
BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
CHEVRON EXHIBIT NO. 5
CASE NO. 10059-601

# Proposed
# Eunice Monument West Unit
# Technical Committee Addendum
# February 19, 1988

## West Division
## Production Department

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## Introduction

This addendum is an update to the Technical Committee report completed March 17, 1987, and documents the progress to date and the current status of the unitization efforts of the proposed Eunice Monument West Unit. The purpose is to (1) supply EMWU technical committee members and working interest owners with current data to properly evaluate past recommendations and (2) recommend a two tract participation in lieu of an 18.2% participation for an expansion of the Eunice Monument South Unit.

## Proposed Expansion Area

The eastern boundary of the proposed development area was previously defined as a result of Amerada Hess and Texaco declining to include the State M and the State K leases, respectively. When the proposed expansion of the Eunice Monument South Unit (EMSU) to include the EMWU was presented in preliminary reviews by Chevron, both the Bureau of Land Management and the Commissioner of Public Lands of New Mexico indicated the State K lease should be included as a logical portion of the expansion. This was previously incorporated as Recommendation No. 4 of the Eunice Monument West Unit (EMWU) Technical Committee report. With the State K lease included, the area proposed for development consists of approximately 3000 acres. There are seven properties totalling 2280 acres (76% of the total) which are federal leases, four properties totalling 400 acres (13% of the total) are state leases, and two properties totalling 320 acres (11% of the total) are fee leases. The EMWU area which includes the State K lease is shown in Attachment No. 1.

## Two Tract Participation

The recommendation to negotiate toward a participation of 18.2% in an expanded unit for the combined EMSU and EMWU has been reviewed with Chevron, as EMSU operator. Chevron's legal interpretation of Section 70-7-10 of the New Mexico Statutory Unitization Act indicates the existing unit should be treated as a fixed entity. The expansion area would constitute its own separate entity, with the two areas being operated under a common plan of operation.

This would require the expanded unit to consist of two "tracts", with each "tract", the EMSU and the EMWU, having its production metered separately. Participation factors would be calculated for the expansion area

alone, with no change to the current EMSU working interest owner's participation.

The two "tract" participation is a viable alternative to the 18.2% participation previously recommended for several reasons:

(1) Separate metering will alleviate any concerns the state/federal agencies and the EMSU working owners may have regarding production and reserve equity, and

(2) Expansion is the quickest method to obtain approvals and initiate waterflood operations, as the EMSU will be a precedent for justification.

The scenarios for the expansion cases and the stand alone unit cases were again compared in order to determine the most economical option for EMWU working interest owners. These comparisons are discussed in the following sections.

Development

Secondary development of the EMWU area could begin as early as the fourth quarter of 1988, with injection to commence as early as January, 1989. This is based on Chevron's schedule for an EMSU expansion. The stand alone unit option would be achievable approximately one year later (January, 1990).

A change in the pattern development was made in the northern portion of the expansion area, in order to accommodate Amerada Hess' waterflood pattern configuration in their proposed Monument Unit. This is indicated on Attachment No. 2. Also, the inclusion of the State K lease is noted. The development will initially consist of converting 23 producing wells to injection wells, drilling 3 injection wells and two producers, and reconditioning 47 producers. An additional 12 producers should be converted to injection as leaseline injection agreements are negotiated with offset operators.

EMWU secondary reserve estimates were modified to include the State K lease. Cumulative production for each forty acre proration area is indicated in Attachment Nos. 3A and B.

Development factors were again calculated on an individual well basis, reflecting the number of injectors supporting each producer. If a producer was supported by four injection wells, the secondary

development was considered 100%. Conversely, if a producer was not immediately offset by any injection wells, it was considered to have 0% secondary development. This method also was applied to determine the value of the designated injection wells. Using this method, approximately 64% of the potential secondary reserve base will be developed without leaseline agreements. Should 100% of the leaseline agreements become effective after initial development, 98% of the reserve base will be exploited.

Secondary Potential

Evaluation of secondary potential for the expansion area essentially remains the same as previously reported. However, the magnitude of incremental production was adjusted to reflect the inclusion of the State K Lease. Timing of the incremental increase due to waterflood operations was also adjusted to reflect an additional year to implement injection. A first quarter 1988 startup was previously anticipated, with initial response in 1992. A first quarter 1989 startup is now projected for an EMSU expansion to include the study area.

For a stand alone unit, injection could be expected to commence in early 1990, with initial response expected in 1994.

Development Costs

Costs to develop the study area are based on Chevron's estimates using actual values noted in the development of the EMSU. Costs were provided for the four basic scenarios in developing the EMWU: (1) EMSU expansion with the Texaco State K lease included, (2) EMSU expansion without the State K lease, (3) EMWU stand alone with the State K lease included, and (4) EMWU stand alone without the State K lease. Summaries of each cost breakdown are given as Attachment Nos. 4A-D.

In the previous analysis, drilling of producing wells or injection wells was not anticipated. A review of wells which produce Eumont gas indicated two wells may be required to be drilled in order to provide usable wellbores for the development of an expansion or a stand alone unit. This would include Amoco's Gillully Federal Gas Com No. 7 (Unit O, Section 24) and Chevron's R.R. Bell NCT C Com No. 1 (Unit P, Section 13). It is anticipated that current production of Eumont gas from these two wells will be retained by the operators.

An injection well has been projected to be drilled as part of the development in Unit M, Section 14. An

injector in this undeveloped location will provide injection support to three producers. Based on primary production from the three producers and a secondary to primary ratio (S/P) of 0.47, secondary reserves of 51 MBO were estimated. However, it is noted in the reserve listing of Attachment No. 3B, no primary (or secondary) reserves were attributed to this undeveloped forty acre location. Upside to development of this location includes undrained primary reserves and secondary reserves.

With the inclusion of the State K lease, two wellbores may be needed. A replacement for Well No. 2 will eventually receive injection support from four injectors once leaseline agreements are obtained. The State K Well No. 1 is currently producing Eumont gas and may be retained by Texaco. As a downside case, two wells were projected to be drilled. The costs associated with drilling new wells as part of the development are shown in Attachment No. 5A-B.

It is expected that all producing wells (including wells which will remain on production pending leaseline agreements) will require remedial work. Chevron has estimated an average of $63M per workover ($24M-tangible, $39M-intangible). This average includes the assumption that 50% of the wells will require new pumping equipment. This includes both surface (i.e. pumping unit replacement) and downhole lift equipment. Total costs for remedial work is estimated to be $2,961,000 for the 47 producing wells remaining after initial development.

The conversion of 23 producing wells to injection wells as part of the initial development is projected to cost $1,656,000 ($72,000/conversion). Again, these cost estimates were based on Chevron's experience in the recent EMSU development. The tangible and intangible portion of the costs is $25,000 and $47,000, respectively, per conversion. This same cost per conversion is projected for the 12 leaseline injectors once leaseline agreements are made. The surface facilities costs are estimated at $3,524,000 and are shown in Attachment No. 6. These are preliminary cost estimates provided by Chevron, based on their assessment of the costs which will be incurred as a result of expanding the EMSU facilities. Additional surface facility costs are projected with the leaseline conversions. These costs are estimated from items 1.4 - 1.10 of the surface facility cost estimate. The average cost for surface facilities associated with each conversion was calculated by summing items 1.4 through 1.10 and dividing by the initial 23 conversions. This

average of $27,800 per conversion was applied to the later development of leaseline injectors.

In order to determine a value for the surface facilities costs of a stand alone unit, Item 1.1 of the detailed cost estimate was eliminated. This is the 8" trunkline required to transport water to the expansion area. All other costs were assumed to remain the same. For a stand alone unit, injection facilities are outlined in Attachment No. 7. Total cost is estimated to be $896,000, with the majority of the costs ($831,000) associated with the injection station. Two water supply wells and one disposal well will be required for a stand alone unit. The water supply wells are expected to cost $391,000 each to drill and complete, and the water disposal well is anticipated to cost $309,000 to drill and complete.

The EMSU currently has an adequate water supply to handle an expansion of the unit. Therefore, no additional costs associated with water source wells are expected for the expansion case.

Chevron has proposed an investment adjustment (with and without the State K lease) in the event the EMSU is expanded to include the study area. The investment adjustment is based only on facility costs incurred during the development of the EMSU which would benefit injection into the expansion area. Attachment No.8A and B indicates the investment adjustment calculations for the expansion cases. The value of the equipment installed as part of the EMSU development has been adjusted by a multiplier of 0.9652 in order to account for the depreciation of the equipment since initial injection began in November, 1986. An investment adjustment of $1,090,171 was calculated for an expansion with the State K lease included.

Economics

Economics for the development of the EMWU were rerun in order to reflect:

- 1/1/89 water injection startup for the expansion case,
- 1/1/90 startup for the stand alone case,
- the addition of the State K lease,
- revised investment costs,
- the proposed investment adjustment, and
- revised operating costs

Operating costs for each development scenario was based on the previous criteria of $1100 per month per primary producer and $2000 per month per secondary producer. A producing well was considered a secondary producer if offset by two or more injection wells.

An economic analysis was completed on each of five different production and spending profiles. The first case is the base case primary production and operating cost profile for the study area. Two cases are expansion scenarios for secondary development of the study area. One assumes leaseline injection in 1990, which is analogous to Chevron's EMSU leaseline injection development spending projection. The second case assumes no leaseline injection agreements can be negotiated. These are the best and worst case scenarios, which will bracket actual development of the expansion area. Two cases were stand alone scenarios which correspond to the two expansion cases. The stand alone cases assume a one year development delay to the anticipated EMSU expansion cases.

Economics were evaluated on a yet to spend basis as of 1-1-88. The profiles were analazed using Amoco's economic program with a constant oil price of $18/BO and the gas price held at $1.50/MCF. The program adds 20% to all investments and expenses as an overhead charge. Operating costs are escalated by 5.5% per year.

Incremental discounted cash flows for each project scenario are summarized in Attachment No. 9. The incremental values were determined by subtracting the base case continued primary operations discounted cash flows from the discounted cash flows of each development scenario. For comparison, a discount factor of 10% will be used on each incremental case.

The production profiles and operating costs for the continued primary operations of all leases in the EMWU study area are shown in Attachment No. 10.

Attachment No. 11A andB are production and spending profiles for the expansion and stand alone cases which include negotiating leaseline injection agreements within two years after initial injection. A comparison of the incremental cash flows for each indicates the expansion case is more economic. Attachment No. 12A and B are production and spending profiles for the expansion and stand alone cases which assume no leaseline agreements can be made. Again, the expansion case is more economic.

Texaco State K Lease

When the original study area was defined, both Texaco and Amerada Hess declined to include their State K and State M leases, respectively. Amerada Hess indicated their lease would be included in their proposed Monument Unit. It is apparent Texaco would obtain a low participation (approximately 0.11%) in the EMWU development by contributing the State K lease, based on the 1982 EMSU participation formula. Cumulative production for the two wells is 306.1 MBO, with last production from the Eunice Monument (G-SA) before 1970.

The inclusion of the Texaco lease will initially allow two additional conversions of producing wells to injection wells. The state and federal agencies have reviewed the preliminary proposal to expand the EMSU and have indicated that the State K lease should be included in any development plans. The inclusion of the State K lease has been incorporated in the economic analysis of the EMWU development.

As a group, the EMWU working interest owners could attempt to acquire rights in the State K lease, as previously recommended. Costs and benefits would be proportioned to each WIO's participation. Two alternatives are available in order to determine a value for the lease:

(1) Attempt to acquire all producing rights, including the current producing interval (Eumont Gas), or

(2) Attempt to acquire only rights to the unitized interval.

Current production for the lease is from the Eumont Yates, Seven Rivers, Queen (Pro Gas) Field in Well No. 1 (Unit K, Section 13). Average production for October, 1987 was 140 MCFD. The advantage of acquiring the existing wellbores is possibly reducing the number of wells required to be drilled in the development of the lease acreage. It is assumed that a replacement for Well No. 2 will be necessary; however, Well No. 1 could possibly be recompleted to the Eunice Monument (G-SA). This would reduce the cost of development of the forty acre tract by the drilling cost of $225,000 less the cost to recomplete. No data is available to accurately determine recompletion cost. This estimate will vary depending on the plugging procedure and the condition of the wellbore at that time.

The second alternative is to acquire only rights as defined by the unitized interval. This option will

require drilling two wells for development. This assumption was used in developing the economic analysis of each development scenario (expansion or stand alone). This alternative would be the most beneficial for unit development for several reasons:

(1) EMWU would not acquire reserves outside the unitized interval,

(2) legal complications regarding royalties if gas reserves are shut-in to allow waterflood development, and

(3) cost to abandon gas zone and recomplete to unitized zone is unknown, which may equal cost to drill a new producer.

In order to determine a value for the State K lease, the lease was evaluated on a stand alone basis. It was projected the conversions from producers to injectors of wells in Unit M, Section 13 and Unit C, Section 24 would be completed, and a replacement for the State K Well No. 2 would be drilled. No development was associated with Well No. 1. The development is shown in Attachment No. 13. Secondary reserves associated with this development are estimated to be 95 MBO, using primary reserve values in Attachment No. 3B and an S/P of 0.47. The production profile for this evaluation is shown in Attachment No. 14. An economic analysis using costs previously noted for unit development and assuming the same economic parameters was completed. Using a 10% discount rate, as in the earlier economic analysis, the State K lease would have a value of $16,000. The negotiations toward acquiring rights in the State K lease should consider the value the lease would have if developed on a stand alone basis.

## ATTACHMENTS

1) Base Map

2) Development Map

3A) Percentage of Reserve Base Developed (Map)

3B) Percentage of Reserve Base Developed (Table)

4A-D) Development Costs

5A) Drilling Well Costs (With State K Lease)

5B) Drilling Well Costs (Without State K Lease)

6) Surface Facility Cost Estimate

7) Injection Facility Cost Estimate

8A) Investment Adjustment Calculation (With State K Lease)

8B) Investment Adjustment Calculation (Without State K Lease)

9) Economic Summary - Incremental Discounted Cash Flows

10) Study Area Base Case Production and Spending Profile

11A) Production & Spending Profile - Expansion Case - 1990 Leaseline Injection

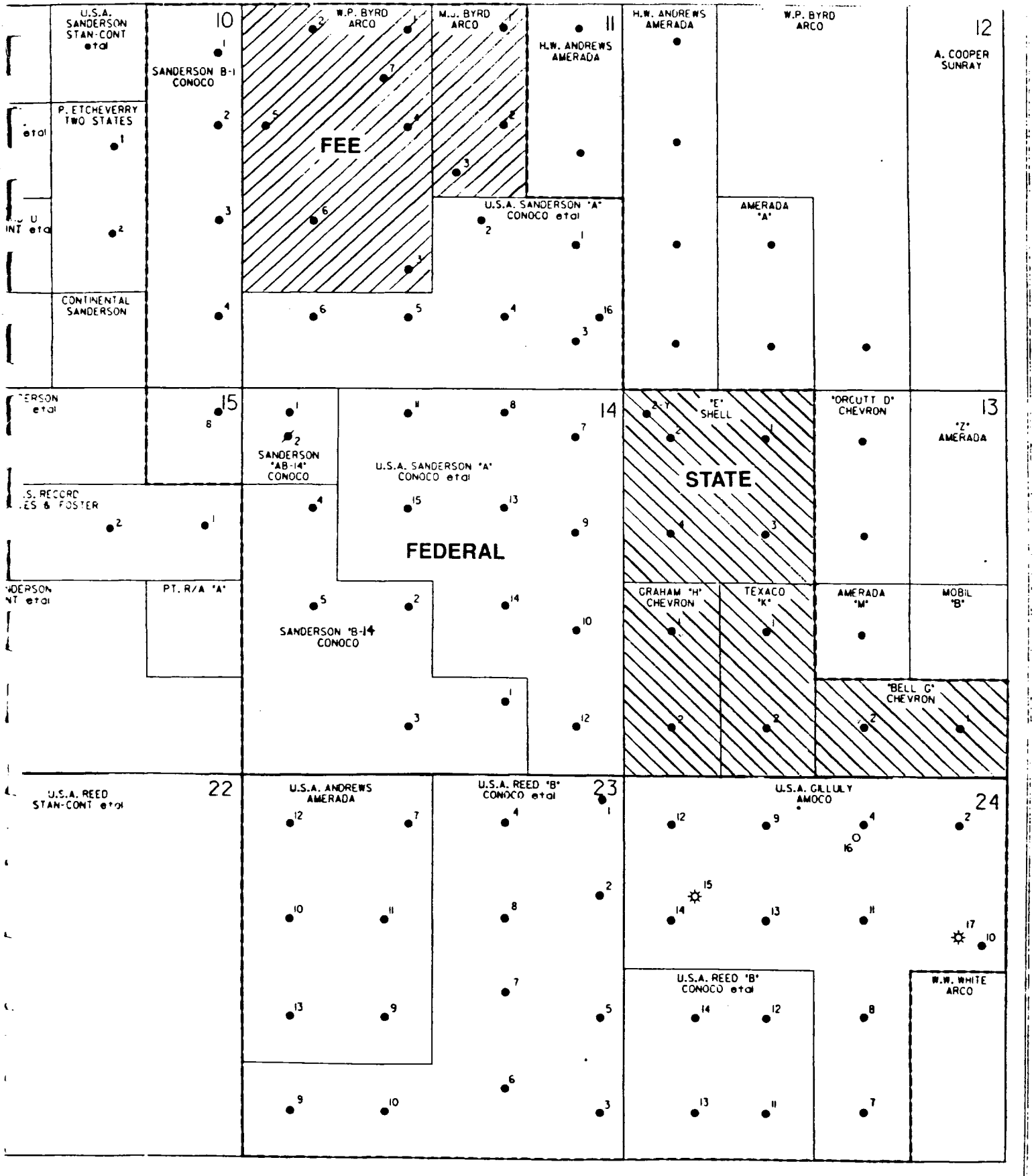
11B) Production & Spending Profile - Stand Alone Case - 1991 Leaseline Injection

12A) Production & Spending Profile - Expansion Case - No Leaseline Injection

12B) Production & Spending Profile - Stand Alone Case - No Leaseline Injection

13) State K Lease Development (Map)

14) State K Lease Production Profile

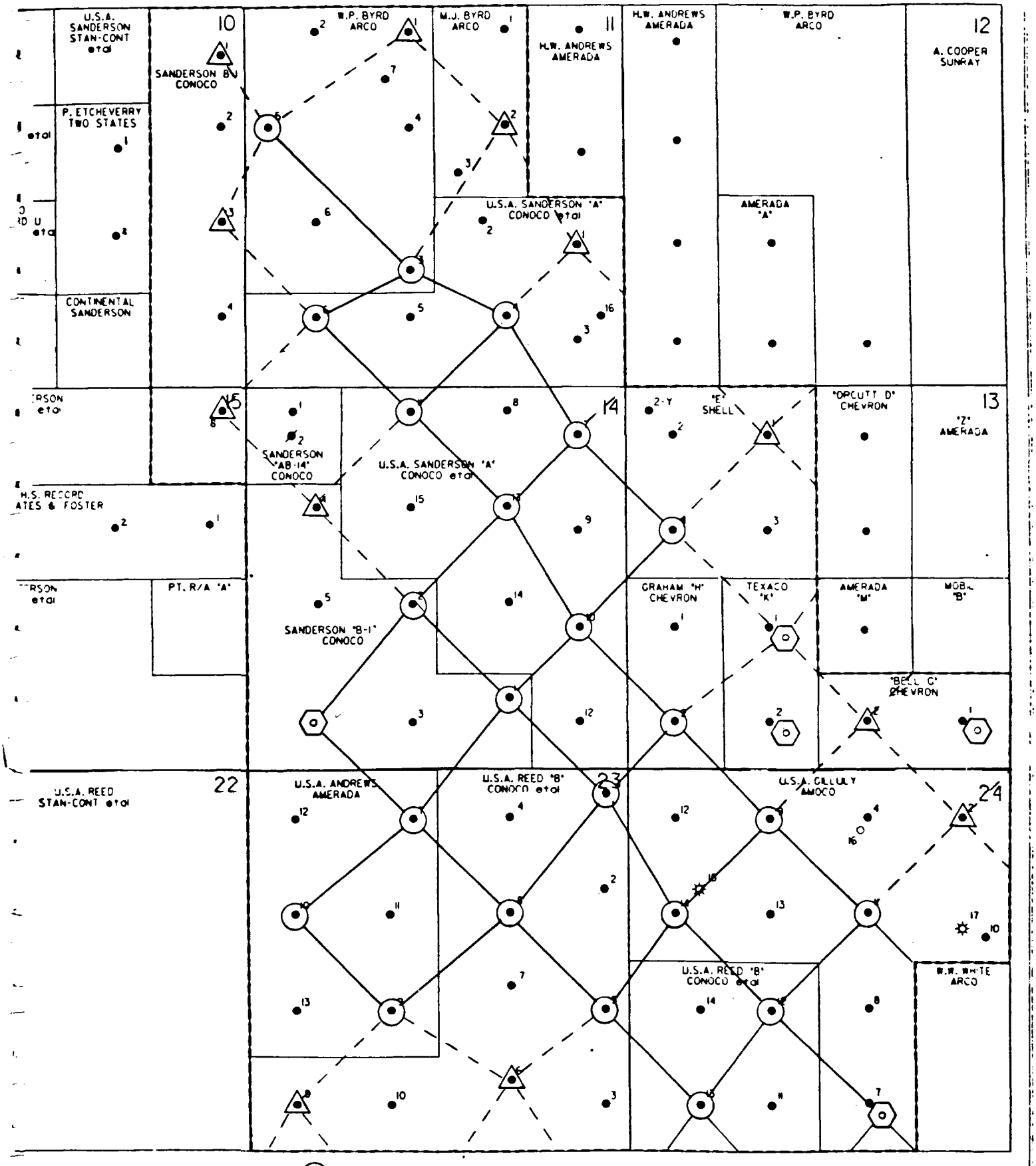



Legend

Amoco Production Company
EUNICE MONUMENT WEST UNIT
LEA COUNTY, N.M.

0' 500' 1000' 1500' 2000'
graphic scale

ATTACHMENT NO. 1




⊙ Convert From Prod To Injection

△ Leaseline Conversion

⬡ Drill

Legend

Amoco Production Company
EUNICE MONUMENT WEST UNIT
LEA COUNTY, N.M.

0 500 1000 1500 2000
graphic scale

ATTACHMENT NO.2

EUNICE MONUMENT WEST UNIT
INITIALLY AND DELAYED DEVELOPED SECONDARY RESERVES
BASED ON ACTUAL PORTION OF AREA DEVELOPED
RATIOED TO CUMULATIVE OIL PRODUCTION AS OF JUNE 30, 1986
INCLUDES TEXACO STATE K LEASE

| 40 ACRE AREA | CUM OIL | INITIAL FACTOR | FULL DEV FACTOR | DELAYED FACTOR | INITIALLY DEV SECONDARY RESERVES | FULLY DEV SECONDARY RESERVES | DELAYED DEVELOPED SECONDARY RESERVES |
|---|---|---|---|---|---|---|---|
| 1 | 276,085 | 0.000 | 0.500 | 0.500 | 0 | 138043 | 138043 |
| 2 | 508,419 | 0.250 | 1.000 | 0.750 | 127105 | 508419 | 381314 |
| 3 | 613,819 | 0.000 | 0.750 | 0.750 | 0 | 460364 | 460364 |
| 4 | 581,343 | 0.000 | 1.000 | 1.000 | 0 | 581343 | 581343 |
| 5 | 231,977 | 0.250 | 1.000 | 0.750 | 57994 | 231977 | 173983 |
| 6 | 409,749 | 1.000 | 1.000 | 0.000 | 409749 | 409749 | 0 |
| 7 | 611,117 | 0.500 | 1.000 | 0.500 | 305559 | 611117 | 305559 |
| 8 | 506,001 | 0.000 | 0.750 | 0.750 | 0 | 379501 | 379501 |
| 9 | 226,047 | 0.000 | 0.750 | 0.750 | 0 | 169535 | 169535 |
| 10 | 393,571 | 0.750 | 1.000 | 0.250 | 295178 | 393571 | 98393 |
| 11 | 545,770 | 1.000 | 1.000 | 0.000 | 545770 | 545770 | 0 |
| 12 | 569,244 | 0.500 | 1.000 | 0.500 | 284622 | 569244 | 284622 |
| 13 | 616,021 | 0.000 | 0.500 | 0.500 | 0 | 308011 | 308011 |
| 14 | 189,734 | 0.250 | 0.750 | 0.500 | 47434 | 142301 | 94867 |
| 15 | 427,763 | 1.000 | 1.000 | 0.000 | 427763 | 427763 | 0 |
| 16 | 417,679 | 1.000 | 1.000 | 0.000 | 417679 | 417679 | 0 |
| 17 | 426,318 | 1.000 | 1.000 | 0.000 | 426318 | 426318 | 0 |
| 18 | 441,095 | 0.500 | 1.000 | 0.500 | 220548 | 441095 | 220548 |
| 19 | 79,154 | 0.000 | 0.500 | 0.500 | 0 | 39577 | 39577 |
| 20 | 377,183 | 0.500 | 1.000 | 0.500 | 188592 | 377183 | 188592 |
| 21 | 568,895 | 1.000 | 1.000 | 0.000 | 568895 | 568895 | 0 |
| 22 | 645,520 | 1.000 | 1.000 | 0.000 | 645520 | 645520 | 0 |
| 23 | 459,699 | 1.000 | 1.000 | 0.000 | 459699 | 459699 | 0 |
| 24 | 288,194 | 0.500 | 1.000 | 0.500 | 144097 | 288194 | 144097 |
| 25 | 350,842 | 0.000 | 0.500 | 0.500 | 0 | 175421 | 175421 |
| 26 | 257,390 | 0.000 | 0.750 | 0.750 | 0 | 193043 | 193043 |
| 27 | 265,234 | 0.750 | 1.000 | 0.250 | 198926 | 265234 | 66309 |
| 28 | 356,155 | 1.000 | 1.000 | 0.000 | 356155 | 356155 | 0 |
| 29 | 376,913 | 1.000 | 1.000 | 0.000 | 376913 | 376913 | 0 |
| 30 | 590,122 | 1.000 | 1.000 | 0.000 | 590122 | 590122 | 0 |
| 31 | 150,097 | 0.250 | 1.000 | 0.750 | 37524 | 150097 | 112573 |
| 32 | 200,652 | 0.500 | 0.750 | 0.250 | 100326 | 150489 | 50163 |
| 33 | 305,437 | 1.000 | 1.000 | 0.000 | 305437 | 305437 | 0 |
| 34 | 347,135 | 1.000 | 1.000 | 0.000 | 347135 | 347135 | 0 |
| 35 | 405,510 | 1.000 | 1.000 | 0.000 | 405510 | 405510 | 0 |
| 36 | 401,746 | 0.750 | 1.000 | 0.250 | 301310 | 401746 | 100437 |
| 37 | 0 | 0.000 | 0.000 | 0.000 | 0 | 0 | 0 |
| 38 | 210,250 | 1.000 | 1.000 | 0.000 | 210250 | 210250 | 0 |
| 39 | 438,359 | 1.000 | 1.000 | 0.000 | 438359 | 438359 | 0 |
| 40 | 294,238 | 1.000 | 1.000 | 0.000 | 294238 | 294238 | 0 |
| 41 | 257,780 | 1.000 | 1.000 | 0.000 | 257780 | 257780 | 0 |
| 42 | 325,027 | 0.000 | 0.750 | 0.750 | 0 | 243770 | 243770 |
| 43 | 435,921 | 0.000 | 1.000 | 1.000 | 0 | 435921 | 435921 |
| 44 | 19,845 | 0.750 | 0.750 | 0.000 | 14884 | 14884 | 0 |
| 45 | 240,338 | 1.000 | 1.000 | 0.000 | 240338 | 240338 | 0 |
| 46 | 375,777 | 1.000 | 1.000 | 0.000 | 375777 | 375777 | 0 |
| 47 | 450,951 | 1.000 | 1.000 | 0.000 | 450951 | 450951 | 0 |
| 48 | 459,673 | 1.000 | 1.000 | 0.000 | 459673 | 459673 | 0 |

ATTACHMENT NO.3B

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 49 | 242,824 | 1.000 | 1.000 | 0.000 | 242824 | 242824 | 0 |
| 50 | 56,486 | 0.500 | 1.000 | 0.500 | 28243 | 56486 | 28243 |
| 51 | 897,169 | 0.000 | 0.750 | 0.750 | 0 | 672877 | 672877 |
| 52 | 24,492 | 0.750 | 0.750 | 0.000 | 18369 | 18369 | 0 |
| 53 | 167,783 | 1.000 | 1.000 | 0.000 | 167783 | 167783 | 0 |
| 54 | 352,036 | 1.000 | 1.000 | 0.000 | 352036 | 352036 | 0 |
| 55 | 385,815 | 1.000 | 1.000 | 0.000 | 385815 | 385815 | 0 |
| 56 | 319,035 | 1.000 | 1.000 | 0.000 | 319035 | 319035 | 0 |
| 57 | 368,655 | 1.000 | 1.000 | 0.000 | 368655 | 368655 | 0 |
| 58 | 239,606 | 1.000 | 1.000 | 0.000 | 239606 | 239606 | 0 |
| 59 | 482,385 | 0.250 | 1.000 | 0.750 | 120596 | 482385 | 361789 |
| 60 | 19,646 | 0.500 | 0.750 | 0.250 | 9823 | 14735 | 4912 |
| 61 | 56,151 | 1.000 | 1.000 | 0.000 | 56151 | 56151 | 0 |
| 62 | 330,359 | 0.750 | 1.000 | 0.250 | 247769 | 330359 | 82590 |
| 63 | 259,143 | 1.000 | 1.000 | 0.000 | 259143 | 259143 | 0 |
| 64 | 217,377 | 1.000 | 1.000 | 0.000 | 217377 | 217377 | 0 |
| 65 | 234,255 | 1.000 | 1.000 | 0.000 | 234255 | 234255 | 0 |
| 66 | 459,408 | 0.750 | 1.000 | 0.250 | 344556 | 459408 | 114852 |
| 67 | 19,875 | 0.000 | 0.500 | 0.500 | 0 | 9938 | 9938 |
| 68 | 46,285 | 0.250 | 1.000 | 0.750 | 11571 | 46285 | 34714 |
| 69 | 134,440 | 0.000 | 0.750 | 0.750 | 0 | 100830 | 100830 |
| 70 | 241,405 | 0.500 | 1.000 | 0.500 | 120703 | 241405 | 120703 |
| 71 | 239,191 | 0.750 | 0.750 | 0.000 | 179393 | 179393 | 0 |
| 72 | 367,552 | 1.000 | 1.000 | 0.000 | 367552 | 367552 | 0 |
| 73 | 208,605 | 0.500 | 0.500 | 0.000 | 104303 | 104303 | 0 |
| K1 | 151,289 | 0.000 | 0.750 | 0.750 | 0 | 113467 | 113467 |
| K2 | 154,825 | 0.500 | 1.000 | 0.500 | 77413 | 154825 | 77413 |
| TOTAL | 24,601,881 | | | | 15807098 | 22875405 | 7068307 |
| PERCENT | 100 | | | | 64.25158 | 92.98234 | 28.73076 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A(2) | 707,826 | 0.000 | 0.250 | 0.250 | 0 | 176957 | 176957 |
| B(4) | 695,786 | 0.000 | 0.250 | 0.250 | 0 | 173947 | 173947 |
| C(4) | 720,983 | 0.000 | 0.250 | 0.250 | 0 | 180246 | 180246 |
| D(18,24) | 145,429 | 0.000 | 0.500 | 0.500 | 0 | 72715 | 72715 |
| E(31) | 398,534 | 0.000 | 0.250 | 0.250 | 0 | 99634 | 99634 |
| F(43) | 575,220 | 0.000 | 0.250 | 0.250 | 0 | 143805 | 143805 |
| G(43) | 655,308 | 0.000 | 0.250 | 0.250 | 0 | 163827 | 163827 |
| H(59) | 199,633 | 0.000 | 0.250 | 0.250 | 0 | 49908 | 49908 |
| I(59,66) | 147,910 | 0.000 | 0.500 | 0.500 | 0 | 73955 | 73955 |
| J(72) | 272,608 | 0.000 | 0.250 | 0.250 | 0 | 68152 | 68152 |
| K(70) | 244,696 | 0.000 | 0.250 | 0.250 | 0 | 61174 | 61174 |
| L(68) | 101,922 | 0.000 | 0.250 | 0.250 | 0 | 25481 | 25481 |
| M(5) | 79,753 | 0.000 | 0.250 | 0.250 | 0 | 19938 | 19938 |
| | 4,945,608 | | | | | | |

| | | | |
|---|---|---|---|
| TOTAL RESERVES DEVELOPED | 15807098 | 24185141 | 8378043 |
| PERCENTAGE OF AREA RESERVES DEVELOPED | 64.25158 | 98.30607 | 34.05448 |

STAND ALONE CASE W/ LEASELINE INJECTION IN 1991

W/ STATE K LEASE

| | |
|---|---|
| DRILL AND COMPLETE 2 PRODUCERS | $ 350,000 |
| DRILL AND COMPLETE 3 INJECTORS | 515,000 |
| WORKOVER 47 PRODUCERS | 2,961,000 |
| CONVERT 23 PRODUCERS TO INJECTION | 1,656,000 |
| SURFACE FACILITIES | 3,315,000 |
| INVESTMENT ADJUSTMENT | - |
| INJECTION FACILITIES | 896,000 |
| DRILL AND COMPLETE 2 WTR SOURCE WELLS | 782,000 |
| DRILL AND COMPLETE 1 SWD WELL | 309,000 |
| | $10,784,000 |

1991

| | |
|---|---|
| CONVERT 12 PRODUCERS TO INJECTION | $ 864,000 |
| SURFACE FACILITIES | 333,600 |
| | $1,197,600 |

| | |
|---|---|
| TOTAL | $11,981,600 |

**ATTACHMENT NO. 4C**

STAND ALONE CASE W/ LEASELINE INJECTION IN 1991

W/O STATE K LEASE

| | |
|---|---|
| DRILL AND COMPLETE 1 PRODUCER | $ 125,000 |
| DRILL AND COMPLETE 2 INJECTORS | 310,000 |
| WORKOVER 49 PRODUCERS | 3,087,000 |
| CONVERT 21 PRODUCERS TO INJECTION | 1,512,000 |
| SURFACE FACILITIES | 3,315,000 |
| INVESTMENT ADJUSTMENT | - |
| INJECTION FACILITIES | 896,000 |
| DRILL AND COMPLETE 2 WTR SOURCE WELLS | 782,000 |
| DRILL AND COMPLETE 1 SWD WELL | 309,000 |
| | $10,336,000 |

1991

| | |
|---|---|
| CONVERT 13 PRODUCERS TO INJECTION | $ 936,000 |
| SURFACE FACILITIES | 361,400 |
| | $1,297,400 |

| | |
|---|---|
| TOTAL | $11,633,400 |

WELLS TO DRILL FOR DEVELOPMENT OF EMWU
(WITHOUT TEXACO STATE "K" LEASE)

| PRODUCING WELLS | WELLBORE PENALTY | TANGIBLE COSTS | INTANGIBLE COSTS | TOTAL COSTS |
|---|---|---|---|---|
| R. R. Bell NCT G Com No. 1 (Unit P, Section 13) | Yes | $ 63,750 | $ 61,250 | $125,000 |
| INJECTION WELLS | | | | |
| Gillully Fed Gas Com No. 7 (Unit O, Section 24) | Yes | $ 66,600 | $ 38,400 | $105,000 |
| Sanderson B-14 (Unit M, Section 23) | No | 75,000 | 130,000 | 205,000 |
| TOTAL | | $205,350 | $229,650 | $435,000 |

**ATTACHMENT NO.5B**

EMWU SURFACE FACILITY
COST ESTIMATE

| | | CONTRACT ($M) | MATERIAL ($M) | TOTAL ($M) |
|---|---|---|---|---|
| 1.0 | Injection Distribution System | | | |
| 1.1 | 8" Trunkline - 11,000' | 55 | 154 | 209 |
| 1.2 | 6" Trunkline - 9,000' | 38 | 110 | 148 |
| 1.3 | 4" Injection lines - 8,000' | 16 | 80 | 96 |
| 1.4 | 3" Injection lines - 4,000' | 7 | 24 | 31 |
| 1.5 | 2" Injection lines -50,000' | 80 | 163 | 243 |
| 1.6 | Meter runs, manifolds | 45 | 127 | 172 |
| 1.7 | Misc. valves, fittings | 10 | 30 | 40 |
| 1.8 | Wellhead hookups | 14 | 42 | 56 |
| 1.9 | RTUs | 6 | 42 | 48 |
| 1.10 | ROW, damages | 50 | | 50 |
| | SUBTOTAL 1.0 | 321 | 772 | 1093 |
| 2.0 | Satellites(2), Central Battery | | | |
| 2.1 | Two satellite batteries | 100 | 300 | 400 |
| 2.2 | Central battery | 100 | 400 | 500 |
| 2.3 | Damages | 10 | | 10 |
| | SUBTOTAL 2.0 | 210 | 700 | 910 |
| 3.0 | Production Gathering System | | | |
| 3.1 | 2" Flowlines - 168,000' | 235 | 210 | 445 |
| 3.2 | 6" Gathering lines - 11,000' | 20 | 50 | 70 |
| 3.3 | Misc. valves, fittings | 5 | 10 | 15 |
| 3.4 | Well hookups | 15 | 40 | 55 |
| 3.5 | ROW, damages | 80 | | 80 |
| | SUBTOTAL 3.0 | 355 | 310 | 665 |
| 4.0 | Electrical Distribution System | | | |
| 4.1 | Primary and secondary | 80 | 165 | 245 |
| 4.2 | Motor services | 40 | 90 | 130 |
| 4.3 | Transformers, reclosers | | 55 | 55 |
| 4.4 | ROW, damages | 36 | | 36 |
| | SUBTOTAL 4.0 | 156 | 310 | 466 |
| 5.0 | Miscellaneous | | | |
| 5.1 | Roads | 250 | | 250 |
| 5.2 | Abandonment of facilities | 125 | | 125 |
| 5.3 | Remove old EDs | 15 | | 15 |
| | SUBTOTAL 5.0 | 390 | | 390 |
| | TOTAL | 1,432 | 2,092 | 3,524 |

ATTACHMENT NO.6

EMWU INJECTION FACILITIES
(STAND ALONE)

| | | |
|---|---|---|
| 1.0 | Injection Plant | $831,000 |
| 2.0 | Water Supply Wells (Surface facilities) | 55,000 |
| 3.0 | Water Disposal Well (Surface facilities) | 10,000 |
| | TOTAL | $896,000 |

**ATTACHMENT NO.7**

EMSU INJECTION FACILITIES SUMMARY
CALCULATION OF INVESTMENT ADJUSTMENT
(WITH TEXACO STATE K LEASE)

| ITEM | EMSU COST | DEPRICIATED COST | * FACTOR | EMWU COST |
|---|---|---|---|---|
| Main trunk lines | $ 328,098 | $ 316,680 | 25/56 | $141,375 |
| Water injection plant | 2,229,298 | 2,151,718 | 25/159 | 338,320 |
| Water supply wells (Surface facilities) | 403,974 | 389,916 | 25/159 | 61,308 |
| Water disposal well (Surface facilities) | 20,591 | 19,874 | 25/159 | 3,125 |
| Water source wells (Drill,complete,equip) | 3,511,044 | 3,388,860 | 25/159 | 532,840 |
| Water disposal well | 87,000 | 83,972 | 25/159 | 13,203 |
| INVESTMENT ADJUSTMENT | | | | $1,090,171 |

* Number of WIWs in expansion area / total number of WIWs served

ATTACHMENT NO. 8A

EMSU INJECTION FACILITIES SUMMARY
CALCULATION OF INVESTMENT ADJUSTMENT
(WITHOUT TEXACO STATE K LEASE)

| ITEM | EMSU COST | DEPRICIATED COST | * FACTOR | EMWU COST |
|---|---|---|---|---|
| Main trunk lines | $ 328,098 | $ 316,680 | 23/54 | $134,882 |
| Water injection plant | 2,229,298 | 2,151,718 | 23/157 | 315,220 |
| Water supply wells (Surface facilities) | 403,974 | 389,916 | 23/157 | 57,121 |
| Water disposal well (Surface facilities) | 20,591 | 19,874 | 23/157 | 2,911 |
| Water source wells (Drill,complete,equip) | 3,511,044 | 3,388,860 | 23/157 | 496,457 |
| Water disposal well | 87,000 | 83,972 | 23/157 | 12,302 |
| INVESTMENT ADJUSTMENT | | | | $1,018,893 |

* Number of WIWs in expansion area / total number of WIWs served

ATTACHMENT NO.8B

PROPOSED EUNICE MONUMENT UNIT
ECONOMIC EVALUATION
INCREMENTAL DISCOUNTED CASH FLOWS
AT VARIOUS DISCOUNT RATES
WITH THE STATE K LEASE

| SCENARIO | INJECTION AGREEMENTS | INCREMENTAL CASH FLOW AT VARIOUS DISCOUNT RATES ($MM) | | | | |
|---|---|---|---|---|---|---|
| | | PV(0) | PV(8) | PV(10) | PV(13) | PV(15) |
| EMSU EXPANSION | 1990 | 91.203 | 26.501 | 18.671 | 10.191 | 6.120 |
| EMWU STAND ALONE | 1991 | 88.046 | 22.854 | 15.455 | 7.695 | 4.106 |
| EMWU EXPANSION | NONE | 51.277 | 13.075 | 8.365 | 3.236 | 0.763 |
| EMWU STAND ALONE | NONE | 48.734 | 10.787 | 6.427 | 1.853 | -0.256 |

ATTACHMENT NO. 9

STUDY AREA BASE CASE
CONTINUED PRIMARY OPERATIONS
SPENDING AND PRODUCTION PROFILE

| YEAR | PRIMARY BOPD | PRIMARY GOR | *TOTAL MCFD | OP COSTS $M/YEAR |
|---|---|---|---|---|
| 1988 | 526 | 3700 | 1946 | 673 |
| 1989 | 499 | 3700 | 1845 | 673 |
| 1990 | 473 | 3700 | 1749 | 673 |
| 1991 | 448 | 3700 | 1658 | 673 |
| 1992 | 425 | 3700 | 1572 | 673 |
| 1993 | 403 | 3700 | 1490 | 673 |
| 1994 | 382 | 3700 | 1413 | 673 |
| 1995 | 362 | 3700 | 1340 | 673 |
| 1996 | 343 | 3700 | 1270 | 673 |
| 1997 | 325 | 3700 | 1204 | 673 |
| 1998 | 309 | 3700 | 1142 | 673 |
| 1999 | 293 | 3700 | 1083 | 673 |
| 2000 | 277 | 3700 | 1026 | 673 |
| 2001 | 263 | 3700 | 973 | 673 |
| 2002 | 249 | 3700 | 923 | 673 |
| 2003 | 236 | 3700 | 875 | 673 |
| 2004 | 224 | 3700 | 829 | 673 |
| 2005 | 212 | 3700 | 786 | 673 |
| 2006 | 201 | 3700 | 745 | 673 |
| 2007 | 191 | 3700 | 707 | 673 |
| 2008 | 181 | 3700 | 670 | 673 |
| 2009 | 172 | 3700 | 635 | 673 |
| 2010 | 163 | 3700 | 602 | 673 |
| 2011 | 154 | 3700 | 571 | 673 |
| 2012 | 146 | 3700 | 541 | 673 |
| 2013 | 139 | 3700 | 513 | 673 |
| 2014 | 132 | 3700 | 487 | 673 |
| 2015 | 125 | 3700 | 461 | 673 |
| 2016 | 118 | 3700 | 437 | 673 |
| 2017 | 112 | 3700 | 415 | 673 |
| 2018 | 106 | 3700 | 393 | 673 |
| 2019 | 101 | 3700 | 373 | 673 |

ATTACHMENT NO.10

EMWU ANALOGY TO CHEVRON ESTIMATE
ASSUMING LEASELINE INJECTION IN 1990
ANALOGOUS TO CHEVRON ASSUMPTION
WITH STATE K

| YEAR | TOTAL PRIMARY BOPD | 98% PRIMARY INITIALLY DEVELOPED | 2% PRIMARY NEVER DEVELOPED | INCREM. BOPD | PRIMARY GOR | DEVELOPED GOR | TOTAL BOPD | TOTAL MCFD | AVERAGE WEIGHTED GOR | OP COSTS $M/YEAR | DEVELOPMENT COSTS TANGIBLE $M/YEAR | DEVELOPMENT COSTS INTANGIBLE $M/YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | 526 | 515 | 11 | 0 | 3700 | 3700 | 526 | 1946 | 3700 | 781 | 4,185 | 4,821 |
| 1989 | 499 | 489 | 10 | 0 | 3700 | 3700 | 499 | 1845 | 3700 | 888 | 0 | 0 |
| 1990 | 473 | 463 | 9 | 0 | 3700 | 3700 | 473 | 1749 | 3700 | 888 | 523 | 675 |
| 1991 | 448 | 439 | 9 | 0 | 3700 | 3000 | 448 | 1351 | 3014 | 888 | 0 | 0 |
| 1992 | 425 | 416 | 8 | 0 | 3700 | 2600 | 425 | 1114 | 2622 | 888 | 0 | 0 |
| 1993 | 403 | 395 | 8 | 6 | 3700 | 2050 | 408 | 850 | 2083 | 888 | 0 | 0 |
| 1994 | 382 | 374 | 8 | 135 | 3700 | 1700 | 517 | 894 | 1730 | 888 | 0 | 0 |
| 1995 | 362 | 355 | 7 | 641 | 3700 | 1400 | 1003 | 1421 | 1417 | 888 | 0 | 0 |
| 1996 | 343 | 336 | 7 | 1436 | 3700 | 1100 | 1779 | 1975 | 1110 | 888 | 0 | 0 |
| 1997 | 325 | 319 | 7 | 3075 | 3700 | 900 | 3400 | 3079 | 905 | 888 | 0 | 0 |
| 1998 | 309 | 302 | 6 | 3845 | 3700 | 730 | 4154 | 3050 | 734 | 888 | 0 | 0 |
| 1999 | 293 | 287 | 6 | 3855 | 3700 | 610 | 4148 | 2548 | 614 | 888 | 0 | 0 |
| 2000 | 277 | 272 | 6 | 3864 | 3700 | 500 | 4141 | 2088 | 504 | 888 | 0 | 0 |
| 2001 | 263 | 258 | 5 | 3281 | 3700 | 440 | 3544 | 1577 | 445 | 888 | 0 | 0 |
| 2002 | 249 | 244 | 5 | 2783 | 3700 | 440 | 3032 | 1350 | 445 | 888 | 0 | 0 |
| 2003 | 236 | 232 | 5 | 2359 | 3700 | 440 | 2595 | 1157 | 446 | 888 | 0 | 0 |
| 2004 | 224 | 220 | 4 | 1997 | 3700 | 440 | 2221 | 992 | 447 | 888 | 0 | 0 |
| 2005 | 212 | 208 | 4 | 1688 | 3700 | 440 | 1900 | 850 | 447 | 888 | 0 | 0 |
| 2006 | 201 | 197 | 4 | 1425 | 3700 | 440 | 1626 | 729 | 448 | 888 | 0 | 0 |
| 2007 | 191 | 187 | 4 | 1201 | 3700 | 440 | 1392 | 625 | 449 | 888 | 0 | 0 |
| 2008 | 181 | 177 | 4 | 1009 | 3700 | 440 | 1190 | 535 | 450 | 888 | 0 | 0 |
| 2009 | 172 | 168 | 3 | 847 | 3700 | 440 | 1019 | 459 | 451 | 888 | 0 | 0 |
| 2010 | 163 | 160 | 3 | 708 | 3700 | 440 | 871 | 394 | 452 | 888 | 0 | 0 |
| 2011 | 154 | 151 | 3 | 591 | 3700 | 440 | 745 | 338 | 454 | 888 | 0 | 0 |
| 2012 | 146 | 143 | 3 | 491 | 3700 | 440 | 637 | 290 | 455 | 888 | 0 | 0 |
| 2013 | 139 | 136 | 3 | 406 | 3700 | 440 | 545 | 249 | 457 | 888 | 0 | 0 |
| 2014 | 132 | 129 | 3 | 334 | 3700 | 440 | 466 | 213 | 458 | 888 | 0 | 0 |
| 2015 | 125 | 122 | 2 | 273 | 3700 | 440 | 398 | 183 | 460 | 888 | 0 | 0 |
| 2016 | 118 | 116 | 2 | 221 | 3700 | 440 | 339 | 157 | 463 | 888 | 0 | 0 |
| 2017 | 112 | 110 | 2 | 177 | 3700 | 440 | 289 | 135 | 465 | 888 | 0 | 0 |
| 2018 | 106 | 104 | 2 | 140 | 3700 | 440 | 246 | 115 | 468 | 888 | 0 | 0 |
| 2019 | 101 | 99 | 2 | 109 | 3700 | 440 | 210 | 99 | 471 | 888 | 0 | 0 |

ATTACHMENT NO.11A

STAND ALONE CASE ONE YEAR DELAY
ASSUMING LEASELINE INJECTION IN 1991
ANALOGOUS TO CHEVRON ASSUMPTION
WITH STATE K

| YEAR | TOTAL PRIMARY BOPD | 98% PRIMARY INITIALLY DEVELOPED | 2% PRIMARY NEVER DEVELOPED | INCREM. BOPD | PRIMARY GOR | DEVELOPED GOR | TOTAL BOPD | TOTAL MCFD | AVERAGE WEIGHTED GOR | OP COSTS $M/YEAR | DEVELOPMENT COSTS TANGIBLE $M/YEAR | DEVELOPMENT COSTS INTANGIBLE $M/YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | 526 | 515 | 11 | 0 | 3700 | 3700 | 526 | 1946 | 3700 | 673 | 0 | 0 |
| 1989 | 499 | 489 | 10 | 0 | 3700 | 3700 | 499 | 1845 | 3700 | 781 | 4,959 | 5,825 |
| 1990 | 473 | 463 | 9 | 0 | 3700 | 3700 | 473 | 1749 | 3700 | 888 | 0 | 0 |
| 1991 | 448 | 439 | 9 | 0 | 3700 | 3000 | 448 | 1351 | 3014 | 888 | 523 | 675 |
| 1992 | 425 | 416 | 8 | 0 | 3700 | 2600 | 425 | 1114 | 2622 | 888 | 0 | 0 |
| 1993 | 403 | 395 | 8 | 0 | 3700 | 2050 | 403 | 839 | 2083 | 888 | 0 | 0 |
| 1994 | 382 | 374 | 8 | 6 | 3700 | 1700 | 387 | 674 | 1739 | 888 | 0 | 0 |
| 1995 | 362 | 355 | 7 | 135 | 3700 | 1400 | 497 | 713 | 1434 | 888 | 0 | 0 |
| 1996 | 343 | 336 | 7 | 641 | 3700 | 1100 | 984 | 1101 | 1118 | 888 | 0 | 0 |
| 1997 | 325 | 319 | 7 | 1436 | 3700 | 900 | 1761 | 1604 | 910 | 888 | 0 | 0 |
| 1998 | 309 | 302 | 6 | 3075 | 3700 | 730 | 3384 | 2488 | 735 | 888 | 0 | 0 |
| 1999 | 293 | 287 | 6 | 3845 | 3700 | 610 | 4138 | 2542 | 614 | 888 | 0 | 0 |
| 2000 | 277 | 272 | 6 | 3855 | 3700 | 500 | 4132 | 2084 | 504 | 888 | 0 | 0 |
| 2001 | 263 | 258 | 5 | 3864 | 3700 | 440 | 4127 | 1833 | 444 | 888 | 0 | 0 |
| 2002 | 249 | 244 | 5 | 3281 | 3700 | 440 | 3530 | 1570 | 445 | 888 | 0 | 0 |
| 2003 | 236 | 232 | 5 | 2783 | 3700 | 440 | 3019 | 1344 | 445 | 888 | 0 | 0 |
| 2004 | 224 | 220 | 4 | 2359 | 3700 | 440 | 2583 | 1151 | 446 | 888 | 0 | 0 |
| 2005 | 212 | 208 | 4 | 1997 | 3700 | 440 | 2209 | 986 | 446 | 888 | 0 | 0 |
| 2006 | 201 | 197 | 4 | 1688 | 3700 | 440 | 1889 | 844 | 447 | 888 | 0 | 0 |
| 2007 | 191 | 187 | 4 | 1425 | 3700 | 440 | 1616 | 723 | 448 | 888 | 0 | 0 |
| 2008 | 181 | 177 | 4 | 1201 | 3700 | 440 | 1382 | 620 | 449 | 888 | 0 | 0 |
| 2009 | 172 | 168 | 3 | 1009 | 3700 | 440 | 1181 | 531 | 449 | 888 | 0 | 0 |
| 2010 | 163 | 160 | 3 | 847 | 3700 | 440 | 1010 | 455 | 451 | 888 | 0 | 0 |
| 2011 | 154 | 151 | 3 | 708 | 3700 | 440 | 862 | 389 | 452 | 888 | 0 | 0 |
| 2012 | 146 | 143 | 3 | 591 | 3700 | 440 | 737 | 334 | 453 | 888 | 0 | 0 |
| 2013 | 139 | 136 | 3 | 491 | 3700 | 440 | 630 | 286 | 454 | 888 | 0 | 0 |
| 2014 | 132 | 129 | 3 | 406 | 3700 | 440 | 538 | 245 | 456 | 888 | 0 | 0 |
| 2015 | 125 | 122 | 2 | 334 | 3700 | 440 | 459 | 210 | 458 | 888 | 0 | 0 |
| 2016 | 118 | 116 | 2 | 273 | 3700 | 440 | 391 | 180 | 460 | 888 | 0 | 0 |
| 2017 | 112 | 110 | 2 | 221 | 3700 | 440 | 333 | 154 | 462 | 888 | 0 | 0 |
| 2018 | 106 | 104 | 2 | 177 | 3700 | 440 | 283 | 132 | 464 | 888 | 0 | 0 |
| 2019 | 101 | 99 | 2 | 140 | 3700 | 440 | 241 | 113 | 467 | 888 | 0 | 0 |

ATTACHMENT NO.11E

ANALOGY TO CHEVRON ESTIMATE
ASSUMING NO LEASELINE INJECTION AGREEMENTS
PESSIMISTIC CASE
WITH STATE K

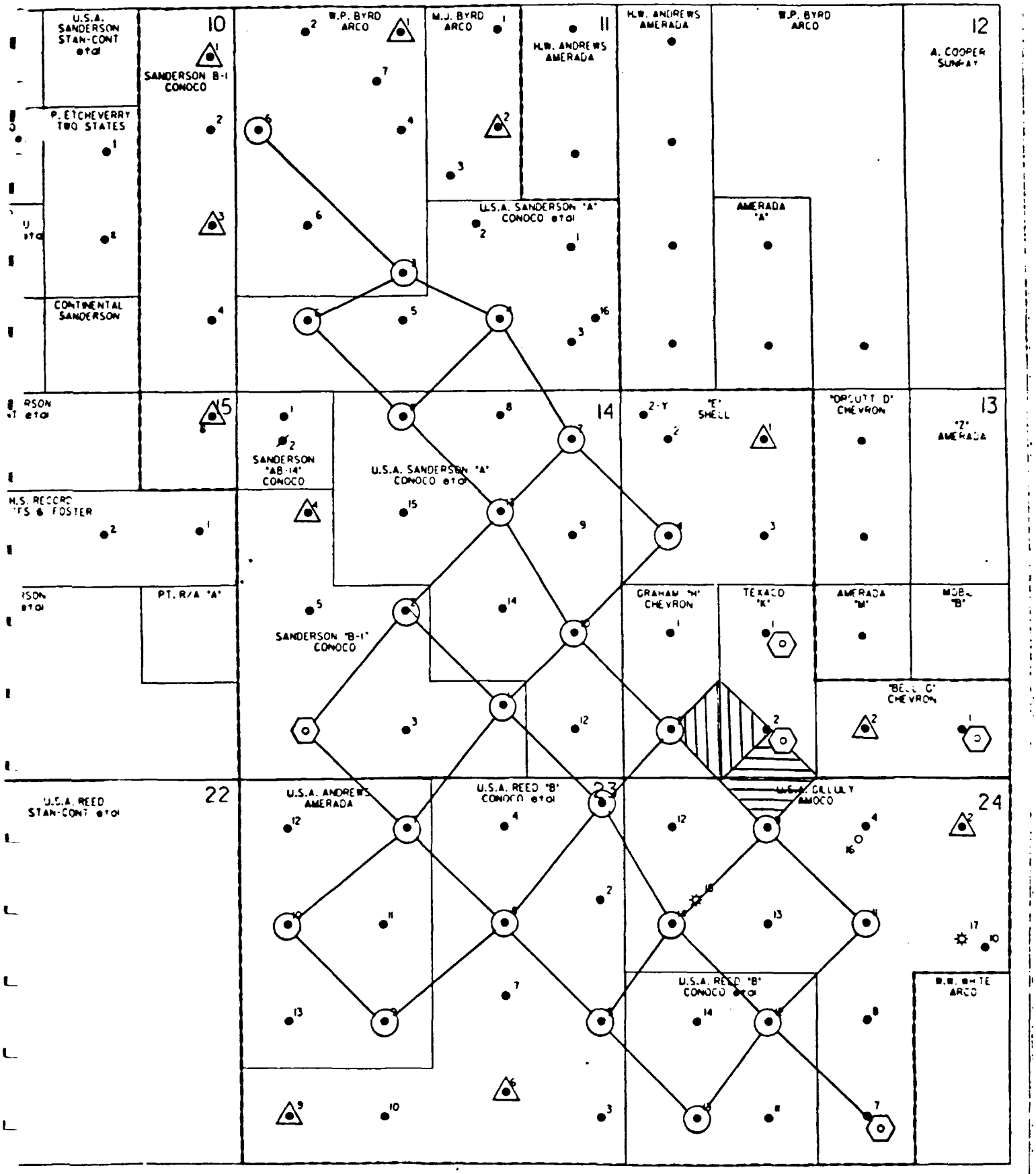
| YEAR | TOTAL PRIMARY BOPD | 64% DEVELOPED PRIMARY BOPD | 36% UNDEVELOPED PRIMARY BOPD | INCREM. BOPD | GOR PRIMARY | DEVELOPED GOR | TOTAL BOPD | TOTAL MCFD | AVERAGE WEIGHTED GOR | OP COSTS $M/YEAR | DEVELOPMENT COSTS TANGIBLE $M/YEAR | DEVELOPMENT COSTS INTANGIBLE $M/YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | 526 | 337 | 189 | 0 | 3700 | 3700 | 526 | 1946 | 3700 | 823 | 4,185 | 4,821 |
| 1989 | 499 | 319 | 179 | 0 | 3700 | 3700 | 499 | 1845 | 3700 | 973 | 0 | 0 |
| 1990 | 473 | 303 | 170 | 0 | 3700 | 3700 | 473 | 1749 | 3700 | 973 | 0 | 0 |
| 1991 | 448 | 287 | 161 | 0 | 3700 | 3000 | 448 | 1457 | 3252 | 973 | 0 | 0 |
| 1992 | 425 | 272 | 153 | 0 | 3700 | 2600 | 425 | 1273 | 2996 | 973 | 0 | 0 |
| 1993 | 403 | 258 | 145 | 4 | 3700 | 2050 | 407 | 1073 | 2638 | 973 | 0 | 0 |
| 1994 | 382 | 244 | 137 | 88 | 3700 | 1700 | 470 | 1074 | 2285 | 973 | 0 | 0 |
| 1995 | 362 | 232 | 130 | 419 | 3700 | 1400 | 781 | 1393 | 1784 | 973 | 0 | 0 |
| 1996 | 343 | 220 | 124 | 939 | 3700 | 1100 | 1282 | 1732 | 1351 | 973 | 0 | 0 |
| 1997 | 325 | 208 | 117 | 2010 | 3700 | 900 | 2335 | 2430 | 1040 | 973 | 0 | 0 |
| 1998 | 309 | 197 | 111 | 2513 | 3700 | 730 | 2822 | 2390 | 847 | 973 | 0 | 0 |
| 1999 | 293 | 187 | 105 | 2520 | 3700 | 610 | 2813 | 2041 | 726 | 973 | 0 | 0 |
| 2000 | 277 | 178 | 100 | 2525 | 3700 | 500 | 2802 | 1721 | 614 | 973 | 0 | 0 |
| 2001 | 263 | 168 | 95 | 2144 | 3700 | 440 | 2407 | 1368 | 568 | 973 | 0 | 0 |
| 2002 | 249 | 160 | 90 | 1819 | 3700 | 440 | 2068 | 1203 | 581 | 973 | 0 | 0 |
| 2003 | 236 | 151 | 85 | 1542 | 3700 | 440 | 1778 | 1060 | 596 | 973 | 0 | 0 |
| 2004 | 224 | 143 | 81 | 1305 | 3700 | 440 | 1529 | 936 | 612 | 973 | 0 | 0 |
| 2005 | 212 | 136 | 76 | 1103 | 3700 | 440 | 1315 | 828 | 630 | 973 | 0 | 0 |
| 2006 | 201 | 129 | 73 | 931 | 3700 | 440 | 1132 | 735 | 649 | 973 | 0 | 0 |
| 2007 | 191 | 122 | 69 | 785 | 3700 | 440 | 976 | 654 | 670 | 973 | 0 | 0 |
| 2008 | 181 | 116 | 65 | 659 | 3700 | 440 | 840 | 582 | 693 | 973 | 0 | 0 |
| 2009 | 172 | 110 | 62 | 554 | 3700 | 440 | 726 | 521 | 718 | 973 | 0 | 0 |
| 2010 | 163 | 104 | 59 | 463 | 3700 | 440 | 626 | 466 | 745 | 973 | 0 | 0 |
| 2011 | 154 | 99 | 56 | 386 | 3700 | 440 | 540 | 419 | 775 | 973 | 0 | 0 |
| 2012 | 146 | 94 | 53 | 321 | 3700 | 440 | 467 | 377 | 807 | 973 | 0 | 0 |
| 2013 | 139 | 89 | 50 | 265 | 3700 | 440 | 404 | 340 | 843 | 973 | 0 | 0 |
| 2014 | 132 | 84 | 47 | 218 | 3700 | 440 | 350 | 308 | 882 | 973 | 0 | 0 |
| 2015 | 125 | 80 | 45 | 178 | 3700 | 440 | 303 | 280 | 923 | 973 | 0 | 0 |
| 2016 | 118 | 76 | 43 | 144 | 3700 | 440 | 262 | 254 | 969 | 973 | 0 | 0 |
| 2017 | 112 | 72 | 40 | 116 | 3700 | 440 | 228 | 232 | 1017 | 973 | 0 | 0 |
| 2018 | 106 | 68 | 38 | 92 | 3700 | 440 | 198 | 212 | 1069 | 973 | 0 | 0 |
| 2019 | 101 | 64 | 36 | 71 | 3700 | 440 | 172 | 194 | 1128 | 973 | 0 | 0 |

**ATTACHMENT NO.12A**

STAND ALONE CASE
ASSUMING NO LEASELINE INJECTION AGREEMENTS
PESSIMISTIC CASE
WITH STATE K

| YEAR | TOTAL PRIMARY BOPD | 64% DEVELOPED PRIMARY BOPD | 36% UNDEVELOPED PRIMARY BOPD | INCREM. BOPD | GOR PRIMARY | DEVELOPED GOR | TOTAL BOPD | TOTAL MCFD | AVERAGE WEIGHTED GOR | OP COSTS $M/YEAR | DEVELOPMENT COSTS TANGIBLE $M/YEAR | DEVELOPMENT COSTS INTANGIBLE $M/YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 | 526 | 337 | 189 | 0 | 3700 | 3700 | 526 | 1946 | 3700 | 673 | 0 | 0 |
| 1989 | 499 | 319 | 179 | 0 | 3700 | 3700 | 499 | 1845 | 3700 | 823 | 4,959 | 5,825 |
| 1990 | 473 | 303 | 170 | 0 | 3700 | 3700 | 473 | 1749 | 3700 | 973 | 0 | 0 |
| 1991 | 448 | 287 | 161 | 0 | 3700 | 3000 | 448 | 1457 | 3252 | 973 | 0 | 0 |
| 1992 | 425 | 272 | 153 | 0 | 3700 | 2600 | 425 | 1273 | 2996 | 973 | 0 | 0 |
| 1993 | 403 | 258 | 145 | 0 | 3700 | 2050 | 403 | 1065 | 2644 | 973 | 0 | 0 |
| 1994 | 382 | 244 | 137 | 4 | 3700 | 1700 | 386 | 931 | 2413 | 973 | 0 | 0 |
| 1995 | 362 | 232 | 130 | 88 | 3700 | 1400 | 450 | 930 | 2066 | 973 | 0 | 0 |
| 1996 | 343 | 220 | 124 | 419 | 3700 | 1100 | 762 | 1160 | 1522 | 973 | 0 | 0 |
| 1997 | 325 | 208 | 117 | 939 | 3700 | 900 | 1264 | 1466 | 1159 | 973 | 0 | 0 |
| 1998 | 309 | 197 | 111 | 2010 | 3700 | 730 | 2319 | 2023 | 872 | 973 | 0 | 0 |
| 1999 | 293 | 187 | 105 | 2513 | 3700 | 610 | 2806 | 2037 | 726 | 973 | 0 | 0 |
| 2000 | 277 | 178 | 100 | 2520 | 3700 | 500 | 2797 | 1718 | 614 | 973 | 0 | 0 |
| 2001 | 263 | 168 | 95 | 2525 | 3700 | 440 | 2788 | 1535 | 551 | 973 | 0 | 0 |
| 2002 | 249 | 160 | 90 | 2144 | 3700 | 440 | 2393 | 1346 | 562 | 973 | 0 | 0 |
| 2003 | 236 | 151 | 85 | 1819 | 3700 | 440 | 2055 | 1182 | 575 | 973 | 0 | 0 |
| 2004 | 224 | 143 | 81 | 1542 | 3700 | 440 | 1766 | 1040 | 589 | 973 | 0 | 0 |
| 2005 | 212 | 136 | 76 | 1305 | 3700 | 440 | 1517 | 917 | 604 | 973 | 0 | 0 |
| 2006 | 201 | 129 | 73 | 1103 | 3700 | 440 | 1304 | 810 | 621 | 973 | 0 | 0 |
| 2007 | 191 | 122 | 69 | 931 | 3700 | 440 | 1122 | 718 | 640 | 973 | 0 | 0 |
| 2008 | 181 | 116 | 65 | 785 | 3700 | 440 | 966 | 638 | 660 | 973 | 0 | 0 |
| 2009 | 172 | 110 | 62 | 659 | 3700 | 440 | 831 | 567 | 683 | 973 | 0 | 0 |
| 2010 | 163 | 104 | 59 | 554 | 3700 | 440 | 717 | 506 | 707 | 973 | 0 | 0 |
| 2011 | 154 | 99 | 56 | 463 | 3700 | 440 | 617 | 453 | 733 | 973 | 0 | 0 |
| 2012 | 146 | 94 | 53 | 386 | 3700 | 440 | 532 | 406 | 763 | 973 | 0 | 0 |
| 2013 | 139 | 89 | 50 | 321 | 3700 | 440 | 460 | 365 | 794 | 973 | 0 | 0 |
| 2014 | 132 | 84 | 47 | 265 | 3700 | 440 | 397 | 329 | 829 | 973 | 0 | 0 |
| 2015 | 125 | 80 | 45 | 218 | 3700 | 440 | 343 | 297 | 867 | 973 | 0 | 0 |
| 2016 | 118 | 76 | 43 | 178 | 3700 | 440 | 296 | 269 | 908 | 973 | 0 | 0 |
| 2017 | 112 | 72 | 40 | 144 | 3700 | 440 | 256 | 244 | 954 | 973 | 0 | 0 |
| 2018 | 106 | 68 | 38 | 116 | 3700 | 440 | 222 | 223 | 1001 | 973 | 0 | 0 |
| 2019 | 101 | 64 | 36 | 92 | 3700 | 440 | 193 | 203 | 1053 | 973 | 0 | 0 |

**ATTACHMENT NO.12B**




⊙ CONVERT FROM PROD TO INJECTION

△ LEASELINE CONVERSION

⬡ DRILL

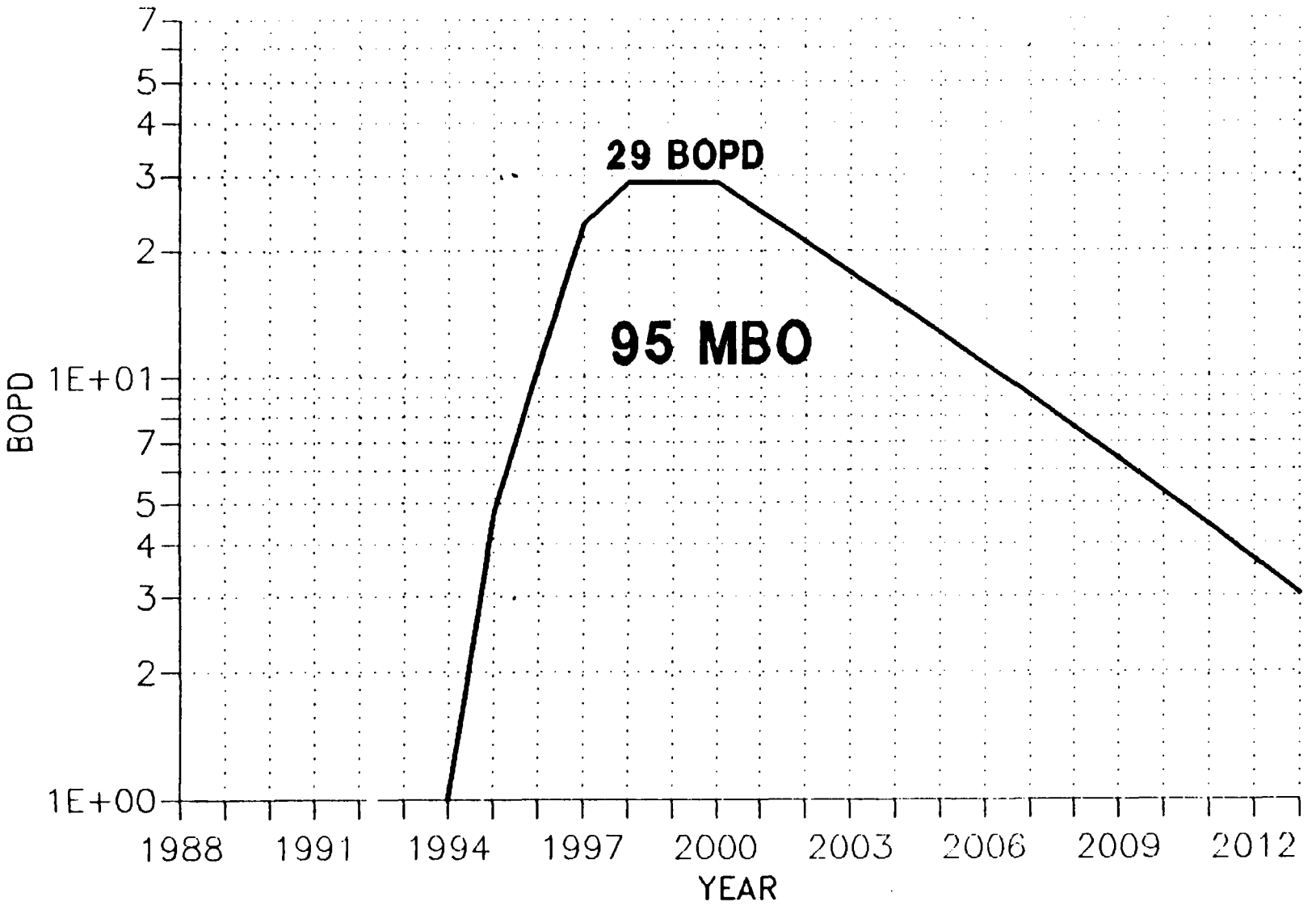
Legend

Amoco Production Company
EUNICE MONUMENT WEST UNIT
LEA COUNTY, N.M.

0 500 1000 1500 2000
graphic scale

ATTACHMENT NO. 13

# TEXACO STATE K LEASE
# UNIT N, SECTION 13 CONTRIBUTION




ATTACHMENT NO. 14