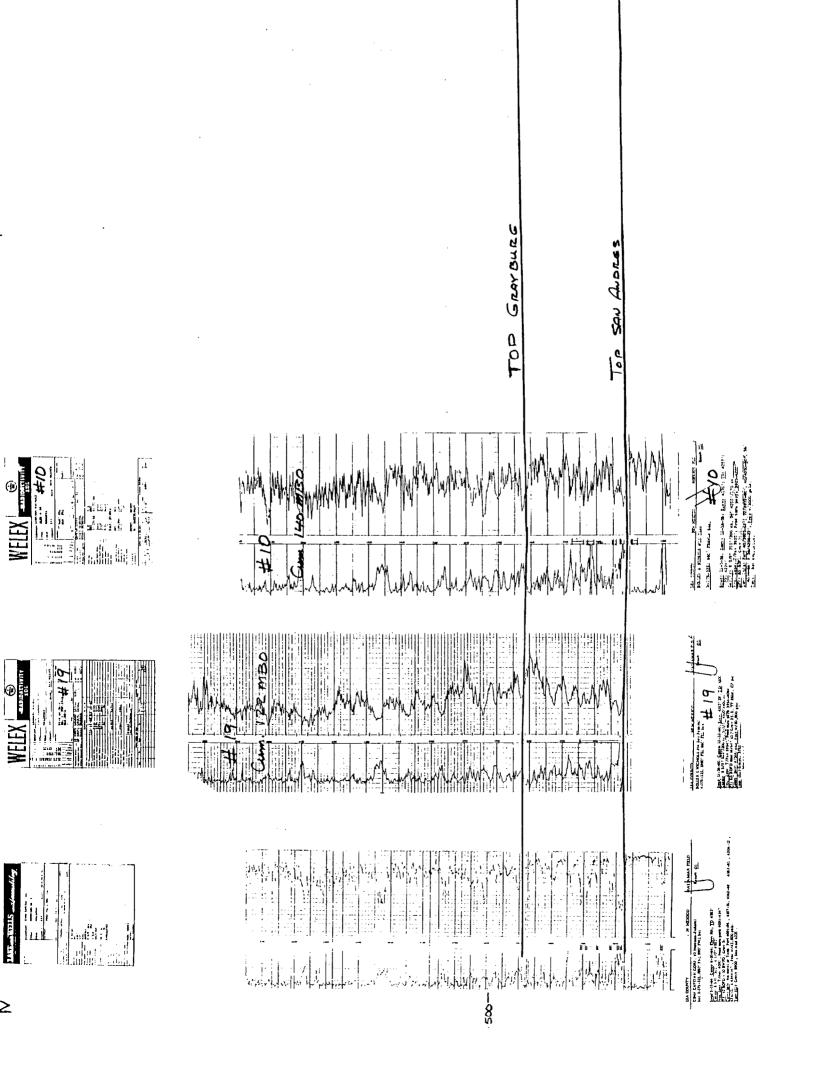
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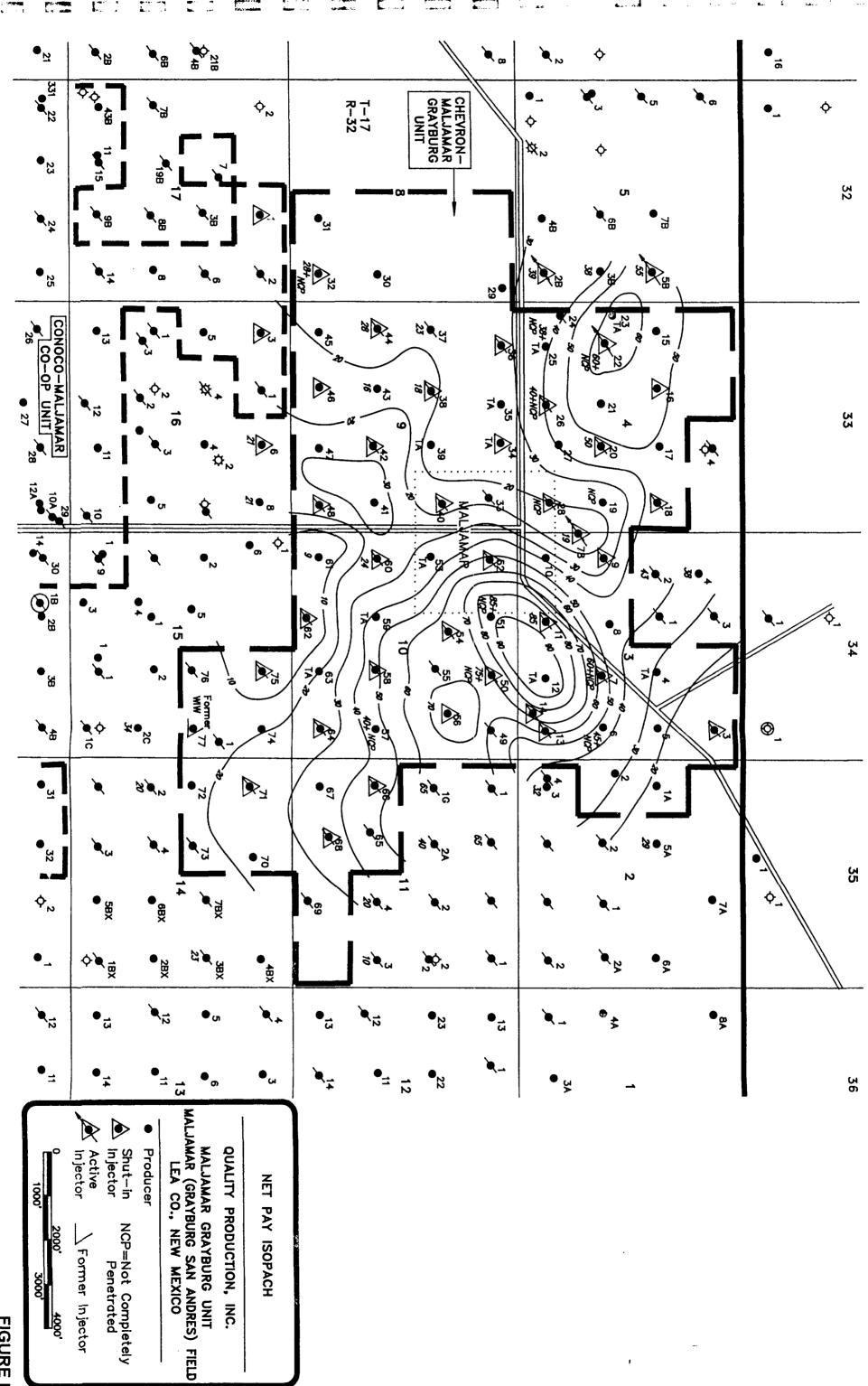










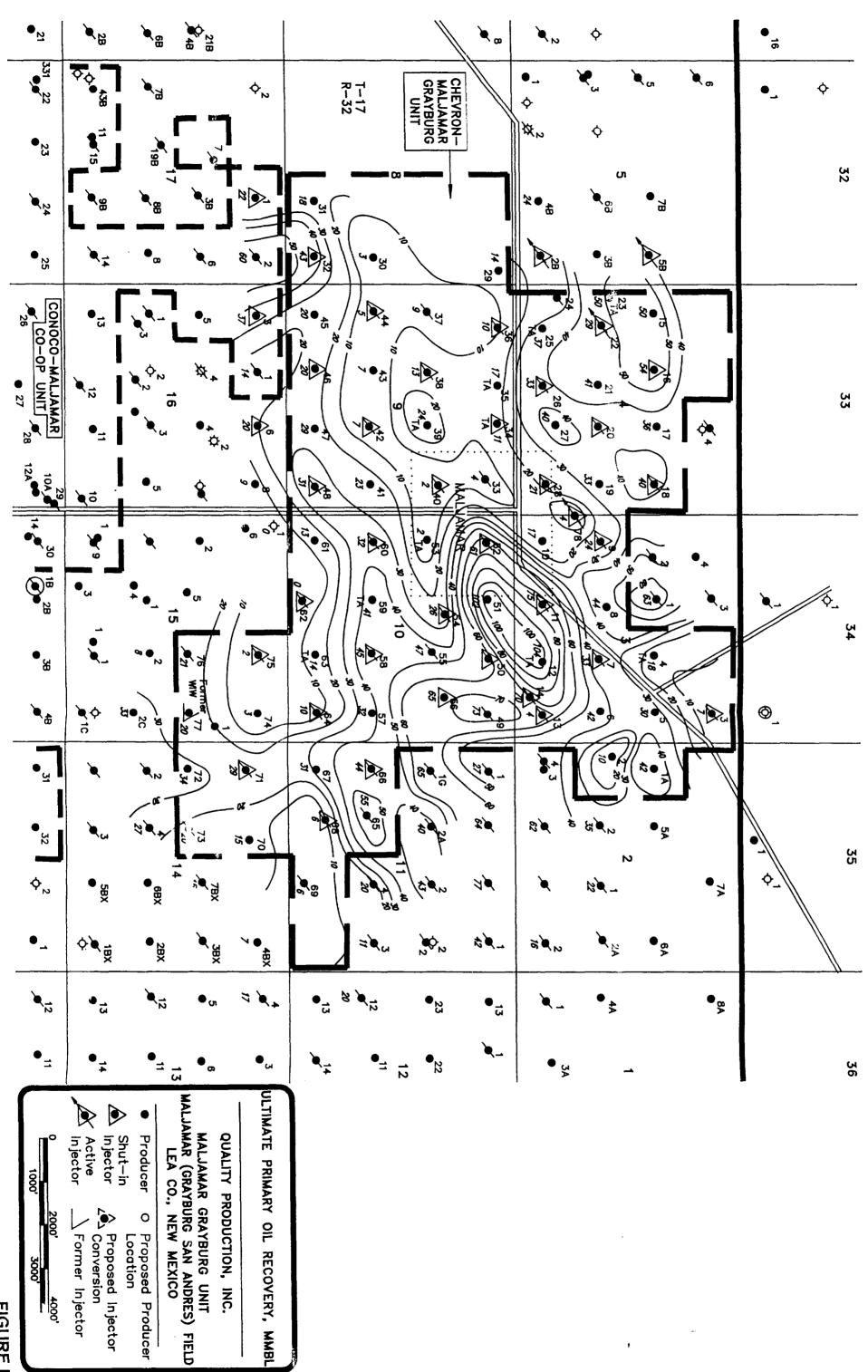


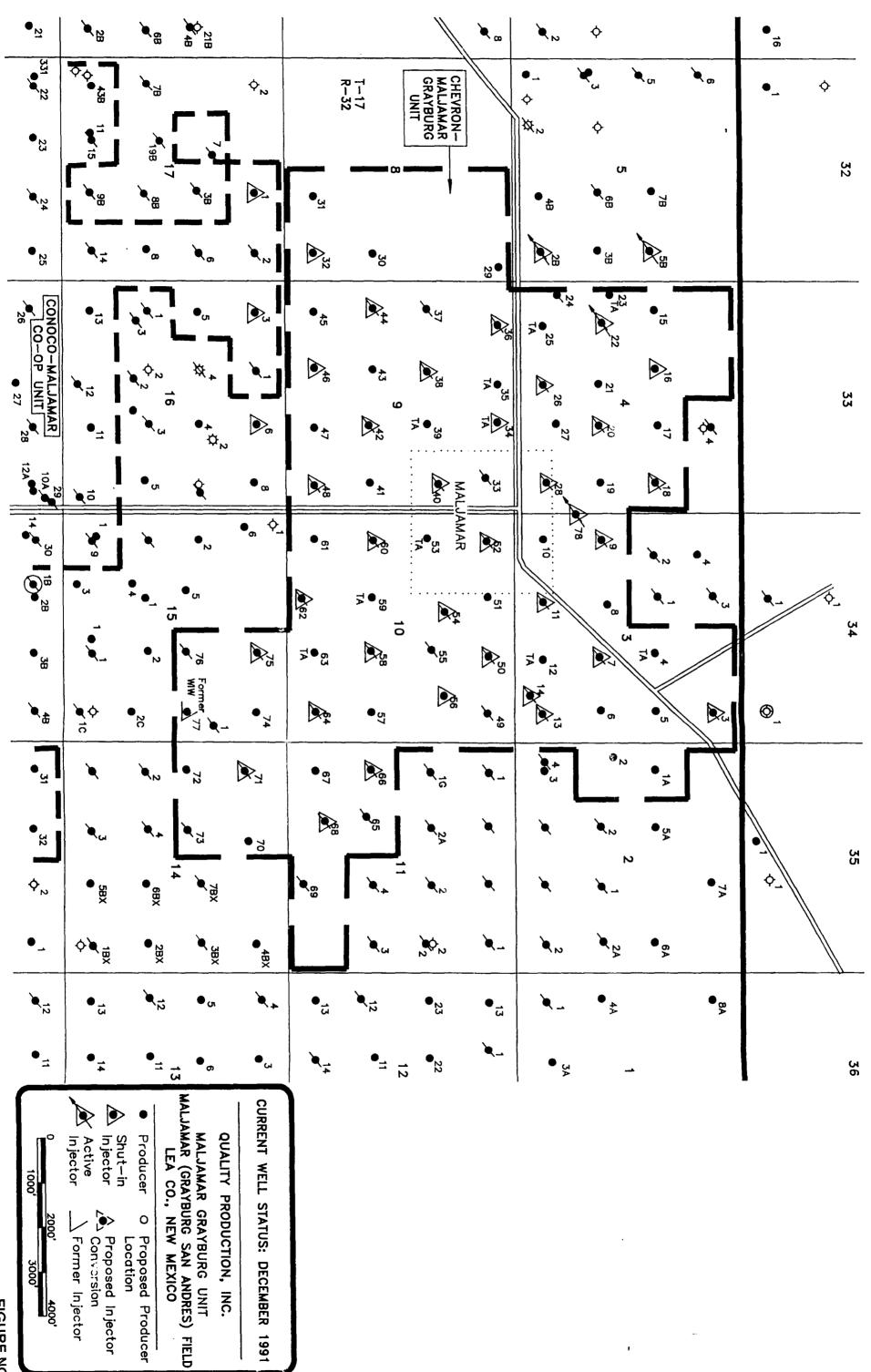
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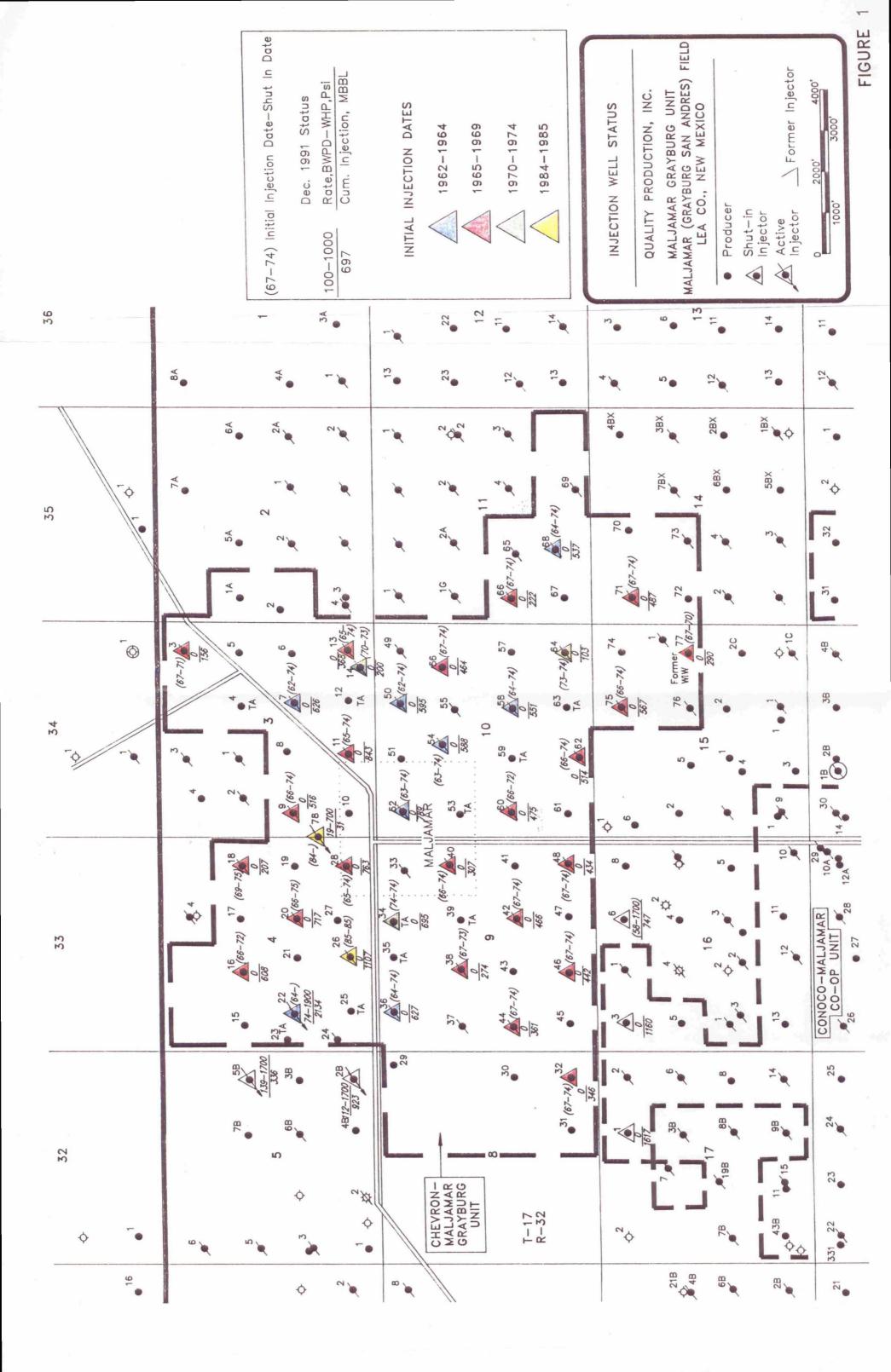
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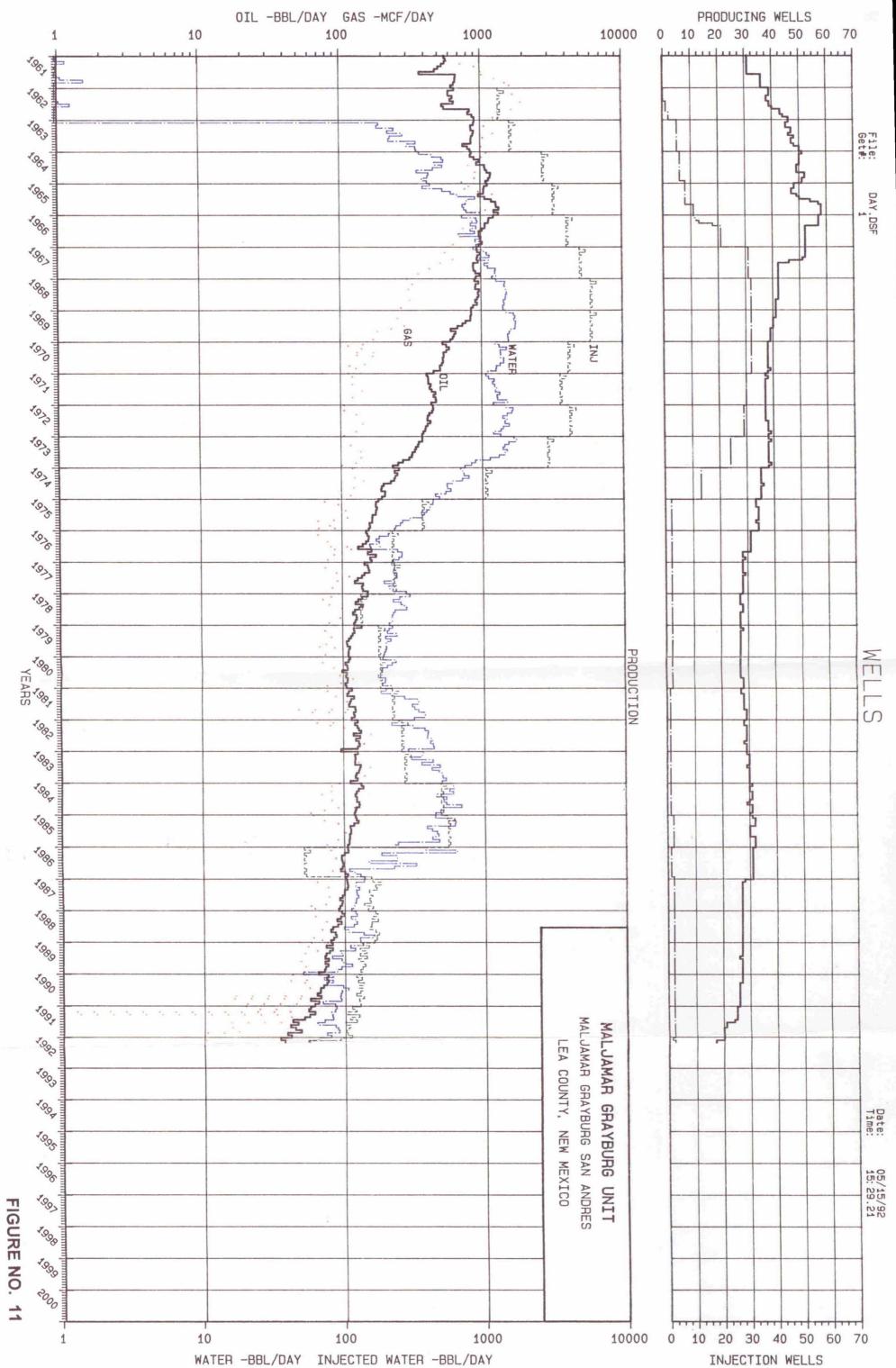


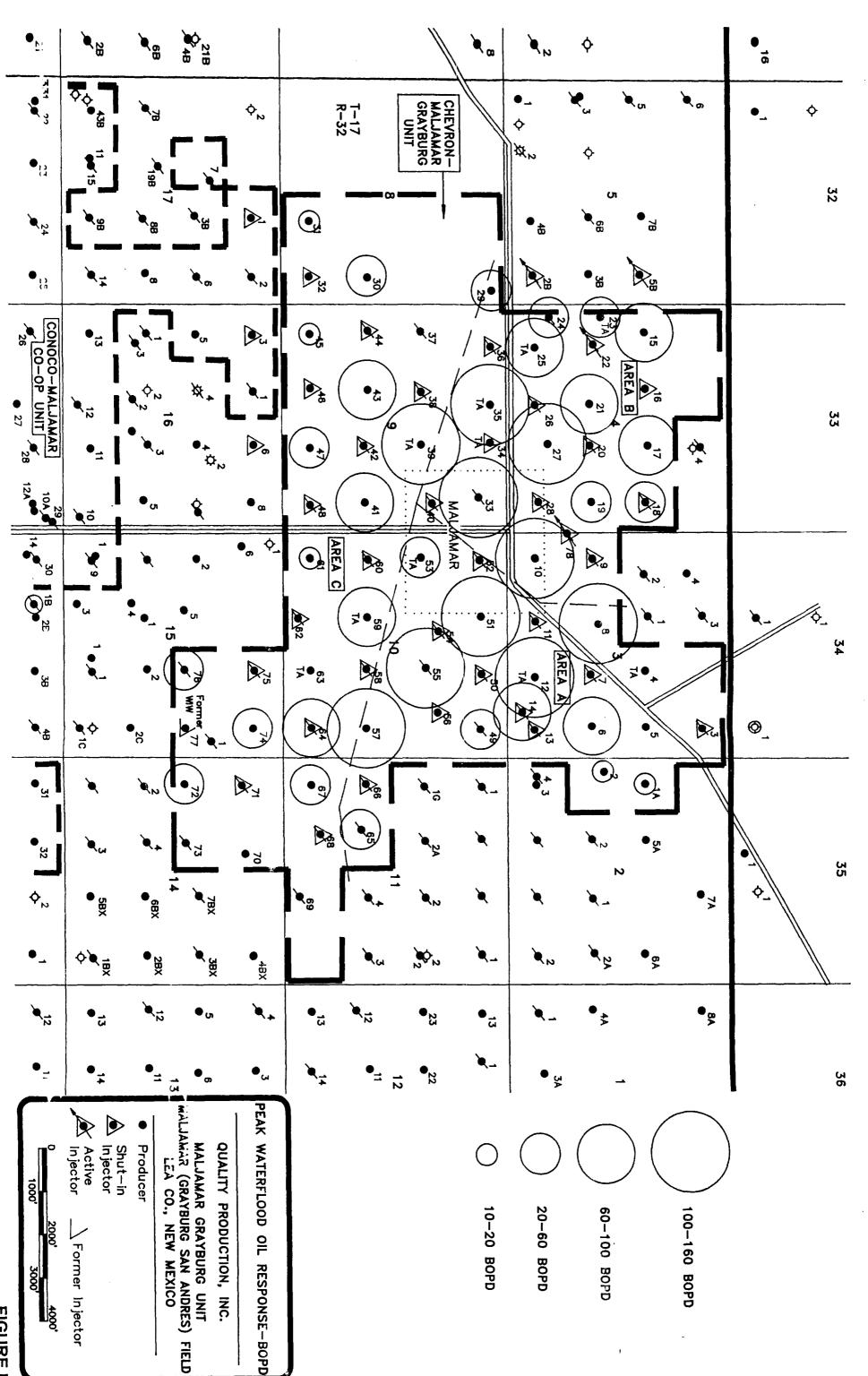


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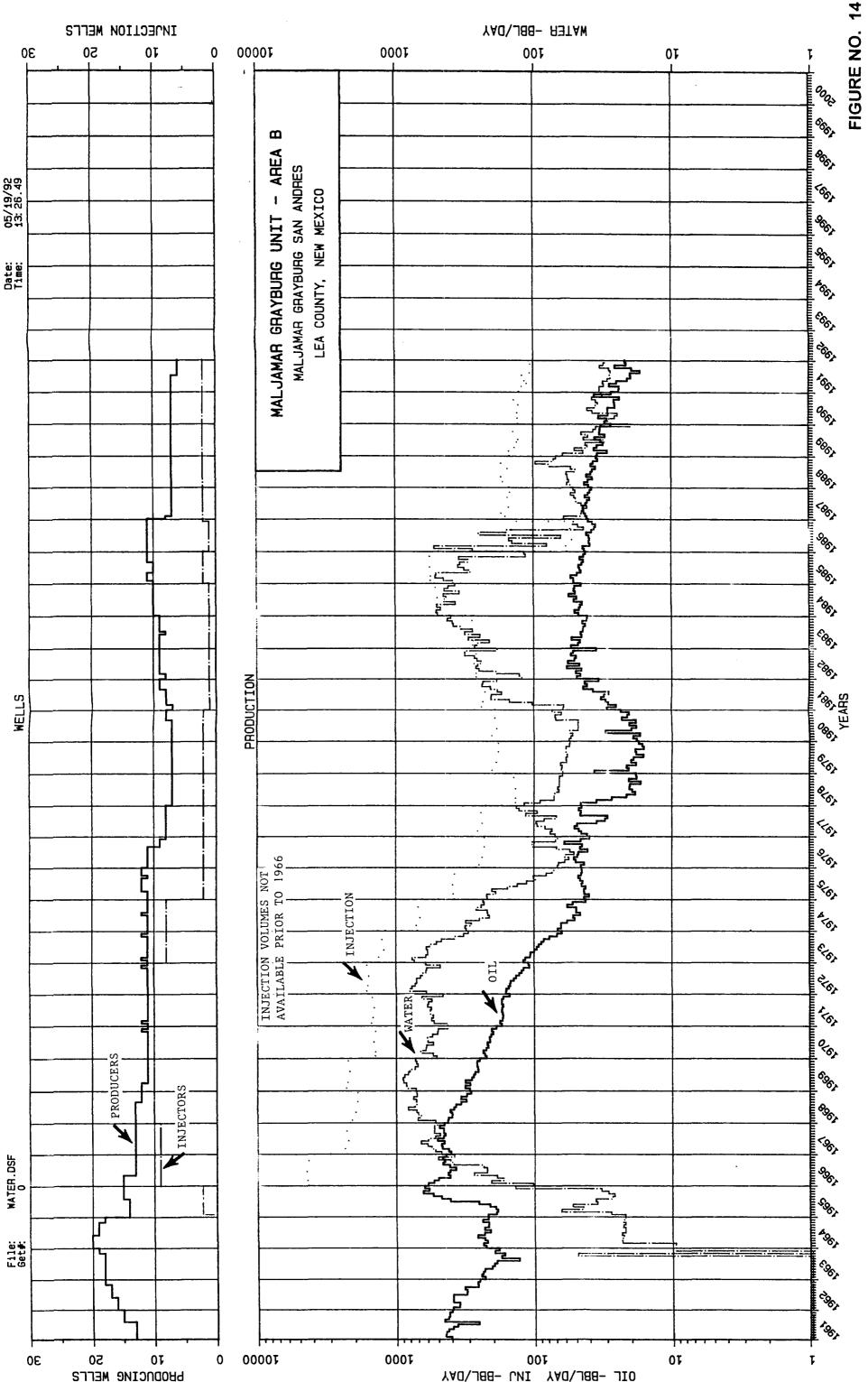


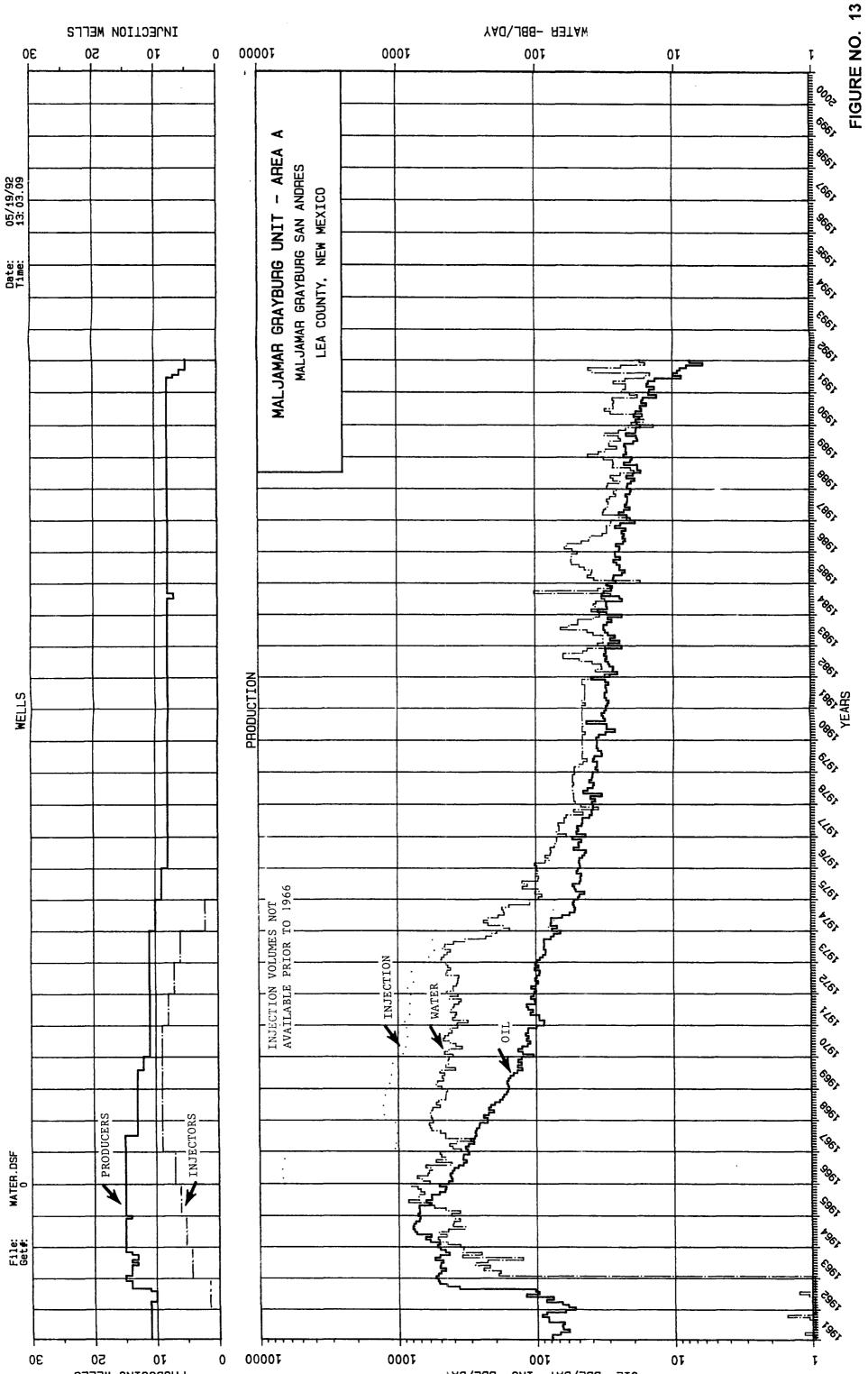
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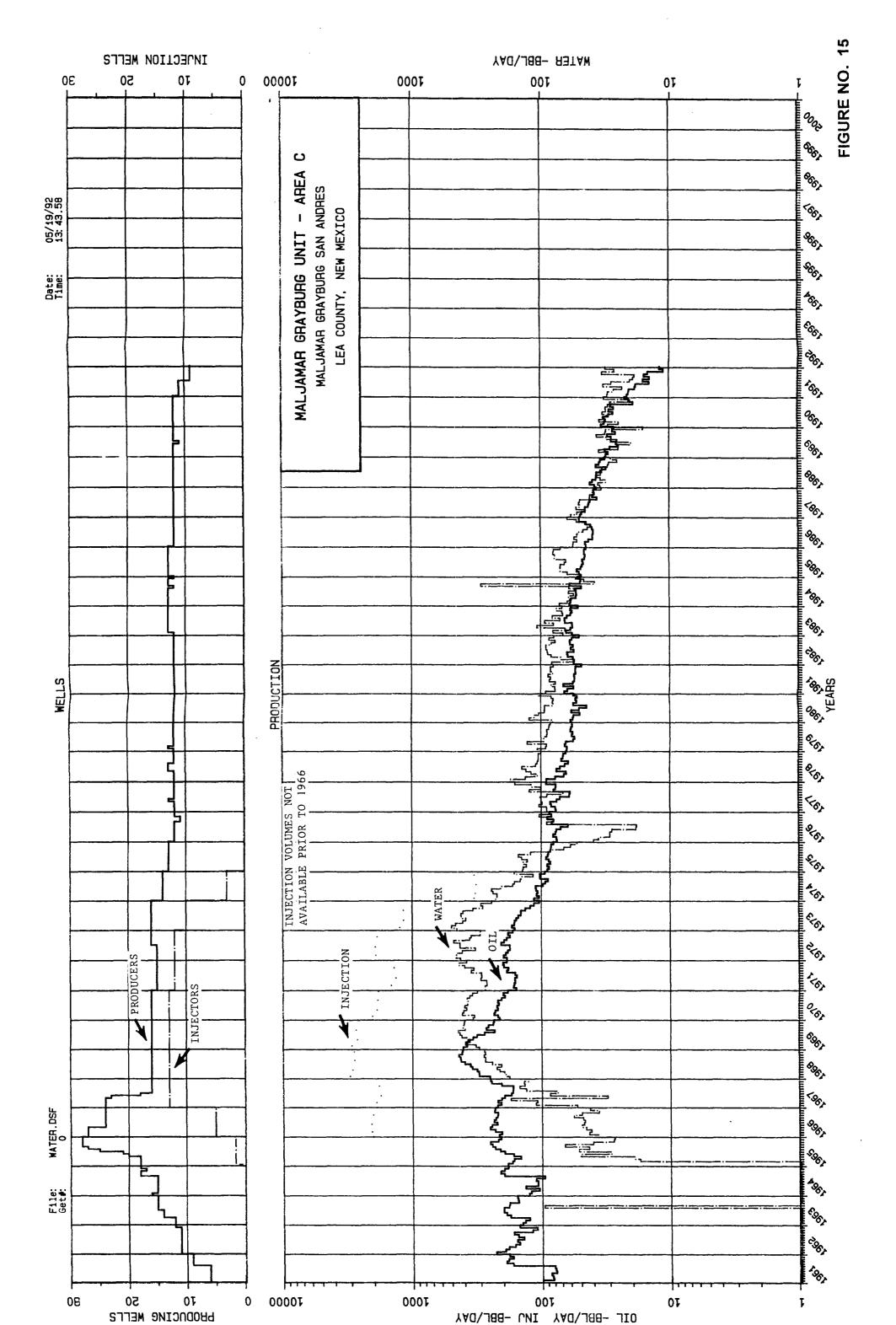
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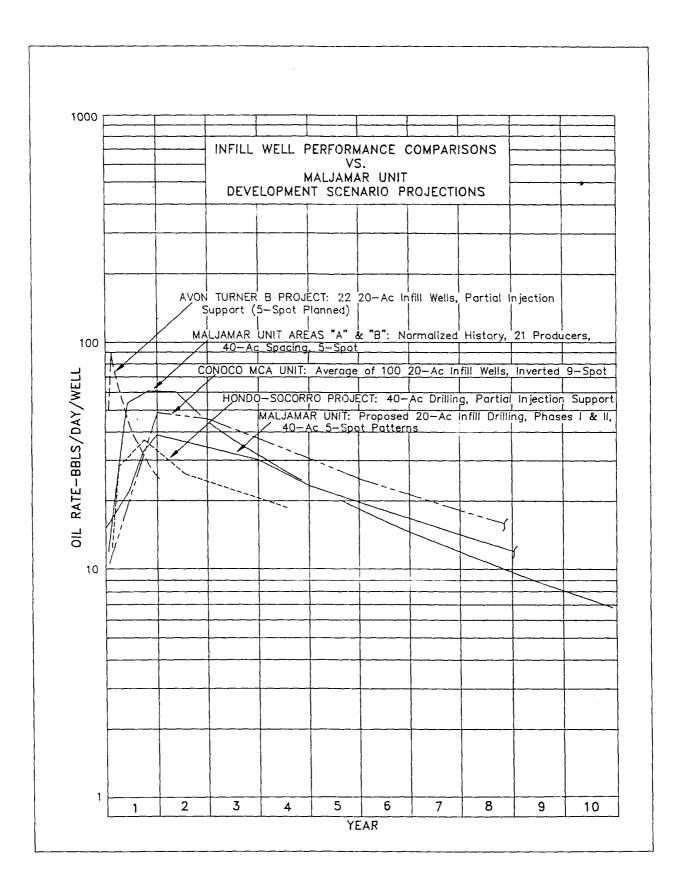


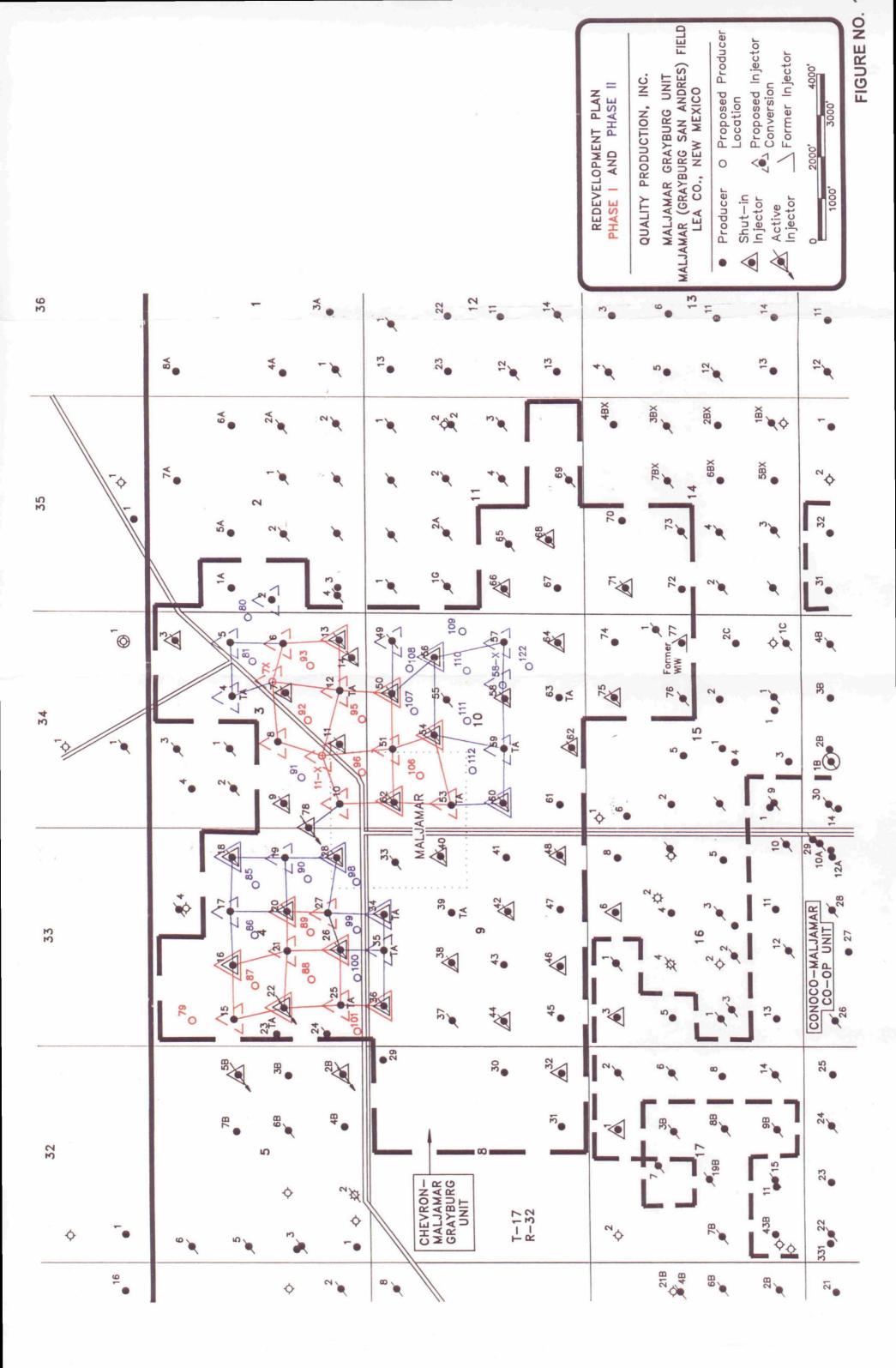


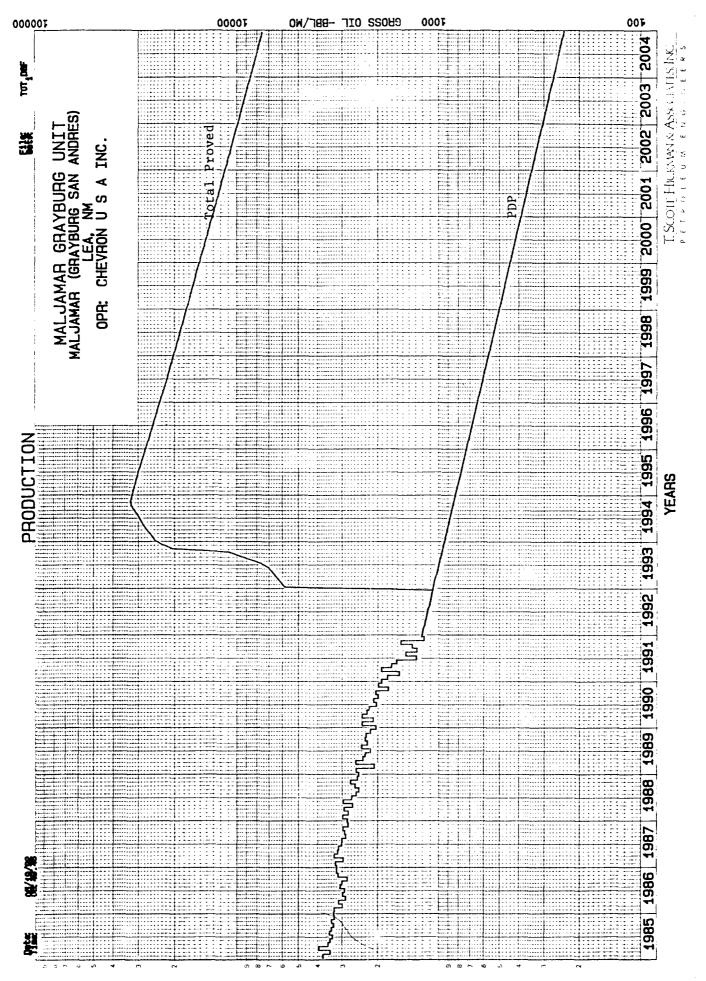
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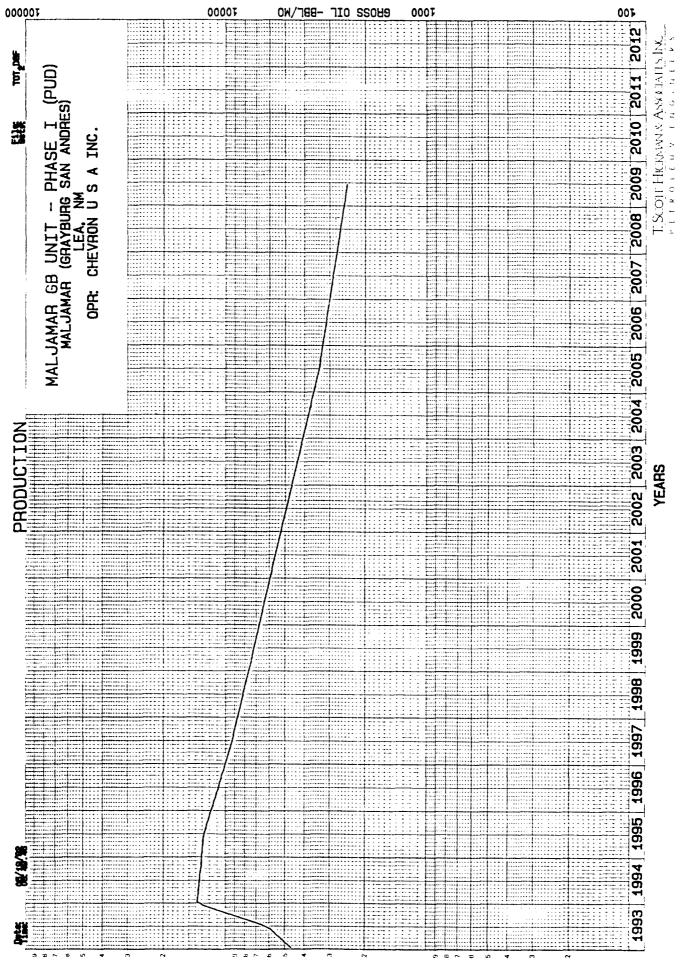


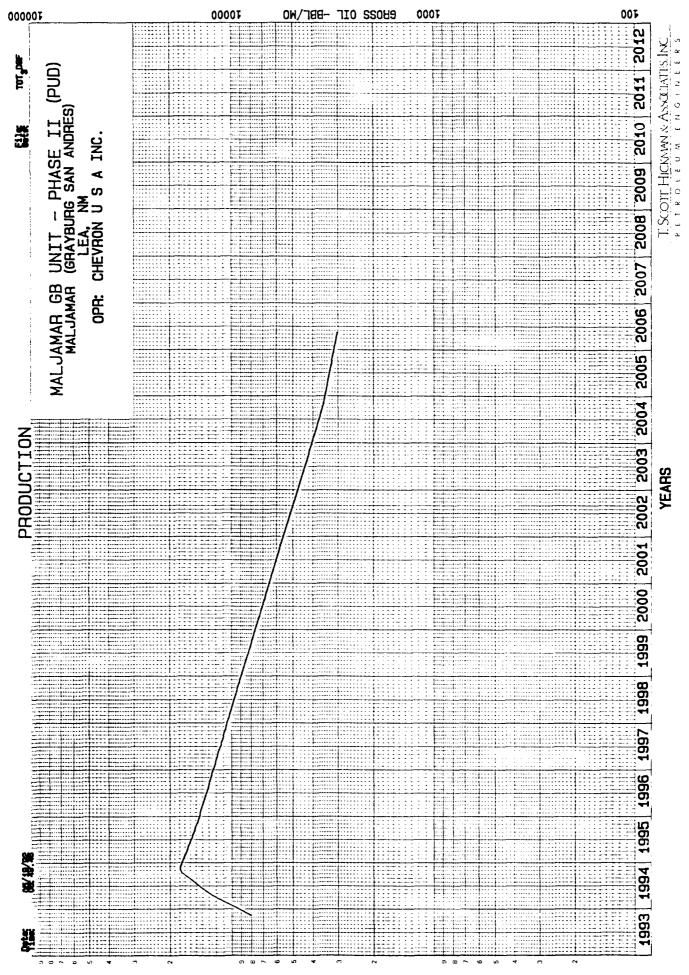
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