

**PROPOSED ARROWHEAD GRAYBURG UNIT
WORKING INTEREST OWNER SUMMARY**

<u>WORKING INTEREST OWNER</u>	<u>% WI</u>
Chevron	46.2%
Conoco	24.5%
Arco	6.6%
Marathon	5.4%
Oxy	4.9%
American Exploration	3.5%
Williams/Rasmussen et al	2.4%
Amoco	2.3%
Amerada Hess	1.9%
Exxon	0.1%
Others	<u>2.2%</u>
	100.0%

PSP/10219.18

BEFORE EXAMINER: <i>Morrow</i>	
OIL COMPLETION PERMITS	
AGU	6
CASE NO.	10259

PROPOSED ARROWHEAD GRAYBURG UNIT
CHRONOLOGY OF EVENTS

May 1988 First Working Interest Owner Meeting

August 1988 First Technical Committee Meeting

May 1989 Last Technical Committee Meeting

November 1989 Technical Committee Report Approved by
Committee Members

December 1989 Second Working Interest Owners Meeting

1) Approved Technical Committee Report
2) Negotiated Participation Formula

February 1990 Ballot Approval of Participation Formula

February 1990 Ballot Approval of Wellbore Dedication
Incentive

May 1990 BLM Preliminary Approval

June 1990 First Draft Agreements to WIO's

August 1990 State Land Office Preliminary Approval

January 1991 Final Draft Agreements to Partners and Royalty
Owners

February 1991 Notice of Hearing

PSP/10219.18

DEPT. OF THE INTERIOR: Morrow
CENTRAL DISTRICT OFFICE
AGU 7
10259



Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

April 12, 1988

R. C. Anderson
Division Manager
Production Department
Hobbs Division

Initial Working Interest
Owners' Meeting
Proposed Arrowhead Grayburg Unit
Lea County, New Mexico

WORKING INTEREST OWNERS
(Addressee List Attached)

Gentlemen:

Chevron has recently reviewed the feasibility of unitizing and waterflooding the Arrowhead Grayburg Field in Lea County, New Mexico. In order to discuss the results of our review and to initiate formal unitization proceedings, you are requested to attend a meeting of the Working Interest Owners at 10:00 a.m. on Thursday, May 5, 1988. The meeting will be held at the Chevron office located at 1923 N. Dal Paso, Hobbs, New Mexico.

The agenda for the meeting will include a summary of our feasibility review and establishment of procedures for unitization. Attached for your information, please find a complete agenda, a map indicating the proposed unit outline and a tabulation of cumulative production for tracts within the proposed unit outline.

If you have any questions or your company will not be represented, please contact B. C. Cotner at (505) 393-4121. We look forward to meeting with you in May.

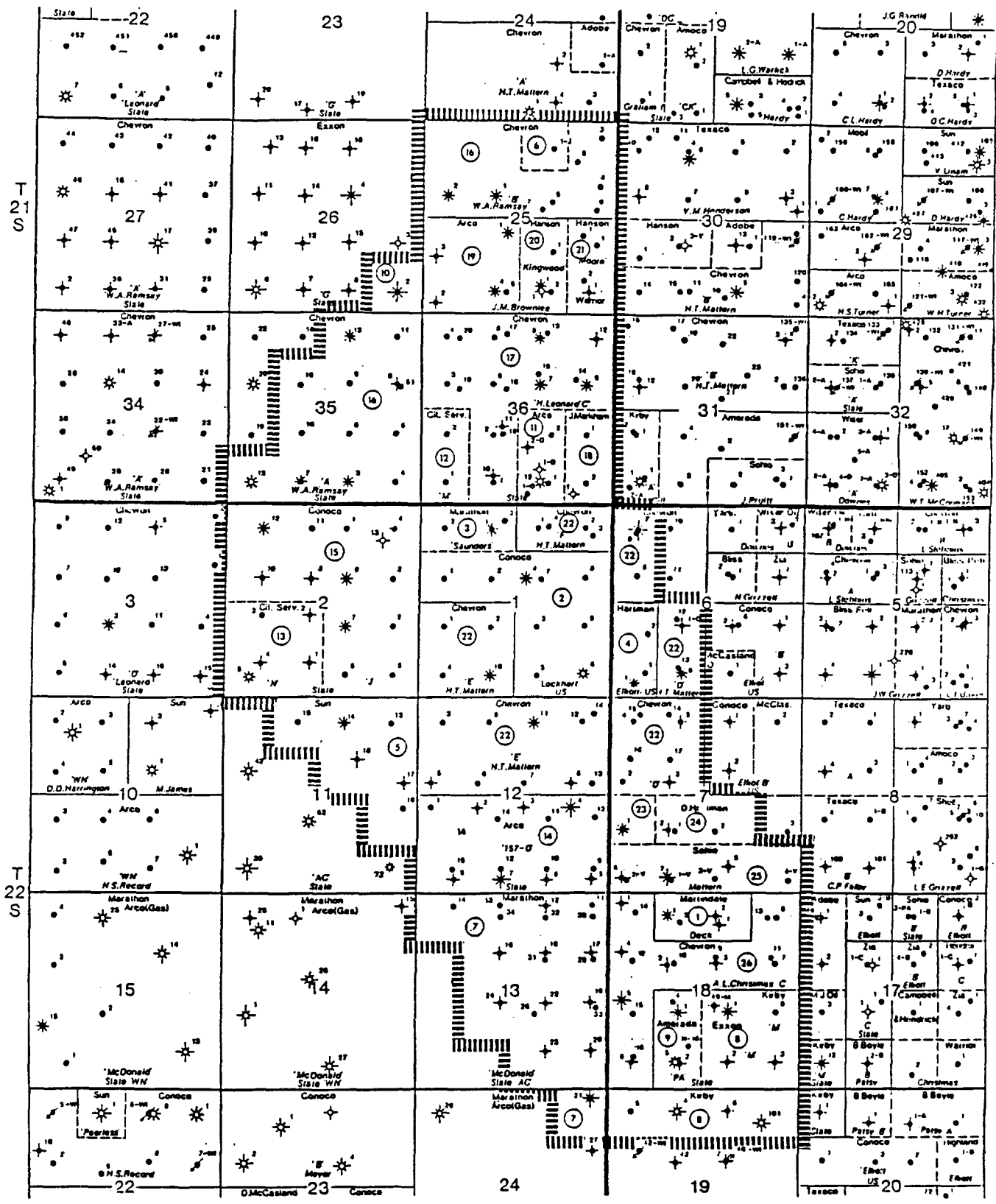
Yours Very Truly,


R. C. ANDERSON

BCC:bdw

Attachments


BEFORE REPLY TO: Morrow
AGU
10259



LEGEND

----- Unit Boundary

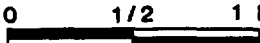
⑤ Tract Number

 **Chevron USA, Inc.**
Southern Region - Exploration, Land and Production

ARROWHEAD GRAYBURG FIELD
Lea County, New Mexico

PROPOSED ARROWHEAD GRAYBURG UNIT

0 1/2 1 MI.



PROPOSED ARROWHEAD GRAYBURG UNIT
CUMULATIVE OIL BY TRACT

TRACT	LEASE	DESCRIPTION	OPERATOR	CUMULATIVE OIL (12-31-87)	FRACTION CUM. OIL
1	CROSBY	NE4 NW4 & NW4 NE4 SEC 18 T22S R37E	HARTMAN	465,366	0.0153
2	LOCKHART B FED	S2 N2 AND SE4 SEC 1 T22S R36E	CONOCO	1,718,491	0.0565
3	SAUNDERS	N2 NW4 SEC 1 T22S R36E	MARATHON	528,238	0.0174
4	ELLIOTT US	W2 SW4 SEC 6 T22S R37E	HARTMAN	86,986	0.0029
5	STATE 'AC'	NE4 & NE4 NW4 & NE4 SE4 SEC 11 T22S R36E	SUN	1,255,146	0.0412
6	GRAHAM STATE 'J'	NW4 NE4 SEC 25 T21S R36E	CHEVRON	34,585	0.0011
7	MCDONALD STATE 'AC'	E2 & E2 NW4 & NW4 NW4 & NE4 SW4 SEC 13 & NE4 NE4 SEC 24 T22S R36E	MARATHON	1,978,513	0.0650
8	STATE 'M'	SE4 SEC 18 T22S R37E & N2 N2 SEC 19 T22S R37E	AMERICAN EXPL.	1,101,302	0.0362
9	STATE 'PA'	E2 SW4 SEC 18 T22S R37E	AMERADA	450,799	0.0148
10	STATE 'G'	SE4 SE4 SEC 26 T21S R36E	EXXON	0	0.0000
11	STATE 'D'	W2 SE4 SEC 36 T21S R36E	ARCO	222,906	0.0073
12	STATE 'M'	W2 SW4 SEC 36 T21S R36E	CITIES	1,018,763	0.0335
13	STATE 'N'	SW4 SEC 2 T22S R36E	CITIES	870,010	0.0286
14	STATE '157-D'	S2 SEC 12 T22S R36E	ARCO	1,354,837	0.0445
15	STATE 'J'	N2 & SE4 SEC 2 T22S R36E	CONOCO	4,759,163	0.1564
16	W A RAMSAY 'A' W A RAMSAY 'B'	E2 & SE4 NW4 & E2 SW4 & SW4 SW4 SEC 35 & NW4 & S2 NE4 & NE4 NE4 SEC 25 T21S R36E	CHEVRON	3,871,847	0.1272
17	H LEONARD 'C'	N2 & E2 SW4 SEC 36 T21S R36E	CHEVRON	2,797,952	0.0920
18	STATE 36	E2 SE4 SEC 36 T21S R36E	MARKHAM	0	0.0000
19	BROWNLEE	SW4 SEC 25 T21S R36E	ARCO	489,027	0.0161
20	BROWNLEE	W2 SE4 SEC 25 T21S R36E	HANSON	0	0.0000
21	SANDY	E2 SE4 SEC 25 T21S R36E	WARRIOR	38,777	0.0013
22	MATTERN 'D' MATTERN 'E' MATTERN 'F'	N2 NE4 & SW4 SEC 1 & N2 SEC 12 T22S R36E & W2 NW4 & E2 SW4 SEC 6 & NW4 SEC 7 T22S R37E	CHEVRON	4,729,801	0.1554
23	MATTERN	NW4 SW4 SEC 7 T22S R37E	HARTMAN	167,424	0.0055
24	MATTERN	NE4 SW4 & NW4 SE4 SEC 7 T22S R37E	HARTMAN	183,025	0.0060
25	MATTERN	S2 S2 SEC 7 T22S R37E	SOHIO	803,349	0.0198
26	A L CHRISTMAS 'C'	W2 W2 & E2 NE4 & SE4 NW4 & SW4 NE4 SEC 18 T22S R37E	CHEVRON	1,702,534	0.0560

TOTAL				30,428,841	1.0000

Proposed Arrowhead Grayburg Unit
Initial Working Interest Owners Meeting
Agenda

- I Introduction.
- II Field History, Geology, Secondary Recovery Potential.
- III Vote on Proceeding with Unitization Study.
- IV Vote on Expeditor, Chairman of WIO's meetings.
- V Develop Interim Voting Procedure.
- VI Vote on Formation of Technical Committee.
- VII Develop Charge for Technical Committee.
- VIII Discuss and Ballot Unitization Study Agreement.
- IX Discuss and Ballot Pre-unitization Expense.
- X Other Business.
- XI Adjourn.

PROPOSED ARROWHEAD GRAYBURG UNIT WORKING INTEREST OWNERS

Amerada Hess Corporation
Box 840
Seminole, TX 79360

James E. Burr
2502 Emerson Drive
Midland, TX 79705

James A. Davidson
P. O. Box 494
Midland, TX 79702

American Exploration Company
2100 Republic Bank
700 Louisiana
Houston, TX 77002

Chevron U.S.A.
P. O. Box 670
Hobbs, NM 88240

Exxon Company
Box 1600
Midland, TX 79702

Amoco Production Company
Box 4072
Odessa, TX 79760

Cities Service Oil & Gas
P. O. Box 50250
Midland, TX 79710

Flag-Redfern Oil Co.
Box 11050
Midland, TX 79702

Arco Oil and Gas Company
Box 1610
Midland, TX 79702

Hubert E. Cone, M.D.
4810 University
Lubbock, TX 79413

Jack Fletcher
P. O. Box 10887
Midland, TX 79702

Babe Petroleum
P. O. Box 758
Roswell, NM 88201

James Raymond Cone Jr.
P. O. Box 10217
Lubbock, TX 79408

Hanson Operating Company
Box 1515
Roswell, NM 88201

Jan Cone Bowerman
P. O. Box 10217
Lubbock, TX 79408

Conoco Inc.
Box 460
Hobbs, NM 88240

Doyle Hartman
P. O. Box 10426
Midland, TX 79702

Frank D. Brown, Jr.,
H. Barksdale Brown,
Jacques T. Schlenger, and
Mercantile Safe Dep. & Trust
Trustees
P. O. Box 1477
Baltimore, MD 21203

DASCO Energy Corp.
Drawer 2545
Hobbs, NM 88241

J. H. Herd
P. O. Box 130
Midland, TX 79702

Marathon Oil Company
Box 552
Midland, TX 79702

Para Mia, Inc
P. O. Box 2541
Midland, TX 79702

Reagan Sweatt
c/o Hanson Operating Co.
Box 1515
Roswell, NM 88201

Jack Markham
1500 Broadway Suite 1212
Lubbock, TX 79401

Standard Oil Production
9401 Southwest Freeway
Suite 1200
Houston, TX 77074

Burton Veteto
607 Abo
Hobbs, NM 88240

Jack Mussett
214 W. Texas Ave.
Suite 604
Midland, TX 79701

Mrs. Robert L. Summers
P. O. Box 776
Hobbs, NM 88240

Mary F. Walsh
c/o Walsh & Watts
1111 7th Street
Wichita Falls, TX 76301

Larry Nermyr
2438 Whitmire Blvd.
Apt. 9-E
Midland, TX 79701

Sun E & P Company
Box 1861
Midland, TX 79702

Zia Energy
Box 2219
Hobbs, NM 88240

W. M. Osborn
Mid-America Bldg.
Suite 051
Midland, TX 79701

Ruth Sutton
2826 Moss Ave.
Midland, TX 79705



Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

R. C. Anderson
Division Manager
Production Department
Hobbs Division

May 10, 1988

LEGISLATIVE DIVISION	Morrow
CHEVROTON DIVISION	
AGU	9
CASH NO.	10259

MINUTES OF INITIAL
WORKING INTEREST OWNERS MEETING
PROPOSED ARROWHEAD GRAYBURG UNIT
MAY 5, 1988

WORKING INTEREST OWNERS

Gentlemen:

A meeting of the Working Interest Owners for the proposed Arrowhead Grayburg Unit was held at the Chevron Division office, Hobbs, New Mexico, on May 5, 1988 at 10:00 a.m. Thirty-two attendees, representing 86% of the cumulative oil production as of 12/31/87, were present and are shown on the attached list.

I. INTRODUCTION - R. C. ANDERSON/G. C. HOLLINGSWORTH

Mr. R. C. Anderson, Division Manager, Chevron, convened the meeting and welcomed those attending. Mr. Anderson stated that the purpose of the meeting was to form a Technical Committee to evaluate the Arrowhead Grayburg for waterflooding. Mr. Anderson said that it is Chevron's opinion, from the preliminary studies, that the waterflooding of the Arrowhead Grayburg Unit will be profitable for all Working Interest Owners. Mr. Anderson introduced Mr. G. C. Hollingsworth, Division Petroleum Engineer, Chevron, who reviewed Grayburg waterfloods in the area of the proposed Unit. Mr. Hollingsworth introduced the Chevron personnel who have been involved with the study. Mr. T. A. Etchison, Senior Petroleum Engineer, Chevron, reviewed the agenda (attached) and discussed expectations for the meeting.

II. ARROWHEAD POOL HISTORY, GEOLOGY - R. A. SMITH

Mr. R. A. Smith, Development Geologist, Chevron, reviewed the geology and production history of the proposed unit area. Mr. Smith noted the similarities between the Eunice Monument South Unit and

the Arrowhead Grayburg Unit. He then reviewed the criteria Chevron used to define the proposed unit boundaries.

III. PRIMARY PRODUCTION/SECONDARY RECOVERY PREDICTION
B. C. COTNER

Mr. B. C. Cotner, Reservoir Engineer, Chevron, discussed cumulative production, remaining primary reserves, and the secondary recovery prediction. He also discussed the preliminary cost estimate for installing the proposed waterflood. Mr. Etchison asked for any questions concerning Mssr. Smith's and Cotner's presentations. Mr. Don Bratton of Zia Energy questioned whether or not the San Andres would be unitized for the sole purpose of water supply. Mr. Cotner responded that the interval defined as San Andres on Zia's lease is considered by Chevron to be a part of the waterfloodable dolomites, and is proposed to be a part of the waterflood. Mr. Cotner was asked if the 50% secondary to primary recovery ratio was conservative. He responded that the nearby Conoco operated Skaggs Grayburg Unit's secondary to primary recovery ratio is greater than 50% and that it could be considered as a conservative estimate. Mr. Jack Mussett asked what Chevron predicts the operating expenses to be for the proposed unit. Mr. J. A. Awwad, Chevron, responded that the operating costs for the EMSU average \$65 per producing well/day. Mr. James Cone, Markham, asked if Chevron planned to use the 50 year old wellbores in the waterflood. Mr. Etchison responded that each well would be evaluated on an individual basis to determine if it will be usable. Mr. Cone asked what oil price would be necessary to payout the proposed waterflood. Mr. Etchison responded that Chevron has been evaluating the prospect based on \$17-\$18 per barrel oil and that the project appears to be profitable at those prices.

IV. POLLING INTEREST IN STUDYING UNITIZATION
T. A. ETCHISON

Mr. Etchison asked if there was any opposition to proceeding with studying unitization. Mr. Don Bratton, Zia Energy and Mr. James Cone, Markham, opposed. There was no other opposition.

V. INTERIM VOTING PROCEDURE - T. A. ETCHISON

Mr. Etchison suggested cumulative oil as of 12/31/87 and 65% minimum approval be necessary to

pass a motion as an interim voting procedure until unit participation interests are established. After a brief discussion, Conoco moved that cumulative oil as of 12/31/87 with 75% minimum approval to pass a motion be used for interim voting procedures. Mr. Jack Mussett seconded the motion. A roll call vote (attached) was conducted and the motion passed with 85.68% approval.

VI. ELECTION OF UNITIZATION EXPEDITOR - T. A. ETCHISON

Conoco moved that Chevron be Expeditor and Chairman of Working Interest Owners' meetings. Dan McKeever, Sun, seconded the motion. Mr. Etchison asked if there was any opposition and there was none. Motion passed.

VII. FORM TECHNICAL COMMITTEE - T. A. ETCHISON

Mr. Etchison made the motion to create a Technical Committee to study unitization, with a Chevron representative serving as Chairman. The motion was seconded by Marathon. Mr. Etchison asked if there was any opposition and there was none. Motion passed.

VIII. CHARGE TECHNICAL COMMITTEE - T. A. ETCHISON

Mr. Etchison presented a proposed set of charges for the Technical Committee. Mr. Don Bratton, Zia Energy, recommended that usable wellbores be added to the participation equity parameter table to be considered by the Technical Committee. After a brief discussion, Chevron moved that the Technical Committee be charged as proposed with the addition of usable wellbores as a parameter in the equity table. (Technical Committee Charge attached). The motion was seconded by Conoco. Mr. Etchison asked if there was any opposition and there was none. Motion passed.

IX. PRE-UNITIZATION EXPENSES - T. A. ETCHISON

Mr. Etchison discussed pre-unitization expenses. Reference was made to the previously distributed ballot requesting approval to spend \$55,000. The majority of the pre-unitization expenses were explained to be for contract attorney's fees for statutory unitization. Sam Martin, Chevron, stated that most of the expenses will occur just prior to

the effective unit date, but some money had already been spent for ownership take-offs. Mr. Etchison stressed that primarily contract expenses would be billed to partners, that Chevron would absorb their in-house costs, estimated to be as high as an additional \$30,000.

Attendants were requested to execute the pre-unitization expense ballot and return it to Chevron within 2 weeks. They were also asked to complete and return the contact sheet for study participants.

X. CONCLUDING REMARKS - T. A. ETCHISON/R. C. ANDERSON

Mr. Etchison recapped the accomplishments of the meeting, and stressed the mutual profitability that this project has to offer all partners. He thanked everyone for their participation in the meeting, and mentioned that the first Technical Committee meeting will be tentatively scheduled for the second half of July, 1988.

Mr. Bob Anderson reaffirmed Chevron's commitment to dedicate Engineering and Geological Staff to study the unitization of the Arrowhead Grayburg Pool. He thanked the attendants for participating in the meeting.

The meeting was adjourned at 11:30 a.m.

Please advise B. C. Cotner at (505) 393-4121 if you have any corrections to these minutes.

Yours very truly,



R. C. ANDERSON

BCC:bdw

Attachment

PROPOSED ARROWHEAD GRAYBURG UNIT
INITIAL WORKING INTEREST OWNERS
May 5, 1988

LIST OF ATTENDEES

<u>NAME</u>	<u>COMPANY</u>	<u>TITLE</u>
<u>STEVE BURKE</u>	<u>CHEVRON</u>	<u>LAND REP.</u>
<u>BRYAN COTNER</u>	<u>CHEVRON</u>	<u>RESERVOIR ENGR.</u>
<u>TED ETCHISON</u>	<u>CHEVRON</u>	<u>SR. PET. ENGR.</u>
<u>DAN MCKEEVER</u>	<u>SUN E&P</u>	<u>SR. UNITIZ. REP.</u>
<u>FARRIS NELSON</u>	<u>ZIA</u>	<u>ENGINEER</u>
<u>DON BRATTON</u>	<u>ZIA</u>	<u>ENGINEER</u>
<u>LARRY NERMYR</u>	<u>LARRY NERMYR</u>	<u>ENGINEER</u>
<u>JACK FLETCHER</u>	<u></u>	<u></u>
<u>RANDY SMITH</u>	<u>CHEVRON</u>	<u>GEOLOGIST</u>
<u>CHRIS PLOPPER</u>	<u>CHEVRON</u>	<u>GEOLOGIST</u>
<u>JIM ALMRUD</u>	<u>AMERADA HESS</u>	<u>ENGINEER</u>
<u>JAMAL AWWAD</u>	<u>CHEVRON</u>	<u>STAFF ENGR.</u>
<u>CHRIS BEZNER</u>	<u>CHEVRON</u>	<u>ENGINEER</u>
<u>JACK MUSSETT</u>	<u></u>	<u></u>
<u>MARK KLINS</u>	<u>CHEVRON</u>	<u>SR. ENGR.</u>
<u>MARK VETETO</u>	<u>MARTINDALE PETR.</u>	<u>ENGINEER</u>
<u>GEORGE RICKS</u>	<u>DASCO</u>	<u></u>
<u>R. C. ANDERSON</u>	<u>CHEVRON</u>	<u>DIV. MGR.</u>
<u>HUGH INGRAM</u>	<u>CONOCO INC.</u>	<u>CONSERVATION COORD.</u>
<u>DAVE WACKER</u>	<u>CONOCO INC.</u>	<u>DIV. MGR.</u>
<u>JAY VASHLER</u>	<u>CONOCO INC.</u>	<u>ENGINEER</u>
<u>FRANK CHLUMSKY</u>	<u>CONOCO INC.</u>	<u>STAFF GEOPHYS.</u>

PROPOSED ARROWHEAD GRAYBURG UNIT
INITIAL WORKING INTEREST OWNERS
May 5, 1988

LIST OF ATTENDEES

<u>NAME</u>	<u>COMPANY</u>	<u>TITLE</u>
<u>JACK T. LOWDER</u>	<u>ARCO OIL & GAS</u>	<u>SR. O/A ENGR.</u>
<u>DAN DODD</u>	<u>ARCO</u>	<u>OPER. COORD.</u>
<u>TOM ZAPATKA</u>	<u>MARATHON</u>	<u>OPER. ENGR.</u>
<u>KENNETH HERRICKS</u>	<u>MARATHON</u>	<u>JT. INT. MGR.</u>
<u>GUY HOLLINGSWORTH</u>	<u>CHEVRON</u>	<u>DIV. PETR. ENGR.</u>
<u>JOHN R. BRYANT</u>	<u>_____</u>	<u>W.I. OWNER</u>
<u>JIM CONE</u>	<u>MARKHAM</u>	<u>_____</u>
<u>J. C. PRINDLE</u>	<u>CHEVRON</u>	<u>NOJV COORD.</u>
<u>S. H. MARTIN</u>	<u>CHEVRON</u>	<u>LAND SUPERVISOR</u>

Proposed Arrowhead Grayburg Unit
Initial Working Interest Owners Meeting
May 5, 1988
Agenda

- I Introduction.
- II Field History, Geology, Secondary Recovery Potential.
- III Poll Interest in Proceeding with Unitization Study.
- IV Develop Interim Voting Procedure.
- V Vote on Expeditor, Chairman of WIO's meetings.
- VI Vote on Formation of Technical Committee.
- VII Develop Charge for Technical Committee.
- VIII Discuss Pre-Unitization Expenses.
- IX Other Business.
- X Adjourn.

Motion: Interim voting procedures will be based on cumulative oil production as 12/31/87 with 75% approval required to pass a motion.

Moved by Conoco. Seconded by Jack Mussett.

<u>Company</u>	<u>For</u>	<u>Against</u>	<u>Abstain</u>	<u>Absent</u>
Amerada Hess	X			
American Expl.				X
Amoco				X
Arco	X			
Babe Petroleum				X
J Bowerman			X	
D Brown Trust				X
J Bryant	X			
J Burr				X
Chevron	X			
H Cone			X	
J Cone			X	
Conoco	X			
Dasco	X			
J Davidson				X
Exxon				X
Flag-Redfern			X	
J Fletcher	X			
Hanson				X
D Hartman				X
J Herd			X	
Marathon	X			
J Markham			X	
J Mussett	X			
L Nermyr	X			
Oxy U.S.A.				X
W Osborn				X
Para Mia	X			
Standard Oil				X
R Summers	X			
Sun	X			
R Sutton				X
R Sweet				X
B Veteto	X			
M Walsh				X
Zia Energy			X	
<hr/>				
Total				
(% Cum. Oil)	85.68	0.00	0.00	14.32

Mark Veteto represented Para Mia, R. Summers, and B. Veteto. James Cone, Jr. represented J. Bowerman, H. Cone, J. Herd, Flag-Redfern, J. Markham, and himself.

Motion Carried.

Proposed Arrowhead Grayburg Unit
Charges for the Technical Committee
May 5, 1988

- 1) Determine the horizontal and vertical boundaries for the proposed Unit, and prepare a base-map indicating the boundaries and Tract numbers within the Unit.
- 2) Develop a plan of secondary recovery for the Unit, including a cost estimate, and a prediction of secondary recovery production rates and reserves.
- 3) Prepare a tabulation of equity parameters to be used for Tract participation negotiations. The parameters should include:
 - a) Cumulative Oil Production.
 - b) Remaining Primary Oil & Gas Reserves.
 - c) Ultimate Primary Oil Reserves.
 - d) Current Oil & Gas Production Rates.
 - e) Gross Acreage.
 - f) Useable Wellbores.

Proposed Arrowhead Grayburg Unit
Interim Voting Interest

<u>Owner</u>	<u>Voting Interest %</u>
Amerada Hess	1.48149
American Expl.	3.61927
Amoco	1.41189
Arco	8.20403
D Brown Trust	0.09172
J Bryant	0.00796
J Burr	0.00952
Chevron	44.70330
Conoco	17.05220
Dasco	0.53395
J Davidson	0.37980
J Fletcher	0.01187
D Hartman	1.08005
Marathon	8.23808
J Mussett	0.23169
L Nermyr	0.02374
Oxy U.S.A	6.20718
Para Mia	0.48363
Standard Oil	0.18339
R Summers	0.53395
Sun	4.12486
R Sutton	0.01187
B Veteto	0.05032
M Walsh	1.32195

Voting interest based on cumulative oil as of
12-31-87.

Amerada Hess Corporation
Box 840
Seminole, TX 79360

John R. Bryant
911 West Silver
Hobbs, NM 88240

James A. Davidson
P. O. Box 494
Midland, TX 79702

American Exploration Company
2100 Republic Bank
700 Louisiana
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James E. Burr
2502 Emerson Drive
Midland, TX 79705

Exxon Company
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Midland, TX 79702

Amoco Production Company
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Chevron U.S.A.
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Flag-Redfern Oil Co.
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Midland, TX 79702

Arco Oil and Gas Company
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Hubert E. Cone, M.D.
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Box 1515
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Jan Cone Bowerman
P. O. Box 10217
Lubbock, TX 79408

Conoco Inc.
Box 460
Hobbs, NM 88240

Doyle Hartman
P. O. Box 10426
Midland, TX 79702

Trust U/D Donaldson Brown
c/o Broventure Co. Inc.
16 West Madison Street
Baltimore, Maryland 21201

DASCO Energy Corp.
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Hobbs, NM 88241

J. H. Herd
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Attn: Mr. Don Hughes

Marathon Oil Company
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OXY U.S.A.
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Ruth Sutton
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Zia Energy
Box 2219
Hobbs, NM 88240

DEPOSITED WITH: *Morrow*
 CLERK OF COURSE
AGU *10*
 CASINO. *10259*

PROPOSED ARROWHEAD GRAYBURG UNIT
 TECHNICAL COMMITTEE REPORT APPROVAL

COMPANY	PERCENT VOTING INTEREST	APPROVAL BALLOT RECEIVED	DATE RECEIVED	PERCENT APPROVAL INTEREST
CHEVRON	45.7095	X	10/06/89	45.7095
CONOCO	17.0247	X	10/27/89	17.0247
MARATHON	8.2248	X	11/16/89	8.2248
ARCO	8.1898	X	12/14/89	8.1898
ONV	5.1972			
AMERICAN EXPLOR.	3.6134	X	11/10/89	3.6134
WILLIAMS PART.	3.6034	X	11/08/89	3.6034
AMERADA HESS	1.4791			
AMCO	1.4096			
WALSH	1.3198			
SUMMERS	0.5331			
DASCO	0.5331	X	11/10/89	0.5331
RASMUSSEN	0.5148	X	11/08/89	0.5148
PARA MIA	0.4828			
DAVIDSON	0.3792			
MUSSETT	0.2313			
PRESIDIO	0.1831			
EXXON	0.1622			
BROWN TRUST	0.0916			
VETETO	0.0502			
SERMYR	0.0237			
BURR	0.0118			
FLETCHER	0.0118			
SUTTON	0.0118			
BRYANT	0.0080	X	10/06/89	0.0080
ABBY	0.0000	X	10/16/89	0.0000
ENRON	0.0000			
HANNIFIN	0.0000			
MCBRIDE	0.0000			
MOORE	0.0000			
WESTWAY	0.0000			
ZIA	0.0000			
TOTAL	100.0000			87.4215

VOTING INTEREST BASED ON CUMULATIVE OIL PRODUCTION ON 12/31/87.

September 29, 1989

TECHNICAL COMMITTEE REPORT
PROPOSED ARROWHEAD GRAYBURG UNIT
LEA COUNTY, NEW MEXICO

Technical Committee Members
Proposed Arrowhead Grayburg Unit
Addressee List Attached

Enclosed, please find the Technical Committee Report for the proposed Arrowhead Grayburg Unit. This report satisfies the charges that Working Interest Owners made for the Technical Committee concerning unitization of the Arrowhead Grayburg Pool. Please review the report and signify your approval for submitting it to the Working Interest Owners by signing and returning the attached ballot.

The report concludes that waterflooding of the Arrowhead Grayburg Pool will economically increase ultimate recovery by 15 MMSTBO. This conclusion is based on analogy to the Eunice Monument South Unit which is the best performance prediction that can be used, until quantitative data can be gathered from the proposed Unit.

The report also includes equity parameters for negotiation of Unit participation. These parameters were agreed upon by the Technical Committee members during their third and fourth meetings.

Once sufficient approval of the report by the Technical Committee has been received, we will call the second meeting of the Working Interest Owners. Please return your executed ballot to B. C. Cotner by November 6, 1989.

If you have any questions or comments concerning the report, please contact W. R. Clark or B. C. Cotner at (505) 393-4121.

Yours very truly,


R. C. Anderson

BCC/jr

Attachments

Enclosure

Ballot

As a representative of the Technical Committee for the proposed Arrowhead Grayburg Unit, I approve the Technical Committee Report dated September 1989 for submittal to the Working Interest Owners.

Signed: _____

Date: _____

Title: _____

Company: _____

Please return to:

Chevron U.S.A., Inc.
P. O. Box 670
Hobbs, NM 88240
ATTN: B. C. Cotner

Abby Corporation
P.O. Box 1629
Grand Junction, CO 81502

James E. Burr
2505 Emerson Drive
Midland, TX 79705

Jack Fletcher
P.O. Box 10887
Midland, TX 79702

Amerada Hess Corporation
Box 2040
Tulsa, OK 74102

Chevron U.S.A. Inc.
P.O. Box 670
Hobbs, NM 88240

Barbara Hannifin
P.O. Box 182
Roswell, NM 88201

Attn: S. H. Raza

Attn: W. R. Clark

American Exploration Company
2100 Republic Bank
700 Louisiana
Houston, TX 77002

Conoco Inc.
Box 460
Hobbs, NM 88240

Marathon Oil Company
Box 552
Midland, TX 79702

Attn: Clifford G. Thompson

Attn: Jerry Hoover

Attn: Craig Kent

Amoco Production Company
Box 3092
Houston, TX 77253

DASCO Energy Corp.
Drawer 2545
Hobbs, NM 88240

McBride Oil & Gas
P.O. Box 1515
Roswell, NM 88201

Attn: M. J. Hinn

Attn: George Ricks

Arco Oil and Gas Company
Box 1610
Midland, TX 79702

James A. Davidson
P.O. Box 494
Midland, TX 79702

J. Hiram Moore
Box 1733
Midland, TX 79702

Attn: Cindy Ellis

Trust U/D Donaldson Brown
c/o Broventure Co. Inc.
16 West Madison Street
Baltimore, MD 21201

ENRON
P.O. Box 2267
Midland, TX 79702

J. D. Mussett
214 W. Texas Avenue
Suite 604
Midland, TX 79701

Attn: Donald Hughes

John R. Bryant
911 West Silver
Hobbs, NM 88240

Exxon Company
P.O. Box 1700
Midland, TX 79702

Larry Nermyr
2438 Whitmire Blvd.
Apt. 9-E
Midland, TX 79701

Attn: Joint Interest Mgr.

OXY U.S.A.
P.O. Box 50250
Midland, TX 79710

Mary F. Walsh
c/o Walsh & Watts
1111 Seventh Street
Wichita Falls, TX 76301

Attn: Glen Kellerhals

Para Mia, Inc.
P.O. Box 2541
Midland, TX 79702

Westway Petroleum
Lock Box 70
500 N. Akard Street
Dallas, TX 75201-3394

Presidio Oil Company
3131 Turtle Creek Blvd.
Suite 400
Dallas, TX 75219-5415

Zia Energy
Box 2219
Hobbs, NM 88240

Attn: Don Bratton

Hal J. Rasmussen Operating, Inc.
6 Desta Drive, Suite 5850
Midland, TX 79701

Amerada Hess
P. O. Box 840
Seminole, TX 79360

Attn: J. E. Almrud

Mrs. Robert L. Summers
P.O. Box 776
Hobbs, NM 88240

The Williams Partnership
6 Desta Drive, Suite 5800
Midland, TX 79705

Ruth Sutton
2826 Moss Avenue
Midland, TX 79705

Burton Veteto
607 Abo
Hobbs, NM 88240



Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

R. C. Anderson
Division Manager
Production Department
Hobbs Division

NOTICE BY MAIL: Morrow
AGU
11
November 17, 1989
10259

November 17, 1989

PROPOSED ARROWHEAD GRAYBURG UNIT
WORKING INTEREST OWNERS' MEETING
DECEMBER 14, 1989
HOBBS, NEW MEXICO

WORKING INTEREST OWNERS
(Addressee List Attached)

The second Working Interest Owners' Meeting for the Proposed Arrowhead Grayburg Unit will be held at the Chevron Division office in Hobbs, New Mexico, on Thursday, December 14, 1989 at 9:00 a.m. M.S.T. A tentative agenda for the meeting is attached.

The Technical Committee has recently completed their report, which indicates unitizing and waterflooding the Arrowhead Grayburg Pool is economically feasible. Included in the report are tables of equity parameters for use in negotiating Unit participation.

Please review the attached agenda, and if you have any additions or questions, please contact Bryan Cotner at (505) 393-4121.

Yours very truly,

R. C. Anderson for
R. C. Anderson

BCC/jr 11149/02

Attachments

PROPOSED ARROWHEAD GRAYBURG UNIT
TECHNICAL COMMITTEE REPORT APPROVAL

COMPANY	PERCENT VOTING INTEREST	APPROVAL BALLOT RECEIVED	DATE RECEIVED	PERCENT APPROVAL INTEREST
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AMOCO	1.4096			
WALSH	1.3198			
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FLETCHER	0.0118			
SUTTON	0.0118			
BRYANT	0.0080	X	10/06/89	0.0080
ABBY	0.0000	X	10/16/89	0.0000
ENRON	0.0000			
HANNIFIN	0.0000			
MCBRIDE	0.0000			
MOORE	0.0000			
WESTWAY	0.0000			
ZIA	0.0000			
TOTAL	100.0000			79.2317

VOTING INTEREST BASED ON CUMULATIVE OIL PRODUCTION ON 12/31/87.

Tentative Agenda

Proposed Arrowhead Grayburg Unit
Second Working Interest Owners' Meeting
Hobbs, New Mexico
December 14, 1989

- I. Introductions
- II. Review and Adoption of the Technical Committee Report
- III. Review of Requests for Exclusion from the Unit
- IV. Unit Participation Negotiation
- V. Election of Wellbore Dedication Incentive Method

Abby Corporation
P.O. Box 1629
Grand Junction, CO 81502

James E. Burr
2505 Emerson Drive
Midland, TX 79705

Jack Fletcher
P. O. Box 10887
Midland, TX 79702

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Tulsa, OK 74102

Chevron U.S.A., Inc.
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Hobbs, NM 88240

Barbara Hannifin
P. O. Box 182
Roswell, NM 88201

Attn: J. C. Hefley

Attn: R. C. Anderson

American Exploration Company
2100 Republic Bank
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Houston, TX 77002

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Hobbs, NM 88240

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Attn: David L. Wacker

Attn: W. O. Snyder

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Hobbs, NM 88240

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J. Hiram Moore
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16 West Madison Steet
Baltimore, MD 21201

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Exxon Company
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Attn: Joint Interest Manager

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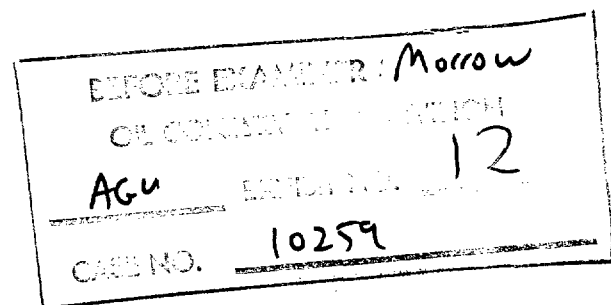
Attn: Hal Rasmussen

Ruth Sutton
2826 Moss Avenue
Midland, TX 79705

PROPOSED ARROWHEAD GRAYBURG UNIT
SECOND WORKING INTEREST OWNERS MEETING
DECEMBER 14, 1989

AGENDA

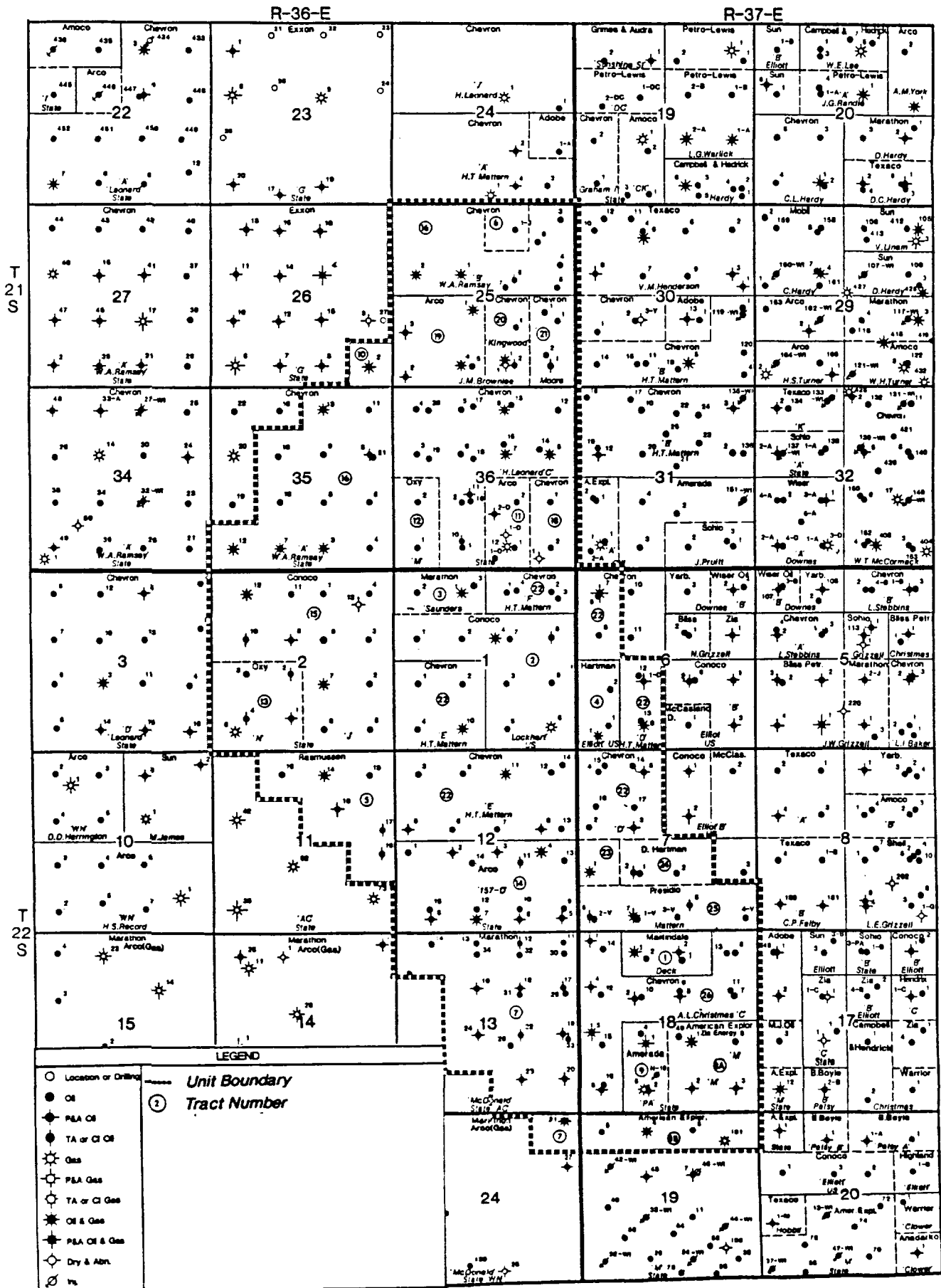
- I. Introductions
- II. Review of the Technical Committee Report
- III. Review of Requests for Exclusion from the Unit
- IV. Unit Participation Negotiations
- V. Wellbore Dedication Incentive
- VI. Future Activities
- VII. Other Business
- VIII. Adjourn



PROPOSED ARROWHEAD GRAYBURG UNIT CHARGES FOR THE TECHNICAL COMMITTEE

- 1) Determine the horizontal and vertical boundaries for the proposed Unit, and prepare a base-map indicating the boundaries and Tract numbers within the Unit.
- 2) Develop a plan of secondary recovery for the Unit, including a cost estimate, and a prediction of secondary recovery production rates and reserves.
- 3) Prepare a tabulation of equity parameters to be used for Tract participation negotiations. The parameters should include:
 - a) Cumulative Oil Production.
 - b) Remaining Primary Oil & Gas Reserves.
 - c) Ultimate Primary Oil Reserves.
 - d) Current Oil & Gas Production Rates.
 - e) *Gross Acreage.
 - f) Useable Wellbores.

PROPOSED ARROWHEAD GRAYBURG UNIT STUDY AREA



VERTICAL LIMITS

RECOMMENDED TOP

Top Grayburg or -150' (GOC)
(which ever is shallower)

RECOMMENDED BASE

1500' below sea level
(approximately 100' to 150' above base of San Andres)

Proposed Arrowhead Grayburg Unit Well Locations

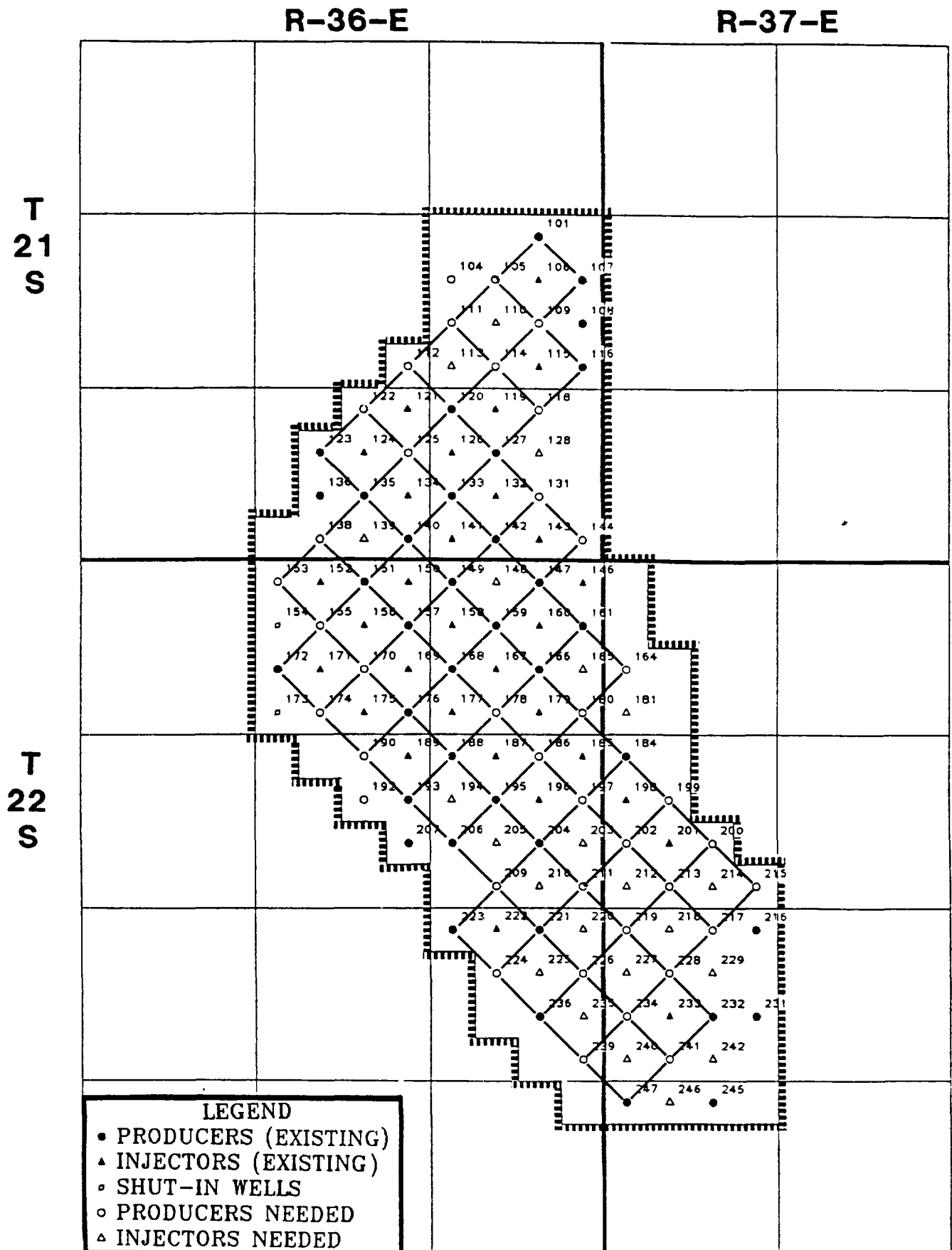
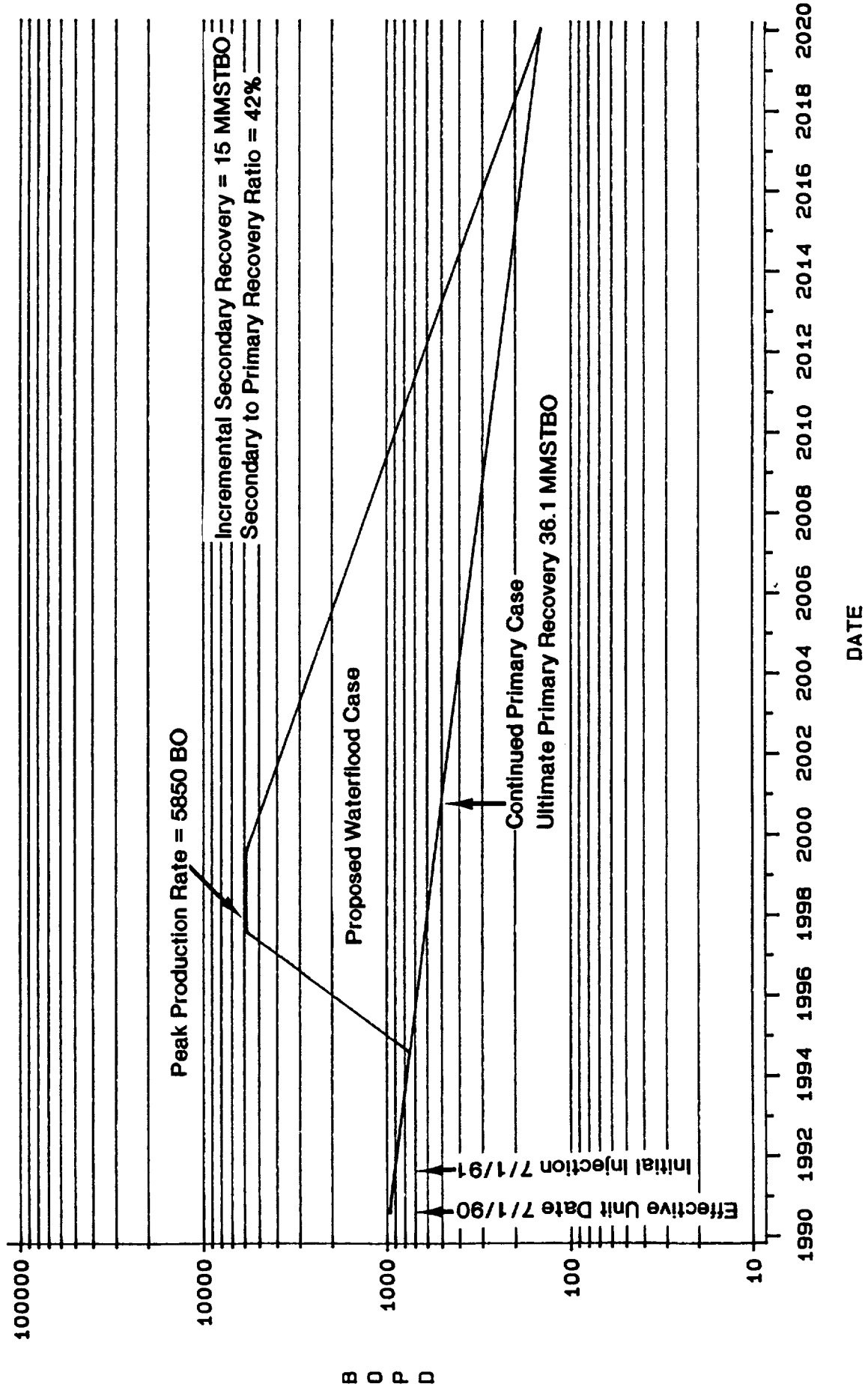


Fig.25

PROPOSED ARROWHEAD GRAYBURG UNIT RECOVERY PREDICTION



*Proposed Arrowhead Grayburg Unit
Capital Investment Requirements*

	<i>Intangibles</i> -----	<i>Tangibles</i> -----	<i>Total</i> -----
<i>D&C New Producers</i>	<i>\$3,740</i>	<i>\$3,740</i>	<i>\$7,480</i>
<i>D&C New Injectors</i>	<i>1,760</i>	<i>1,440</i>	<i>3,200</i>
<i>D&C Water Supply Wells</i>	<i>340</i>	<i>430</i>	<i>770</i>
<i>Producing Well Workovers</i>	<i>2,098</i>	<i>1,445</i>	<i>3,543</i>
<i>Injection Well Workovers</i>	<i>2,272</i>	<i>1,041</i>	<i>3,313</i>
<i>Testing & Coring</i>	<i>500</i>	<i>0</i>	<i>500</i>
<i>Surface Facilities</i>	<i>0</i>	<i>8,950</i>	<i>8,950</i>
<i>Construction & Drilling Overhead</i>	<i>450</i>	<i>0</i>	<i>450</i>
	-----	-----	-----
	<i>11,160</i>	<i>17,046</i>	<i>28,206</i>

Amounts are in Thousands

*Proposed Arrowhead Grayburg Unit
Advantages of Wellbore Dedication Incentive*

- 1) Will insure currently active wells are dedicated to the Unit.*
- 2) Will give incentive for dedicating recompleted marginal and shut-in wells to the Unit, reducing total drill requirements by up to 20 wells.*

Cost Savings for the Unit from a Dedication Incentive Could Total \$3 .MM.

PROPOSED ARROWHEAD GRAYBURG UNIT
USEABLE WELLBORE DEFINITION

- (1) Currently active wells will be accepted as useable if no zones other than the unitized interval are open and the wellbore passes a casing integrity test (500 psi for 30 minutes) upon first entry by the Unit operator. If zones above the unitized interval are open, the non-unitized zones must be cement squeezed to isolate the unitized interval, pressure tested to 500 psi for 30 minutes, and cement in the production casing drilled-out; or, if open-hole, a liner must be run and set with cement to the top of the unitized interval, and the casing tested above the unitized interval to 500 psi for 30 minutes.
- (2) Currently closed-in or TA'd wells will be accepted as useable if no zones other than the unitized interval are open (as above) and the well is free of scale, junk, and debris to the depth of deepest production from the unitized interval prior to being closed-in (PBSD from workovers in the unitized interval prior to shut-in). The well must pass a casing integrity test upon first entry by the Unit operator.
- (3) Currently P&A'd or recompleted wells that have previously produced the unitized interval will be accepted as useable if they are restored to the unitized interval's last producing completion interval, are not open in non-unitized zones, are free of junk, scale and debris down to the PBSD prior to cessation of production, and pass a casing integrity test upon first entry by the Unit operator.
- (4) Alternate wells from existing wellbores will be accepted as useable if all non-unitized zones have been abandoned (deeper zones plugged back with a CIBP or cement retainer capped with 35 ft of cement and pressure tested to 500 psi; shallower zones squeeze cemented, pressure tested and cement drilled-out in the production casing), they penetrate the unitized interval, have sufficient casing size (5½") to be deepened or have at least 4½" casing set through Zone 5 of the Grayburg formation, are adequately cemented, and pass a casing integrity test upon first entry by the Unit operator.
- (5) Newly drilled wells will be accepted as useable if they are drilled to the base of Zone 5, cased to TD with 5½" or larger casing, are cemented from TD to surface, and pass a casing integrity test.

*Proposed Arrowhead Grayburg Unit
Incremental Project Economics*

<i>Rate-of-Return</i>	<i>20</i>	<i>%</i>
<i>Percent-Worth-Profit (10%)</i>	<i>\$24.6</i>	<i>MM</i>
<i>Capital Investment</i>	<i>\$28.2</i>	<i>MM</i>
<i>Incremental Recovery</i>	<i>15</i>	<i>MMSTBO</i>
<i>Development Cost</i>	<i>\$1.88</i>	<i>/ STBO</i>

*Proposed Arrowhead Grayburg Unit
Technical Committee Report*

Conclusions

- * Secondary Recovery Potential is Sufficient to Justify Utilizing and Waterflooding*
- * Ultimate Primary Recovery will be 36.1 MMSTBO, or 20.6% OOIP*
- * Incremental Secondary Reserves will be 15 MMSTBO*
- * Capital Requirements to install the Waterflood will be \$28.2 MM*
- * The Proposed Waterflood will yield a Discounted Cash Flow Rate-of-Return of 20% with a 10% Discounted Present-Worth-Profit of \$ 24.6 MM*

*Proposed Arrowhead Grayburg Unit
Technical Committee Report*

Recommendations

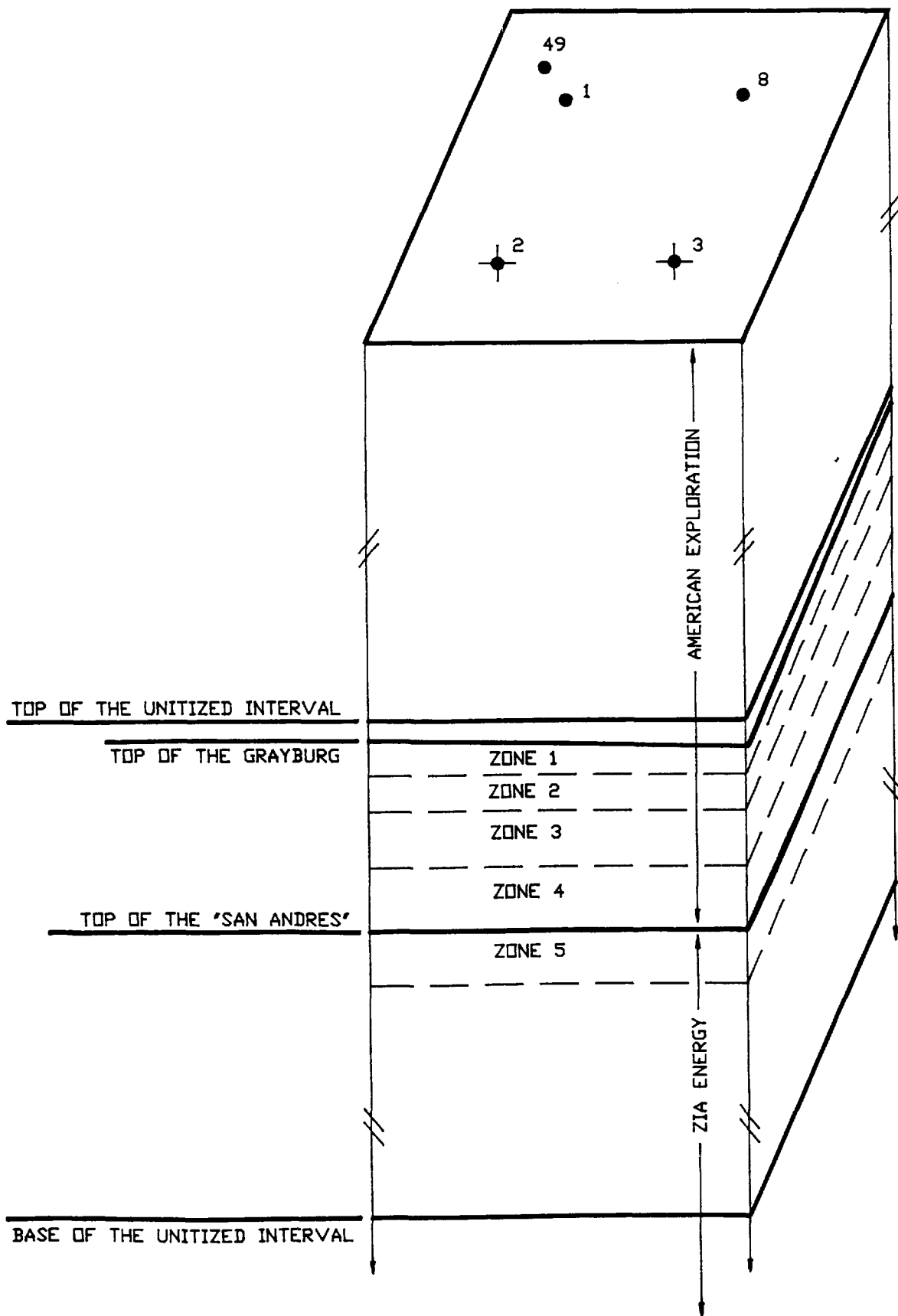
- * *Utilize and Waterflood the 5922 acre Arrowhead Grayburg Pool Area.*

- * *The vertical limits of the Unit should extend from -150 ft from Sea Level or the top of the Grayburg formation, whichever is shallower, to - 1500 ft from Sea Level.*

- * *The parameter tables furnished by the Technical Committee (Appendix A) should be used for Unit Participation Negotiations.*

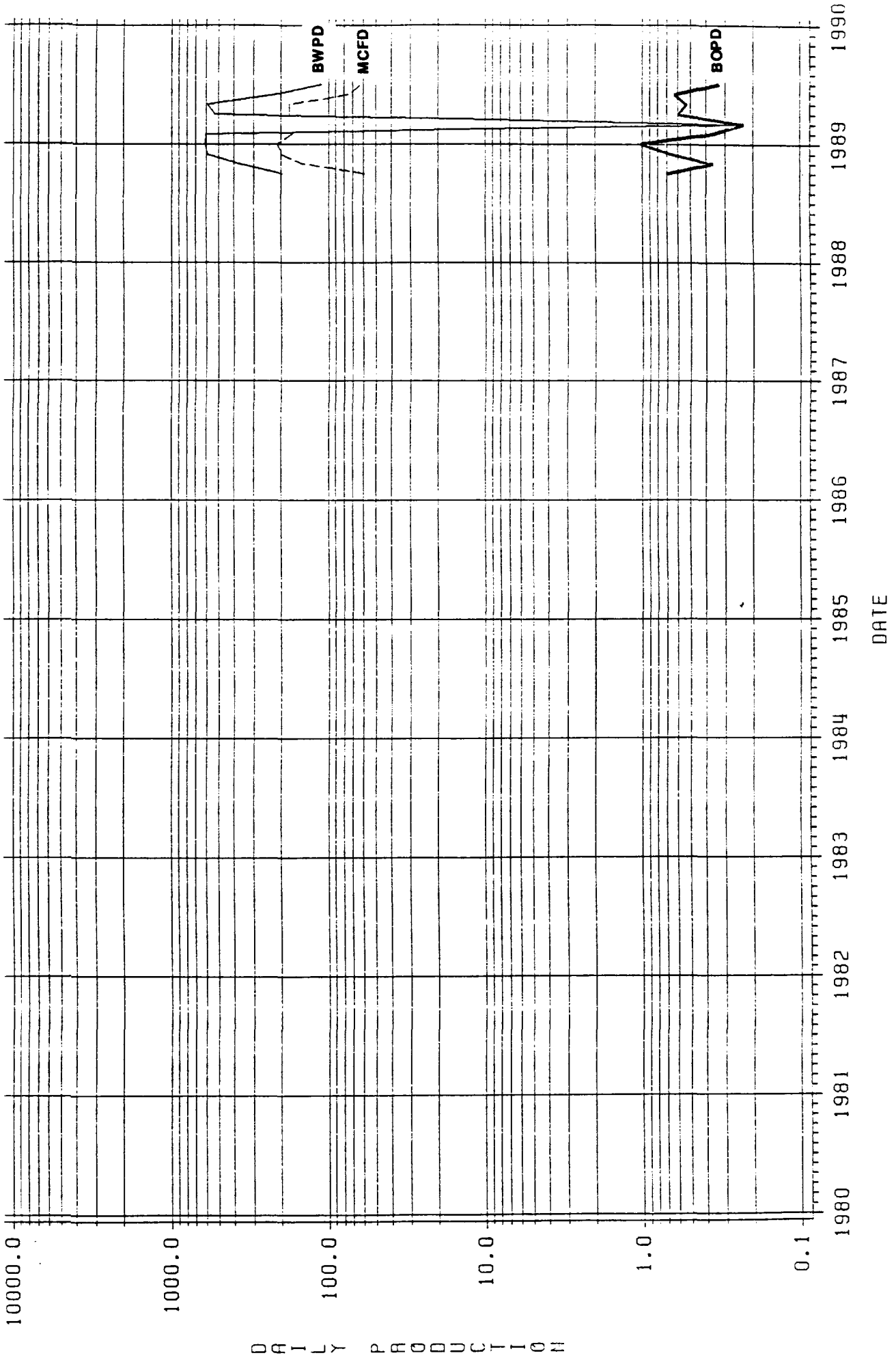
- * *A wellbore dedication Incentive method with a value of useable wellbores set at \$80,000 each should be Incorporated into the Unit Operating Agreement. Useable wellbores should be defined consistent with the Technical Committee useable wellbore definition.*

PROPOSED ARROWHEAD GRAYBURG UNIT
TRACT "8A"



RATE VS. TIME PLOT

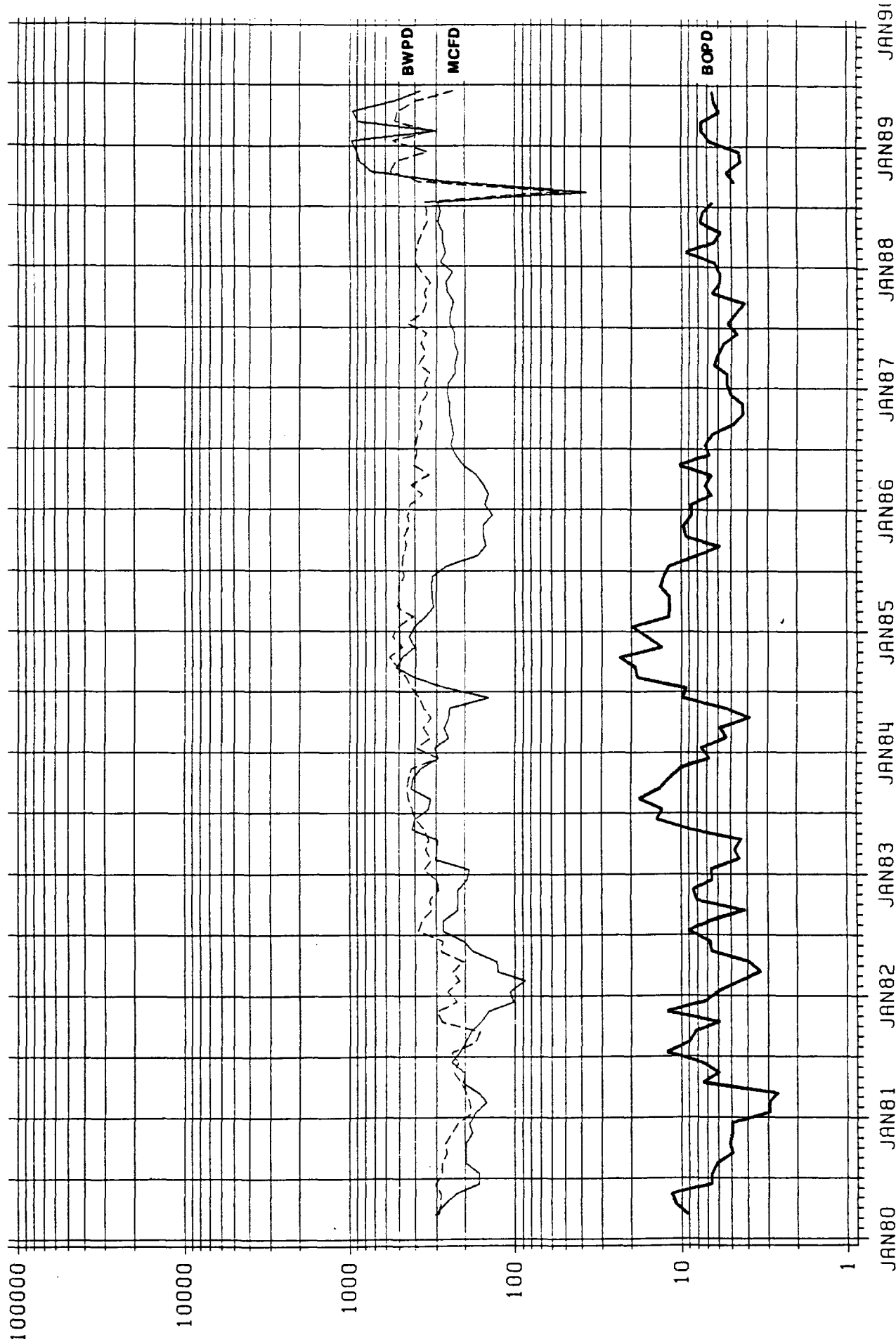
FD=EUNICE SOUTHWEST LS=NEW MEXICO M SIATE WELLNO=049 OP=ZIA ENERGY INC.
P. I. DATA BASE



HEAVY SOLID LINE=BOPD
SOLID DASH LINE=MCFD

RATE VS. TIME PLOT

EUNICE SW SAN ANDRES FIELD



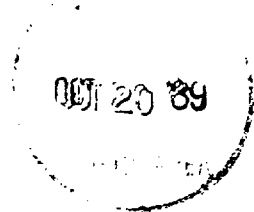
DATE

HEAVY SOLID LINE=BOPD

CHEVRON MOVES THAT THE SE/4 OF SECTION 18, LOT 1, NE/4 NW/4 & N/2 NE/4 OF SECTION 19, T-22-S, R-37-E, LEA COUNTY, NEW MEXICO BE EXCLUDED FROM THE PROPOSED ARROWHEAD GRAYBURG UNIT AS TO DEPTHS WITHIN THE SOUTHWEST EUNICE SAN ANDRES POOL, THE TOP OF WHICH OCCURS 3804 FT BELOW THE SURFACE AS SHOWN ON THE DRESSER ATLAS COMPENSATED DENSITY NEUTRON LOG DATED AUGUST 16, 1978 ON THE ZIA (EXXON) NEW MEXICO STATE "M" No. 49 WELL WHICH IS LOCATED 2,610 FT FROM THE SOUTH LINE AND 2,310 FT FROM THE EAST LINE OF SECTION 18, TOWNSHIP 22 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO: AND THAT IF SUCH INTERVAL IS EXCLUDED FROM THE PROPOSED ARROWHEAD GRAYBURG UNIT, THAT NO INJECTION WELLS WILL INJECT WATER DIRECTLY INTO SUCH INTERVAL ON THE ABOVE ACREAGE OR INTO THE STRATIGRAPHIC EQUIVALENT INTERVAL OF THE EXCLUDED INTERVAL ON ADJACENT LANDS FROM ANY INJECTION WELL AT A SURFACE LOCATION LESS THAN 1320 FT FROM THE SE/4 OF SAID SECTION 18 OR FROM THE N/2 N/2 SECTION 19. THE EXCLUSION OF SAID INTEREST IS SUBJECT TO NEGOTIATIONS OF AN INDEMNIFICATION AGREEMENT WHEREIN THE WORKING INTEREST OWNERS OF THE EXCLUDED INTERVAL WILL HOLD HARMLESS THE ARROWHEAD GRAYBURG UNIT WORKING INTEREST OWNERS.

EXXON COMPANY, U.S.A.

POST OFFICE BOX 1700 • MIDLAND, TEXAS 79702-1700



PRODUCTON DEPARTMENT
SOUTHWESTERN DIVISION

October 18, 1989

JOINT INTEREST - REGULATORY AFFAIRS

R. R. HICKMAN
MANAGER

Exclusion of Tract 10 from the
Proposed Arrowhead Grayburg Unit

Chevron U.S.A. Inc.
P. O. Box 670
Hobbs, New Mexico 88240

Attention: R. C. Anderson

Exxon requests that Tract 10 be excluded from the proposed Arrowhead Grayburg Unit due to its lack of productive potential within the unitized interval.

To support our request, a direct north offset to Tract 10 was drilled through the unitized interval and tested in June of 1989. This well, Exxon's State "G" #27, was not productive within the unitized interval. We further contend that the existing well on Tract 10, Exxon's State "G" #2 Well, has no economic reserves to contribute to the Unit from within the unitized interval.

Based on this information, we would appreciate your consideration of our request to exclude the non-productive acreage which comprises Tract 10 from the Unit. If you have any questions, please call Don Jacks at 915/688-7137.

Sincerely,
R. R. Hickman

RRH:cpw37

HOBBS DIVISION				
INFO	COPY	DISCUSSION	HANDLE	INIT DATE
X				DIV MGR <i>DM</i> <i>for RCA</i>
				DIV DRLG MGR
			X	DIV PET ENG <i>MAH/23</i>
				DIV DEV. CED
				AREA SUPT. - N. M.
				AREA SUPT. - TX
				DIV D&C ENG.
				DIV G&C ENG
				NO. JV COORD
				SAFETY COORD
				ADMIN ASST
			X	<i>MAK</i> <i>MS</i>
			X	<i>WBC</i>
				FILE <i>Unit File</i>



Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

Fl. C. Anderson
Division Manager
Production Department
Hobbs Division

November 17, 1989

EXXON ACREAGE EXCLUSION
PROPOSED ARROWHEAD GRAYBURG UNIT
LEA COUNTY, NEW MEXICO

Exxon Company, U.S.A.
P. O. Box 1700
Midland, TX 79702-1700

ATTENTION: R. R. Hickman

Chevron has received your request for consideration to exclude Exxon's State 'G' property (Tract 10) from the proposed Arrowhead Grayburg Unit. At this time we have received sufficient approval from Technical Committee Members to submit the September 1989 Report to Working Interest Owners. Since this report includes Tract 10 acreage, it is our opinion that your request is a matter for the Working Interest Owners, and not for Chevron alone. We will plan to include your request in the agenda for the next Working Interest Owners' Meeting.

In addition to your request for exclusion, we have had conversations with Zia Energy concerning the exclusion of their acreage in the SE/4 of Section 18, T-22-S, R-37-E, Tract 8a lower. Their rights are limited to below the "top of the San Andres". Should the Working Interest Owners elect to exclude Zia's rights, we would like to know if Exxon desires to exclude your similar rights in the N/2 N/2 Section 19, T-22-S, R-37-E, Tract 8b lower. Please evaluate this possibility and inform us of your position. Note: Exxon's rights in Tract 8b have not historically produced from the unitized interval.

If you have any questions, please contact Bryan Cotner at (505) 393-4121.

Yours very truly,

R. C. Anderson

BCC/jr 11159/01

EXXON COMPANY, U.S.A.

POST OFFICE BOX 1700 • MIDLAND, TEXAS 79702-1700

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

JOINT INTEREST-REGULATORY AFFAIRS

December 12, 1989

*Proposed Arrowhead Grayburg Unit
Exxon Acreage Exclusion
Lea County, New Mexico*

*Chevron U.S.A. Inc.
P. O. Box 670
Hobbs, New Mexico 88240*

Attention: Mr. R. C. Anderson

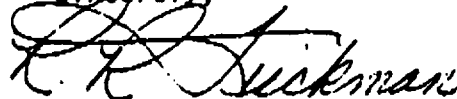
In response to your letter of November 17, 1989, Exxon supports the position taken by Zia Energy concerning the exclusion of their acreage in the SE/4 of Section 18, T22S, R37E, Tract 8a Lower. Exxon requests that the same consideration be given to removing our similar rights in the N/2 N/2, Section 19, T22S, R37E, Tract 8b Lower.

With respect to the exclusion of Exxon's State 'G' property (Tract 10) from the proposed Arrowhead Grayburg Unit, Exxon's position is unchanged from our letter of October 18, 1989. We believe that this tract lacks productive potential within the unitized interval as supported by Exxon's recent testing of the Exxon State 'G' #27, directly offsetting Tract 10 to the north. As you are aware, this well tested unproductive in the subject interval.

Exxon does not plan to be in attendance at the December 14th Working Interest Owners meeting. Therefore, we request that Chevron relay Exxon's position in this matter at the meeting. Also, should the Working Interest Owners elect not to remove Exxon's acreage from the proposed Unit, please advise the Owners that Exxon will entertain an offer from the Unit for the subject acreage.

If you have any questions concerning the above, please call Brian Wheeler at (915) 688-7139.

Sincerely,



RRH:cpw

ON BEHALF OF EXXON, IT IS MOVED THAT THE SE/4 SE/4
SECTION 26 T-21-S R-36-E, TRACT 10, BE EXCLUDED FROM THE
PROPOSED ARROWHEAD GRAYBURG UNIT DUE TO THE LACK OF
PRODUCTIVE POTENTIAL.

*Proposed Arrowhead Grayburg Unit
Wellbore Dedication Incentive*

Wellbore Penalty Method:

One useable wellbore will be demanded from each 40 acre proration unit that historically produced from the unitized interval. Individual owners will be charged their proportionate share of a wellbore penalty equal to the useable wellbore value for each demand well not contributed.

Wellbore Inventory Method:

Useable wellbores dedicated to the Unit will receive an Inventory credit equal to the useable wellbore value (limited to one per proration unit), and an investment adjustment will be made for each individual owner. The investment adjustment will be equal to an owner's unit participation multiplied by the total value of wellbores dedicated to the Unit, less the value of the individual wells he contributes.

Proposed Arrowhead Grayburg Unit

Net Well Cost

Wellbore Dedication Incentives

Wellbore Penalty Method:

Net Well Cost = (New Well Cost - Total Wellbore Penalties Collected) x WI + Individual Wellbore Penalties.

Wellbore Inventory Method:

Net Well Cost = (New Well Cost + Total Value of Contributed Wells) x WI - Individual Inventory Credits.

PROPOSED ARROWHEAD GRAYBURG UNIT
NET WELL COST
EXAMPLE CALCULATION

Working Interest Owner = ABC
Working Interest Owner = XYZ
New Well Cost = \$213,600 (average)

Unit Participation = 10%
Unit Participation = 10%

	<u>UNIT</u>	<u>ABC</u>	<u>XYZ</u>
Total Wellbores	127	10	15
Demand Wells	118	10	12
Demand Wells Contributed	72	5	10
Total Wellbore Penalties	46	5	2
Inventory Credits	77	5	13

WELLBORE PENALTY METHOD

Total Number of wells to drill = $127 - 72 = 55$

Owner ABC: Net Well Cost = $(55 \times \$213,600 - 46 \times \$80,000) \times 0.10 + 5 \times \$80,000$
= \$1,206,800

Owner XYZ: Net Well Cost = $(55 \times \$213,600 - 46 \times \$80,000) \times 0.10 + 2 \times \$80,000$
= \$966,800

WELLBORE INVENTORY METHOD:

Total Number of wells drilled = $127 - 77 = 50$

Owner ABC: Net Well Cost = $(50 \times \$213,600 + 77 \times \$80,000) \times 0.10 - 5 \times \$80,000$
= \$1,284,000

Owner XYZ: Net Well Cost = $(50 \times \$213,600 + 77 \times \$80,000) \times 0.10 - 13 \times \$80,000$
= \$644,000

PROPOSED ARROWHEAD GRAYBURG UNIT TENTATIVE TIMELINE

Working Interest Owner's Meeting #1	May 5, 1988
Working Interest Owner's Meeting #2	December 14, 1989
Finalize Unit Agreement and Unit Operating Agreement	3-4 Months after approval of participation formula and other operational JOA matters
Mailout of Finalized Unit and Unit Operating Agreement for Execution	2 Months
Mailout of Ratifications to Royalty Owners and Overriding Royalty Owners	4 Months (sent out simultaneously with the Unit and Unit Operating Agreements)
Commission Hearing	To be scheduled within one month of receiving 75% of W.I. Owner's commitment to join the unit
Commission Approval	2-4 weeks after Commission Hearing
Effective Unit	4th Quarter 1990

**Proposed Arrowhead Grayburg Unit
Value of Equity Parameters by Tract
Technical Committee Report Appendix A - Revised 12/14/89**

TRACT	CUMULATIVE OIL (12-31-88)		REMAINING OIL RESERVES		ULTIMATE PRIMARY		CURRENT OIL RATE		CURRENT GAS RATE		REMAINING GAS RESERVES		SURFACE	
	STBO	(12-31-88)	(1-1-89)	STBO	OIL RECOVERY	STBO	BDPI	(40-1988)	MCFFPI	(1-1-89)	ACRES	ACRES	GROSS ACRE-FT	
1	465,366	0	0	465,366	0.0	0.0	0.0	0.0	0.0	0	80.00	108,000.00		
2	1,759,082	749,143	749,143	2,508,225	4,593.3	4,593.3	15,143.0	15,143.0	2,414,487	320.00	433,320.00			
3	536,424	56,757	56,757	593,181	647.0	647.0	1,207.7	1,207.7	93,251	80.24	109,849.20			
4	86,986	0	0	86,986	0.0	0.0	0.0	0.0	0	74.06	99,981.00			
5	1,256,799	5,878	5,878	1,262,677	111.7	111.7	1,729.3	1,729.3	59,722	240.00	324,000.00			
6	35,102	3,190	3,190	38,292	40.0	40.0	1,175.3	1,175.3	82,481	40.00	54,600.00			
7	1,980,703	24,046	24,046	2,004,749	160.0	160.0	2,154.0	2,154.0	278,119	520.00	702,000.00			
8A	607,293	2,084	2,084	609,377	62.3	62.3	270.7	270.7	8,363	107.21	41,840.00			
8B	502,537	178,065	178,065	680,602	937.7	937.7	966.7	966.7	177,886	106.25	43,753.79			
9	462,904	120,566	120,566	583,470	987.0	987.0	1,636.0	1,636.0	201,706	80.00	108,000.00			
10	49,446	0	0	49,446	0.0	0.0	0.0	0.0	0	40.00	54,000.00			
11	224,314	21,552	21,552	245,866	192.0	192.0	309.3	309.3	32,263	80.00	108,040.00			
12	1,028,687	129,193	129,193	1,157,880	635.7	635.7	1,935.7	1,935.7	352,954	80.00	111,800.00			
13	873,124	53,154	53,154	926,278	207.3	207.3	1,453.0	1,453.0	354,274	160.00	216,000.00			
14	1,358,847	27,263	27,263	1,386,110	313.0	313.0	513.3	513.3	42,557	320.00	432,000.00			
15	4,853,177	1,617,565	1,617,565	6,470,742	9,937.0	9,937.0	38,861.0	38,861.0	4,901,223	480.64	650,068.00			
16	3,900,755	185,177	185,177	4,085,932	2,293.7	2,293.7	18,775.3	18,775.3	1,454,192	760.00	1,030,680.00			
17	2,897,572	1,309,041	1,309,041	4,206,613	7,459.7	7,459.7	28,858.0	28,858.0	3,616,881	400.00	546,560.00			
18	0	0	0	0	0.0	0.0	0.0	0.0	0	80.00	108,000.00			
19	489,027	0	0	489,027	0.0	0.0	0.0	0.0	0	160.00	216,000.00			
20	0	0	0	0	0.0	0.0	0.0	0.0	0	80.00	108,920.00			
21	39,706	6,820	6,820	46,526	79.7	79.7	2,542.3	2,542.3	216,329	80.00	108,040.00			
22	4,773,017	692,746	692,746	5,465,763	4,210.7	4,210.7	5,256.3	5,256.3	984,392	868.39	1,172,486.74			
23	167,424	0	0	167,424	0.0	0.0	0.0	0.0	0	36.98	49,923.00			
24	183,025	0	0	183,025	0.0	0.0	0.0	0.0	0	80.00	108,000.00			
25	603,349	0	0	603,349	0.0	0.0	0.0	0.0	0	157.00	211,950.00			
26	1,703,938	45,455	45,455	1,749,393	136.0	136.0	267.3	267.3	352,364	307.96	415,746.00			
TOTAL	30,838,604	5,227,695	5,227,695	36,066,299	33,003.8	33,003.8	123,054.2	123,054.2	15,623,444	5,818.73	7,673,557.73			

Excludes Eunice SW San Andres in Tracts 8a & 8b (Zia Energy and Exxon).

Proposed Arrowhead Grayburg Unit
Equity Parameters
Percent of Total by Tract

Technical Committee Report Appendix A - Revised 12/14/89

TRACT	CUMULATIVE OIL (12-31-88)	REMAINING OIL RESERVES (1-1-89)	ULTIMATE PRIMARY OIL RECOVERY	CURRENT OIL RATE (4Q-1988)	CURRENT GAS RATE (4Q-1988)	REMAINING GAS RESERVES (1-1-89)	SURFACE ACRES	GROSS ACRE-FT
1	1.509037	0.000000	1.290307	0.000000	0.000000	0.000000	1.374869	1.407431
2	5.704156	14.330274	6.954484	13.917488	12.305959	15.454256	5.499478	5.646924
3	1.739456	1.085698	1.644696	1.960380	0.981437	0.596866	1.378994	1.431529
4	0.282069	0.000000	0.241184	0.000000	0.000000	0.000000	1.272785	1.302929
5	4.075408	0.112440	3.500989	0.338446	1.405316	0.362259	4.124608	4.222292
6	0.113825	0.061021	0.106171	0.121198	0.955108	0.527931	0.687435	0.711534
7	6.422804	0.459973	5.558510	0.484793	1.750448	1.780139	8.936652	9.148299
8A	1.969262	0.039865	1.689602	0.188766	0.219984	0.053529	1.842497	0.545249
8B	1.629571	3.406186	1.887086	2.841188	0.785589	1.138584	1.826071	0.570189
9	1.501054	2.306294	1.617771	2.990565	1.329495	1.291047	1.374869	1.407431
10	0.160338	0.000000	0.137098	0.000000	0.000000	0.000000	0.687435	0.703715
11	0.727381	0.412266	0.681706	0.581751	0.251353	0.206504	1.374869	1.407952
12	3.335712	2.471319	3.210421	1.926142	1.573047	2.259131	1.374869	1.456951
13	2.831270	1.016777	2.568265	0.628109	1.180781	2.267579	2.749739	2.814861
14	4.406318	0.521511	3.843228	0.948376	0.417133	0.272392	5.499478	5.629722
15	15.737343	30.942222	17.941242	30.108654	31.580393	31.370951	8.260216	8.471533
16	12.648935	3.542230	11.328947	6.949806	15.257748	9.307756	13.061260	13.431579
17	9.395925	25.040501	11.663556	22.602549	23.451455	23.150344	6.874347	7.122641
18	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.374869	1.407431
19	1.585762	0.000000	1.355911	0.000000	0.000000	0.000000	2.749739	2.814861
20	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.374869	1.419420
21	0.128754	0.130459	0.129001	0.241487	2.066000	1.384643	1.374869	1.407952
22	15.477409	13.251462	15.154765	12.758228	4.271532	6.300736	14.924036	15.279572
23	0.542904	0.000000	0.464212	0.000000	0.000000	0.000000	0.635533	0.650585
24	0.593493	0.000000	0.507468	0.000000	0.000000	0.000000	1.374869	1.407431
25	1.956473	0.000000	1.672889	0.000000	0.000000	0.000000	2.698181	2.762083
26	5.525341	0.869504	4.850492	0.412074	0.217221	2.255354	5.292560	5.417904
TOTAL	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000

Excludes Eunice SW San Andres in Tracts 8a & 8b (Zia Energy and Exxon).

**Proposed Arrowhead Grayburg Unit
Value of Equity Parameters by Owner
Technical Committee Report Appendix A - Revised 12/14/89**

OWNER	CUMULATIVE OIL (12-31-88)	REMAINING OIL RESERVES (1-1-89)	ULTIMATE PRIMARY OIL RECOVERY	CURRENT OIL RATE (40-1988)	CURRENT GAS RATE (40-1988)	REMAINING GAS RESERVES (1-1-89)	SURFACE ACRES	GROSS ACRE-FT
ABBY	0	0	0	0.0	0.0	0	0.00	20,087.44
AMERADA	462,904	120,566	583,470	987.0	1,636.0	201,706	80.00	108,000.00
AMERICAN	1,109,830	180,149	1,289,979	1,000.0	1,237.4	186,249	213.46	85,593.79
AMOCO	439,771	187,286	627,056	1,148.3	3,785.8	603,622	80.00	108,330.00
ARCO	2,511,959	236,101	2,748,059	1,653.3	4,608.4	678,442	640.00	784,020.25
BROWN	27,910	0	27,910	0.0	0.0	0	10.73	10,041.16
BRYANT	2,482	426	2,908	5.0	158.9	13,521	3.48	1,137.50
BURR	3,612	0	3,612	0.0	0.0	0	1.13	601.49
CHEVRON	14,116,027	2,429,289	16,545,315	15,363.1	60,501.4	7,296,740	2783.54	3,702,960.54
CONOCO	5,292,948	1,804,851	7,097,798	11,085.3	42,646.8	5,504,845	560.64	758,398.00
DASCO	162,470	0	162,470	0.0	0.0	0	43.45	127,327.65
DAYLIDSON	115,568	0	115,568	0.0	0.0	0	36.19	19,247.58
ENRON	0	0	0	0.0	0.0	0	0.00	17,576.51
EXXON	49,446	0	49,446	0.0	0.0	0	40.00	54,000.00
FLETCHER	3,612	0	3,612	0.0	0.0	0	1.13	601.49
HANNIFIN	0	0	0	0.0	0.0	0	0.00	12,855.96
MARATHON	2,517,127	80,803	2,597,930	807.0	3,361.7	371,370	600.24	811,849.20
MCBRIDE	0	0	0	0.0	0.0	0	0.00	27,318.91
MOORE	0	0	0	0.0	0.0	0	12.25	4,000.00
MUSSETT	70,495	0	70,495	0.0	0.0	0	16.05	44,560.86
NERMYR	7,223	0	7,223	0.0	0.0	0	2.26	1,202.97
OXY	1,901,811	182,347	2,084,158	843.0	3,368.7	707,228	240.00	327,800.00
PARA MIA	147,160	0	147,160	0.0	0.0	0	39.91	115,176.64
PRESIDIO	55,802	0	55,802	0.0	0.0	0	21.45	20,077.00
RASMUSSEN	157,100	735	157,835	14.0	216.2	7,465	30.00	40,500.00
SUMMERS	162,470	0	162,470	0.0	0.0	0	43.45	127,327.66
SUTTON	3,612	0	3,612	0.0	0.0	0	1.13	601.49
VETETO	15,312	0	15,312	0.0	0.0	0	3.54	12,152.43
WALSH	402,253	0	402,253	0.0	0.0	0	104.67	44,195.54
WESTWAY	0	0	0	0.0	0.0	0	0.00	2,510.93
WILLIAMS	1,099,699	5,143	1,104,842	97.7	1,513.1	52,257	210.00	283,500.00
TOTAL	30,838,604	5,227,695	36,066,299	33,003.8	123,054.2	15,623,444	5,818.73	7,673,557.73

Excludes Eunice SW San Andres in Tracts 8a & 8b (Zia Energy and Exxon).

**Proposed Arrowhead Grayburg Unit
Equity Parameters
Percent of Total by Owner
Technical Committee Report Appendix A - Revised 12/14/89**

OWNER	CUMULATIVE OIL RESERVES (12-31-88)	REMAINING OIL RESERVES (1-1-89)	ULTIMATE PRIMARY OIL RECOVERY	CURRENT OIL RATE (4Q-1988)	CURRENT GAS RATE (4Q-1988)	REMAINING GAS RESERVES (1-1-89)	SURFACE ACRES	GRUSS ACRE-FT
ABBY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2618
AMERADA	1.5011	2.3063	1.6178	2.9906	1.3295	1.2910	1.3749	1.4074
AMERICAN	3.5988	3.4461	3.5767	3.0300	1.0056	1.1921	3.6686	1.1154
AMOCO	1.4260	3.5826	1.7386	3.4794	3.0765	3.8636	1.3749	1.4117
ARCO	8.1455	4.5163	7.6195	5.0095	3.7450	4.3425	10.9990	10.2172
BROWN	0.0905	0.0000	0.0774	0.0000	0.0000	0.0000	0.1844	0.1309
BRYANT	0.0080	0.0082	0.0081	0.0151	0.1291	0.0865	0.0599	0.0148
BURR	0.0117	0.0000	0.0100	0.0000	0.0000	0.0000	0.0194	0.0078
CHEVRON	45.7739	46.4696	45.8747	46.5496	49.1664	46.7038	47.8376	48.2561
CONOCO	17.1634	34.5248	19.6799	33.5880	34.6569	35.2345	9.6351	9.8833
ORSCO	0.5268	0.0000	0.4505	0.0000	0.0000	0.0000	0.7468	1.6593
DAVIDSON	0.3748	0.0000	0.3204	0.0000	0.0000	0.0000	0.6220	0.2508
ENRON	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2291
EXXON	0.1603	0.0000	0.1371	0.0000	0.0000	0.0000	0.6874	0.7037
FLETCHER	0.0117	0.0000	0.0100	0.0000	0.0000	0.0000	0.0194	0.0078
HANNIFIN	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1675
MARATHON	8.1623	1.5457	7.2032	2.4452	2.7319	2.3770	10.3156	10.5798
MCBRIDE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3560
MOORE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2105	0.0521
MUSSETT	0.2286	0.0000	0.1955	0.0000	0.0000	0.0000	0.2759	0.5807
NERMYR	0.0234	0.0000	0.0200	0.0000	0.0000	0.0000	0.0389	0.0157
OXY	6.1670	3.4881	5.7787	2.5543	2.7538	4.5267	4.1246	4.2718
PARA MIA	0.4772	0.0000	0.4080	0.0000	0.0000	0.0000	0.6859	1.5010
PRESIDIO	0.1809	0.0000	0.1547	0.0000	0.0000	0.0000	0.3686	0.2616
RASMUSSEN	0.5094	0.0141	0.4376	0.0423	0.1757	0.0478	0.5156	0.5278
SUMMERS	0.5268	0.0000	0.4505	0.0000	0.0000	0.0000	0.7468	1.6593
SUTTON	0.0117	0.0000	0.0100	0.0000	0.0000	0.0000	0.0194	0.0078
VETETO	0.0497	0.0000	0.0425	0.0000	0.0000	0.0000	0.0609	0.1584
WALSH	1.3044	0.0000	1.1153	0.0000	0.0000	0.0000	1.7989	0.5759
WESTWAY	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0327
WILLIAMS	3.5660	0.0984	3.0634	0.2961	1.2297	0.3345	3.6090	3.6945
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000

PROPOSED ARROWHEAD GRAYBURG UNIT
SECOND WORKING INTEREST OWNERS' MEETING
HOBBS, NEW MEXICO
DECEMBER 14, 1989

The second Working Interest Owners' Meeting for the proposed Arrowhead Grayburg Unit was held at 9:00 a.m. December 14, 1989 at Chevron's office in Hobbs, New Mexico. Twenty-four attendees representing 11 companies and 95.1% of the voting interest (cumulative oil production as of 12/31/87) were present and are shown on the attached list.

INTRODUCTION

Mr. M. J. Allison, Chevron, welcomed attendees and introduced Chevron personnel involved with work on the proposed Unit. He then asked attendees to introduce themselves and state who they were representing at the meeting. Jay Cherski stated that he was representing Hal J. Rasmussen and The Williams Partnership.

Mr. Allison then reviewed the agenda for the meeting.

REVIEW OF TECHNICAL COMMITTEE REPORT

Mr. R. A. Smith, Chevron, stated that the Technical Committee Report that satisfies the charges for the Technical Committee was distributed in September 1989. The report has received 79% approval by committee members for submittal to the Working Interest Owners. He stated that in addition to the 79% approval, there have been verbal indications of plans to approve the report by ARCO and OXY.

Mr. Smith then reviewed the recommended horizontal and vertical boundaries for the proposed Unit.

Mr. Bob Hogan, American Exploration, asked if a list indicating who has approved the Technical Committee Report was available, and one was distributed.

Mr. B. C. Cotner then reviewed the secondary recovery potential, cost estimates, economics, and equity parameter tables included in the report. He also reviewed the Technical Committee recommendation of a wellbore dedication incentive, stating that it could reduce drilling and completion costs by \$2MM to \$3MM.

Mr. Jim Almrud, Amerada Hess, expressed concern about using one secondary to primary recovery ratio field wide, stating that it would not generate a good equity position for everyone. Mr. Cotner responded that trying to apply varying S/P ratios for equity negotiations would be qualitative and arbitrary.

Mr. Almrud then asked why surface injection facilities were designed to handle 1800 psi when the surface injection will probably be around 700 psi. Mr. Cotner responded that based on experience with West Texas Grayburg and San Andres floods, in the mature stages of the flood, the fracture gradient sometimes approaches 1 psi/ft. Although Chevron anticipates early injection pressures to average around 700 psi, this higher design pressure will enable the Unit to maximize water injection rates as the parting surface pressure increases.

Mr. Almrud then asked what the plans are for developing the lower part of the reservoir. Mr. Cotner stated that the cost estimate in the report includes costs for field wide development of Zones 4 and 5. Development of the lower zones will be evaluated area by area, and development attempts will be discontinued in areas where tests of the lower zones prove non-commercial.

Mr. Allison, Chevron, moved for adoption of the Technical Committee Report by Working Interest Owners. OXY seconded the motion. The report was accepted with 93.6% for, 0% against, and 6.4% abstain or absent. Amerada Hess abstained based on the application of a single S/P ratio.

REQUEST FOR EXCLUSION OF THE UNIT

Mr. Cotner then discussed Zia Energy's previous opposition to the inclusion of their rights in Tract 8a in the Unit. He stated that Zia's rights in the Unit are limited to the San Andres, and they are currently producing from one well, the 'M' State No. 49. The well, which is classified as Southwest Eunice San Andres, averages 0.5 BOPD, 150 MCFGPD, and 700 BWPD and has a cumulative production of less than 100 STBO. He pointed out that inclusion of Zia's rights in the Unit would require special considerations in developing the unit participation formula to insure equitable value for Zia. One possibility would be to use a gas participation phase.

As an alternative, Mr. Cotner recommended carving Zia's interest out of the Unit. He pointed out that if Zia's zone is excluded, the Unit will have to take precautions to avoid injecting water into the excluded zone. He stated that the Unit's secondary recovery potential would not be significantly affected by excluding Zia's interest.

Mr. Cotner then indicated that Exxon owns similar rights to Zia's in Tract 8b. Exxon had been contacted concerning the possible exclusion of Zia's interest, and they indicated that they also desired their interest in Tract 8b be excluded from the Unit.

Chevron then moved for the exclusion of the Southwest Eunice San Andres interval on Tracts 8a and 8b from the proposed Unit, subject to negotiation of an indemnification agreement (see attached motion). Marathon seconded the motion. The motion passed with 95.1% for, 0% against, and 4.9% absent.

Mr. Cotner then presented Exxon's request for exclusion of Tract 10 from the Unit. Copies of letters concerning Exxon's request were distributed to attendees. Exxon requested exclusion based on the lack of productive potential from the tract. Mr. Cotner stated that Chevron believes that there is sufficient potential to justify inclusion of the tract, and that exclusion would result in a more than insignificant loss in secondary recovery reserves for the Unit. The loss in reserves estimate was based on not injecting water immediately adjacent to Tract 10. Mr. Cotner stated that Chevron is opposed to excluding Tract 10 from the Unit.

On behalf of Exxon, it was moved that Tract 10 be excluded from the Unit. The motion was not seconded and did not pass. Mr. Cotner noted Exxon's desire to receive an offer for their interest in the Unit if the tract was not excluded.

Revised copies of Appendix A of the Technical Committee Report (Equity Parameter Tables) that reflect the changes associated with the exclusion of Zia Energy's and Exxon's interests in Tract 8a and 8b were distributed.

UNIT PARTICIPATION NEGOTIATIONS

To obtain a unit participation formula, proposed formulas were voted on individually with votes tallied based on unit participation calculated from each particular formula. A total of 12 formulas were proposed. The formula, company proposing, and votes received are recorded in the attachments. During the voting, ARCO pointed out recent declines in current production rates on the State J-2 lease operated by Conoco.

American Exploration's proposal, Formula 12, with participation based on 57% cumulative oil, 33% remaining primary oil reserves, and 10% current oil rate, received the greatest affirmative vote of 95.4%. Prior to casting an affirmative vote, Mr. Craig Kent, Marathon, stated that his vote is subject to his management's approval, and although he is concerned about the equity of the proposed formula,

he would vote for it, in an effort to not delay the project. Mr. John Lawrence, OXY, also stressed that his vote is subject to management's approval, that he is also concerned about some of the parameters used in the formula, but because of the need to proceed with the project, he would also vote for it.

Chevron moved that Formula 12 (57% cumulative oil, 33% remaining oil reserves, and 10% current oil rate) be submitted by letter ballot for formal Working Interest Owners' approval. Mr. Bob Hogan, American Exploration, seconded the motion. The motion passed with 95.4% for, 0% against, and 4.6% abstain.

Hugh Ingram, Conoco, moved that the unit participation formula, 57% cumulative oil, 33% remaining oil reserves, and 10% current oil rate, replace the original voting basis of cumulative oil production on 12/31/87 for future Working Interest Owner negotiations. Chevron seconded the motion. The motion passed with 95.4% for, 0% against, and 4.6% abstain.

WELLBORE DEDICATION INCENTIVE

Mr. Cotner reiterated the Technical Committee's recommendation for the use of a wellbore dedication incentive in the Unit Operating Agreement. He discussed how either the wellbore penalty or wellbore inventory method would be applied. He gave example calculations to indicate how to determine which method is best for each individual owner. Mr. Hugh Ingram, Conoco, asked if Mr. Cotner knew of any units where the inventory method had been applied. Mr. Cotner responded that he did not know of a unit that used the method but that it was discussed as a possibility for the Eunice Monument South Unit.

Mr. Cotner said that Chevron will further study the possibilities of wellbore dedication incentives and letter ballot the possible choices in early 1990. Craig Kent, Marathon, suggested that a third choice, no dedication incentive method, be included on the ballot.

FUTURE ACTIVITIES

Ms. D. K. Beckham, Chevron presented a tentative timetable for future unitization proceedings. Remaining work to be done includes: 1) preparation of the Unit Agreement and Unit Operating Agreement, 2) ratification and joinder by working interest and royalty interest owners, and 3) statutory unitization hearings. The effective Unit date is anticipated to be in late 1990.

Mr. Allison thanked the participants for their contributions to the meeting. The meeting was adjourned at 3:45 p.m.

If you have any additions or corrections to the minutes, please contact Bryan Cotner at (505) 393-4121.

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS MEETING
 DECEMBER 14, 1989

LIST OF PARTICIPANTS

<u>NAME</u>	<u>COMPANY</u>	<u>POSITION</u>
<u>Bryan C. Cotner</u>	<u>Chevron</u>	<u>Reservoir Engineer</u>
<u>Randy A. Smith</u>	<u>Chevron</u>	<u>Geologist</u>
<u>Jim Almrud</u>	<u>Amerada Hess</u>	<u>Engineer</u>
<u>Don Bratton</u>	<u>Zia Energy</u>	<u>Engineer</u>
<u>Ray Clark</u>	<u>Chevron</u>	<u>Sr. Petroleum Engineer</u>
<u>Jerry Hoover</u>	<u>Conoco</u>	<u>Sr. Reservoir Engineer</u>
<u>Hugh Ingram</u>	<u>Conoco</u>	<u>Conservation Coordinator</u>
<u>Mike Morrison</u>	<u>Conoco</u>	<u>Division Eng. Manager</u>
<u>Jay Vashler</u>	<u>Conoco</u>	<u>Production Engineer</u>
<u>Jay Cherski</u>	<u>Hal J. Rasmussen</u>	<u>Engineer</u>
<u>John J. Lawrence</u>	<u>Oxy</u>	<u>Engineer</u>
<u>Ed Behm</u>	<u>Oxy</u>	<u>Region Reservoir Engineer</u>
<u>Bob Hogan</u>	<u>AEC</u>	<u>Engineer</u>
<u>George Burg</u>	<u>Chevron</u>	<u>District Geologist</u>
<u>George Ricks</u>	<u>DASCO</u>	
<u>Craig Kent</u>	<u>Marathon</u>	<u>Production Engineer</u>
<u>Denise Beckham</u>	<u>Chevron</u>	<u>Landman</u>
<u>Cindy Ellis</u>	<u>ARCO</u>	<u>Engineer</u>
<u>Jim Hubbard</u>	<u>ARCO</u>	<u>Joint Interest Engineer</u>
<u>Larry Smith</u>	<u>ARCO</u>	<u>Joint Interest Engineer</u>
<u>Kem Miller</u>	<u>Chevron</u>	<u>Technical Assistant</u>
<u>Steve Tehven</u>	<u>Chevron</u>	<u>Engineer</u>
<u>Jim Clark</u>	<u>Chevron</u>	<u>Engineer</u>

BEFORE EXAMINER: Morrow
 DATE: 12/15/89
 10259

Proposed Arrowhead Grayburg Unit
 Second Working Interest Owners Meeting
 Summary of Attendance
 Based On 12-31-87 Cumulative Oil

WI Owner	% CUM OIL	PRESENT	WI, %
ABBY CORPORATION	0.0000		0.0000
AMERADA HESS	1.4791	X	1.4791
AMERICAN EXPLORATION	3.6134	X	3.6134
AMOCO PRODUCTION	1.4096		0.0000
ARCO OIL & GAS	8.1898	X	8.1898
TRUST U/D D BROWN	0.0916		0.0000
JOHN BRYANT	0.0080		0.0000
JAMES BURR	0.0118		0.0000
CHEVRON USA	45.7095	X	45.7095
CONOCO INC	17.0247	X	17.0247
DASCO ENERGY	0.5331	X	0.5331
JAMES DAVIDSON	0.3792		0.0000
ENRON	0.0000		0.0000
EXXON COMPANY	0.1622		0.0000
JACK FLETCHER	0.0118		0.0000
HANNIFIN	0.0000		0.0000
HANSON-MCBRIDE	0.0000		0.0000
MARATHON OIL CO.	8.2248	X	8.2248
J H MOORE	0.0000		0.0000
JACK MUSSETT	0.2313		0.0000
LARRY NERMYR	0.0237		0.0000
OXY U.S.A.	6.1972	X	6.1972
PARA MIA INC.	0.4828		0.0000
PRESIDIO	0.1831		0.0000
HAL RASMUSSEN	0.5148	X	0.5148
L. C. SUMMERS	0.5331		0.0000
RUTH SUTTON	0.0118		0.0000
BURTON VETETO	0.0502		0.0000
MARY F. WALSH	1.3198		0.0000
WESTWAY	0.0000		0.0000
WILLIAMS PARTNERS.	3.6034	X	3.6034
ZIA ENERGY	0.0000	X	0.0000
	100.0000		95.0898

PROPOSED ARROWHEAD GRAYBURG UNIT
 TECHNICAL COMMITTEE APPROVAL OF THE
 TECHNICAL COMMITTEE REPORT

COMPANY	PERCENT VOTING INTEREST	APPROVAL BALLOT RECEIVED	DATE RECEIVED	PERCENT APPROVAL INTEREST
CHEVRON	45.7095	X	10/06/89	45.7095
CONOCO	17.0247	X	10/27/89	17.0247
MARATHON	8.2248	X	11/16/89	8.2248
ARCO	8.1898			
OXY	6.1972			
AMERICAN EXPLOR.	3.6134	X	11/10/89	3.6134
WILLIAMS PART.	3.6034	X	11/08/89	3.6034
AMERADA HESS	1.4791			
AMOCO	1.4096			
WALSH	1.3198			
SUMMERS	0.5331			
DASCO	0.5331	X	11/10/89	0.5331
RASMUSSEN	0.5148	X	11/08/89	0.5148
PARA MIA	0.4828			
DAVIDSON	0.3792			
MUSSETT	0.2313			
PRESIDIO	0.1831			
EXXON	0.1622			
BROWN TRUST	0.0916			
VETETO	0.0502			
NERMYR	0.0237			
BURR	0.0118			
FLETCHER	0.0118			
SUTTON	0.0118			
BRYANT	0.0080	X	10/06/89	0.0080
ABBY	0.0000	X	10/16/89	0.0000
ENRON	0.0000			
HANNIFIN	0.0000			
MCBRIDE	0.0000			
MOORE	0.0000			
WESTWAY	0.0000			
ZIA	0.0000			
TOTAL	100.0000			79.2317

VOTING INTEREST BASED ON CUMULATIVE OIL PRODUCTION ON 12/31/87.

Proposed Arrowhead Grayburg Unit
 Second Working Interest Owners' Meeting
 Vote Tally
 Based On 12-31-87 Cumulative Oil

Motion: Adoption of Technical Committee Report
 Moved by: Chevron Second by: Oxy

WI Owner	% CUM OIL	VOTE	FOR	AGAINST	ABSTAIN
ABBY CORPORATION	0.0000	X	0.0000	0.0000	0.0000
AMERADA HESS	1.4791	X	0.0000	0.0000	1.4791
AMERICAN EXPLORATION	3.6134	F	3.6134	0.0000	0.0000
AMOCO PRODUCTION	1.4096	X	0.0000	0.0000	1.4096
ARCO OIL & GAS	8.1898	F	8.1898	0.0000	0.0000
TRUST U/D D BROWN	0.0916	X	0.0000	0.0000	0.0916
JOHN BRYANT	0.0080	X	0.0000	0.0000	0.0080
JAMES BURR	0.0118	X	0.0000	0.0000	0.0118
CHEVRON USA	45.7095	F	45.7095	0.0000	0.0000
CONOCO INC	17.0247	F	17.0247	0.0000	0.0000
DASCO ENERGY	0.5331	F	0.5331	0.0000	0.0000
JAMES DAVIDSON	0.3792	X	0.0000	0.0000	0.3792
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON COMPANY	0.1622	X	0.0000	0.0000	0.1622
JACK FLETCHER	0.0118	X	0.0000	0.0000	0.0118
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
HANSON-MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MARATHON OIL CO.	8.2248	F	8.2248	0.0000	0.0000
J H MOORE	0.0000	X	0.0000	0.0000	0.0000
JACK MUSSETT	0.2313	X	0.0000	0.0000	0.2313
LARRY NERMYR	0.0237	X	0.0000	0.0000	0.0237
OXY U.S.A.	6.1972	F	6.1972	0.0000	0.0000
PARA MIA INC.	0.4828	X	0.0000	0.0000	0.4828
PRESIDIO	0.1831	X	0.0000	0.0000	0.1831
HAL RASMUSSEN	0.5148	F	0.5148	0.0000	0.0000
L. C. SUMMERS	0.5331	X	0.0000	0.0000	0.5331
RUTH SUTTON	0.0118	X	0.0000	0.0000	0.0118
BURTON VETETO	0.0502	X	0.0000	0.0000	0.0502
MARY F. WALSH	1.3198	X	0.0000	0.0000	1.3198
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS PARTNERS.	3.6034	F	3.6034	0.0000	0.0000
ZIA ENERGY	0.0000	X	0.0000	0.0000	0.0000
	100.0000		93.6107	0.0000	6.389

F=For A=Against X=Abstain or Absent

CHEVRON MOVES THAT THE SE/4 OF SECTION 18, LOT 1, NE/4 NW/4 & N/2 NE/4 OF SECTION 19, T-22-S, R-37-E, LEA COUNTY, NEW MEXICO BE EXCLUDED FROM THE PROPOSED ARROWHEAD GRAYBURG UNIT AS TO DEPTHS WITHIN THE SOUTHWEST EUNICE SAN ANDRES POOL, THE TOP OF WHICH OCCURS 3804 FT BELOW THE SURFACE AS SHOWN ON THE DRESSER ATLAS COMPENSATED DENSITY NEUTRON LOG DATED AUGUST 16, 1978 ON THE ZIA (EXXON) NEW MEXICO STATE "M" No. 49 WELL WHICH IS LOCATED 2,610 FT FROM THE SOUTH LINE AND 2,310 FT FROM THE EAST LINE OF SECTION 18, TOWNSHIP 22 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO; AND THAT IF SUCH INTERVAL IS EXCLUDED FROM THE PROPOSED ARROWHEAD GRAYBURG UNIT, THAT NO INJECTION WELLS WILL INJECT WATER DIRECTLY INTO SUCH INTERVAL ON THE ABOVE ACREAGE OR INTO THE STRATIGRAPHIC EQUIVALENT INTERVAL OF THE EXCLUDED INTERVAL ON ADJACENT LANDS FROM ANY INJECTION WELL AT A SURFACE LOCATION LESS THAN 1320 FT FROM THE SE/4 OF SAID SECTION 18 OR FROM THE N/2 N/2 SECTION 19. THE EXCLUSION OF SAID INTEREST IS SUBJECT TO NEGOTIATIONS OF AN INDEMNIFICATION AGREEMENT WHEREIN THE WORKING INTEREST OWNERS OF THE EXCLUDED INTERVAL WILL HOLD HARMLESS THE ARROWHEAD GRAYBURG UNIT WORKING INTEREST OWNERS.

Proposed Arrowhead Grayburg Unit
 Second Working Interest Owners' Meeting
 Vote Tally
 Based On 12-31-87 Cumulative Oil

Motion: Exclude SW Eunice San Andres (Zia and Exxon) Tracts 8a and 8b
 Moved by: Chevron Second by: Marathon

WI Owner	% CUM OIL	VOTE	FOR	AGAINST	ABSTAIN
ABBY CORPORATION	0.0000	X	0.0000	0.0000	0.0000
AMERADA HESS	1.4791	F	1.4791	0.0000	0.0000
AMERICAN EXPLORATION	3.6134	F	3.6134	0.0000	0.0000
AMOCO PRODUCTION	1.4096	X	0.0000	0.0000	1.4096
ARCO OIL & GAS	8.1898	F	8.1898	0.0000	0.0000
TRUST U/D D BROWN	0.0916	X	0.0000	0.0000	0.0916
JOHN BRYANT	0.0080	X	0.0000	0.0000	0.0080
JAMES BURR	0.0118	X	0.0000	0.0000	0.0118
CHEVRON USA	45.7095	F	45.7095	0.0000	0.0000
CONOCO INC	17.0247	F	17.0247	0.0000	0.0000
DASCO ENERGY	0.5331	F	0.5331	0.0000	0.0000
JAMES DAVIDSON	0.3792	X	0.0000	0.0000	0.3792
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON COMPANY	0.1622	X	0.0000	0.0000	0.1622
JACK FLETCHER	0.0118	X	0.0000	0.0000	0.0118
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MARATHON OIL CO.	8.2248	F	8.2248	0.0000	0.0000
J H MOORE	0.0000	X	0.0000	0.0000	0.0000
JACK MUSSETT	0.2313	X	0.0000	0.0000	0.2313
LARRY NERMYR	0.0237	X	0.0000	0.0000	0.0237
OXY U.S.A.	6.1972	F	6.1972	0.0000	0.0000
PARA MIA INC.	0.4828	X	0.0000	0.0000	0.4828
PRESIDIO	0.1831	X	0.0000	0.0000	0.1831
HAL RASMUSSEN	0.5148	F	0.5148	0.0000	0.0000
L. C. SUMMERS	0.5331	X	0.0000	0.0000	0.5331
RUTH SUTTON	0.0118	X	0.0000	0.0000	0.0118
BURTON VETETO	0.0502	X	0.0000	0.0000	0.0502
MARY F. WALSH	1.3198	X	0.0000	0.0000	1.3198
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS PARTNERS.	3.6034	F	3.6034	0.0000	0.0000
ZIA ENERGY	0.0000	F	0.0000	0.0000	0.0000
	100.0000		95.0898	0.0000	4.9102

Votes: F=For, A=Against, X=Abstain or Absent

ON BEHALF OF EXXON, IT IS MOVED THAT THE SE/4 SE/4
SECTION 26 T-21-S R-36-E, TRACT 10, BE EXCLUDED FROM THE
PROPOSED ARROWHEAD GRAYBURG UNIT DUE TO THE LACK OF
PRODUCTIVE POTENTIAL.

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Arco

FORMULA 1: 80% Cumulative Oil + 10% Surface Acres +
 10% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	=====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.6374	A	0.0000	1.6374	0.0000
AMERICAN	3.5489	F	3.5489	0.0000	0.0000
AMOCO	1.6263	X	0.0000	0.0000	1.6263
ARCO	8.1172	F	8.1172	0.0000	0.0000
BROWN	0.0908	X	0.0000	0.0000	0.0908
BRYANT	0.0139	X	0.0000	0.0000	0.0139
BURR	0.0113	X	0.0000	0.0000	0.0113
CHEVRON	46.0578	A	0.0000	46.0578	0.0000
CONOCO	18.0530	A	0.0000	18.0530	0.0000
DASCO	0.4961	X	0.0000	0.0000	0.4961
DAVIDSON	0.3620	X	0.0000	0.0000	0.3620
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.1970	X	0.0000	0.0000	0.1970
FLETCHER	0.0113	X	0.0000	0.0000	0.0113
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	7.8059	F	7.8059	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0211	X	0.0000	0.0000	0.0211
MUSSETT	0.2105	X	0.0000	0.0000	0.2105
NERMYR	0.0226	X	0.0000	0.0000	0.0226
OXY	5.6015	F	5.6015	0.0000	0.0000
PARA MIA	0.4503	X	0.0000	0.0000	0.4503
PRESIDIO	0.1816	X	0.0000	0.0000	0.1816
RASMUSSEN	0.4633	F	0.4633	0.0000	0.0000
SUMMERS	0.4961	X	0.0000	0.0000	0.4961
SUTTON	0.0113	X	0.0000	0.0000	0.0113
VETETO	0.0458	X	0.0000	0.0000	0.0458
WALSH	1.2234	X	0.0000	0.0000	1.2234
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	3.2433	F	3.2433	0.0000	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		28.7802	65.7482	5.4716

Votes: F-For, A-Against, X-Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: CONOCO

FORMULA 2: 33% Cumulative Oil + 33% Remaining Oil Reserves +
 33% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	=====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	2.2659	F	2.2659	0.0000	0.0000
AMERICAN	3.3582	A	0.0000	3.3582	0.0000
AMOCO	2.8293	X	0.0000	0.0000	2.8293
ARCO	5.8904	A	0.0000	5.8904	0.0000
BROWN	0.0302	X	0.0000	0.0000	0.0302
BRYANT	0.0104	X	0.0000	0.0000	0.0104
BURR	0.0039	X	0.0000	0.0000	0.0039
CHEVRON	46.2639	A	0.0000	46.2639	0.0000
CONOCO	28.4251	F	28.4251	0.0000	0.0000
DASCO	0.1756	A	0.0000	0.1756	0.0000
DAVIDSON	0.1249	X	0.0000	0.0000	0.1249
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0534	X	0.0000	0.0000	0.0534
FLETCHER	0.0039	X	0.0000	0.0000	0.0039
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	4.0510	A	0.0000	4.0510	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.0762	X	0.0000	0.0000	0.0762
NERMYR	0.0078	X	0.0000	0.0000	0.0078
OXY	4.0697	A	0.0000	4.0697	0.0000
PARA MIA	0.1591	X	0.0000	0.0000	0.1591
PRESIDIO	0.0603	X	0.0000	0.0000	0.0603
RASMUSSEN	0.1886	A	0.0000	0.1886	0.0000
SUMMERS	0.1756	X	0.0000	0.0000	0.1756
SUTTON	0.0039	X	0.0000	0.0000	0.0039
VETETO	0.0165	X	0.0000	0.0000	0.0165
WALSH	0.4348	X	0.0000	0.0000	0.4348
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	1.3202	A	0.0000	1.3202	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	99.9990		30.6911	65.3176	3.9903

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Amerada

FORMULA 3: 65% Ultimate Oil + 25% Current Oil Rate +
 10% Current Gas Rate

OWNER =====	INTEREST =====	VOTE =====	FOR =====	AGAINST =====	ABSTAIN =====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.9321	F	1.9321	0.0000	0.0000
AMERICAN	3.1829	A	0.0000	3.1829	0.0000
AMOCO	2.3076	X	0.0000	0.0000	2.3076
ARCO	6.5795	A	0.0000	6.5795	0.0000
BROWN	0.0503	X	0.0000	0.0000	0.0503
BRYANT	0.0219	X	0.0000	0.0000	0.0219
BURR	0.0065	X	0.0000	0.0000	0.0065
CHEVRON	46.3726	F	46.3726	0.0000	0.0000
CONOCO	24.6546	A	0.0000	24.6546	0.0000
DASCO	0.2928	A	0.0000	0.2928	0.0000
DAVIDSON	0.2083	X	0.0000	0.0000	0.2083
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0891	X	0.0000	0.0000	0.0891
FLETCHER	0.0065	X	0.0000	0.0000	0.0065
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.5666	A	0.0000	5.5666	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1270	X	0.0000	0.0000	0.1270
NERMYR	0.0130	X	0.0000	0.0000	0.0130
OXY	4.6701	A	0.0000	4.6701	0.0000
PARA MIA	0.2652	X	0.0000	0.0000	0.2652
PRESIDIO	0.1006	X	0.0000	0.0000	0.1006
RASMUSSEN	0.3126	A	0.0000	0.3126	0.0000
SUMMERS	0.2928	X	0.0000	0.0000	0.2928
SUTTON	0.0065	X	0.0000	0.0000	0.0065
VETETO	0.0276	X	0.0000	0.0000	0.0276
WALSH	0.7250	X	0.0000	0.0000	0.7250
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.1882	A	0.0000	2.1882	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		48.3048	47.4473	4.2480

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Marathon

FORMULA 4: 37.5% Cumulative Oil + 25% Ultimate Oil +
 25% Current Oil Rate + 12.5% Surface Acres

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	=====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.8868	A	0.0000	1.8868	0.0000
AMERICAN	3.4598	F	3.4598	0.0000	0.0000
AMOCO	2.0111	X	0.0000	0.0000	2.0111
ARCO	7.5867	A	0.0000	7.5867	0.0000
BROWN	0.0763	X	0.0000	0.0000	0.0763
BRYANT	0.0163	X	0.0000	0.0000	0.0163
BURR	0.0093	X	0.0000	0.0000	0.0093
CHEVRON	46.2510	A	0.0000	46.2510	0.0000
CONOCO	20.9576	A	0.0000	20.9576	0.0000
DASCO	0.4035	A	0.0000	0.4035	0.0000
DAVIDSON	0.2984	X	0.0000	0.0000	0.2984
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.1803	X	0.0000	0.0000	0.1803
FLETCHER	0.0093	X	0.0000	0.0000	0.0093
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	6.7624	F	6.7624	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0263	X	0.0000	0.0000	0.0263
MUSSETT	0.1691	X	0.0000	0.0000	0.1691
NERMYR	0.0186	X	0.0000	0.0000	0.0186
OXY	4.9114	A	0.0000	4.9114	0.0000
PARA MIA	0.3667	X	0.0000	0.0000	0.3667
PRESIDIO	0.1526	X	0.0000	0.0000	0.1526
RASMUSSEN	0.3755	A	0.0000	0.3755	0.0000
SUMMERS	0.4035	X	0.0000	0.0000	0.4035
SUTTON	0.0093	X	0.0000	0.0000	0.0093
VETETO	0.0368	X	0.0000	0.0000	0.0368
WALSH	0.9928	X	0.0000	0.0000	0.9928
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.6282	A	0.0000	2.6282	0.0000
=====	=====		=====	=====	=====
TOTAL	100.0000		10.2222	85.0008	4.7770

Vote: F-For, A-Against, X-Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Conoco

FORMULA 5: 40% Cumulative Oil + 50% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	=====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	2.0526	F	2.0526	0.0000	0.0000
AMERICAN	3.4656	F	3.4656	0.0000	0.0000
AMOCO	2.7096	X	0.0000	0.0000	2.7096
ARCO	6.0173	A	0.0000	6.0173	0.0000
BROWN	0.0362	X	0.0000	0.0000	0.0362
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0047	X	0.0000	0.0000	0.0047
CHEVRON	46.1993	A	0.0000	46.1993	0.0000
CONOCO	27.4866	F	27.4866	0.0000	0.0000
DASCO	0.2107	A	0.0000	0.2107	0.0000
DAVIDSON	0.1499	X	0.0000	0.0000	0.1499
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0641	X	0.0000	0.0000	0.0641
FLETCHER	0.0047	X	0.0000	0.0000	0.0047
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	4.2823	A	0.0000	4.2823	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.0914	X	0.0000	0.0000	0.0914
NERMYR	0.0094	X	0.0000	0.0000	0.0094
OXY	4.4663	A	0.0000	4.4663	0.0000
PARA MIA	0.1909	X	0.0000	0.0000	0.1909
PRESIDIO	0.0724	X	0.0000	0.0000	0.0724
RASMUSSEN	0.2150	A	0.0000	0.2150	0.0000
SUMMERS	0.2107	X	0.0000	0.0000	0.2107
SUTTON	0.0047	X	0.0000	0.0000	0.0047
VETETO	0.0199	X	0.0000	0.0000	0.0199
WALSH	0.5218	X	0.0000	0.0000	0.5218
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	1.5052	A	0.0000	1.5052	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		33.0047	62.8961	4.0991

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Chevron

FORMULA 6: 50% Cumulative Oil + 40% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER =====	INTEREST =====	VOTE =====	FOR =====	AGAINST =====	ABSTAIN =====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.9721	A	0.0000	1.9721	0.0000
AMERICAN	3.4808	F	3.4808	0.0000	0.0000
AMOCO	2.4940	X	0.0000	0.0000	2.4940
ARCO	6.3802	A	0.0000	6.3802	0.0000
BROWN	0.0453	X	0.0000	0.0000	0.0453
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0059	X	0.0000	0.0000	0.0059
CHEVRON	46.1297	F	46.1297	0.0000	0.0000
CONOCO	25.7504	F	25.7504	0.0000	0.0000
DASCO	0.2634	A	0.0000	0.2634	0.0000
DAVIDSON	0.1874	X	0.0000	0.0000	0.1874
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0802	X	0.0000	0.0000	0.0802
FLETCHER	0.0059	X	0.0000	0.0000	0.0059
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	4.9439	A	0.0000	4.9439	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1143	X	0.0000	0.0000	0.1143
NERMYR	0.0117	X	0.0000	0.0000	0.0117
OXY	4.7342	X	0.0000	0.0000	4.7342
PARA MIA	0.2386	X	0.0000	0.0000	0.2386
PRESIDIO	0.0905	X	0.0000	0.0000	0.0905
RASMUSSEN	0.2646	A	0.0000	0.2646	0.0000
SUMMERS	0.2634	X	0.0000	0.0000	0.2634
SUTTON	0.0059	X	0.0000	0.0000	0.0059
VETETO	0.0248	X	0.0000	0.0000	0.0248
WALSH	0.6522	X	0.0000	0.0000	0.6522
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	1.8520	A	0.0000	1.8520	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		75.3610	15.6762	8.9628

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Oxy

FORMULA 7: 70% Cumulative Oil + 15% Remaining Oil Reserves +
 15% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.8453	A	0.0000	1.8453	0.0000
AMERICAN	3.4906	F	3.4906	0.0000	0.0000
AMOCO	2.0575	X	0.0000	0.0000	2.0575
ARCO	7.1307	A	0.0000	7.1307	0.0000
BROWN	0.0634	X	0.0000	0.0000	0.0634
BRYANT	0.0091	X	0.0000	0.0000	0.0091
BURR	0.0082	X	0.0000	0.0000	0.0082
CHEVRON	45.9946	F	45.9946	0.0000	0.0000
CONOCO	22.2313	A	0.0000	22.2313	0.0000
DASCO	0.3688	F	0.3688	0.0000	0.0000
DAVIDSON	0.2623	X	0.0000	0.0000	0.2623
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.1122	X	0.0000	0.0000	0.1122
FLETCHER	0.0082	X	0.0000	0.0000	0.0082
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	6.3122	F	6.3122	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1600	X	0.0000	0.0000	0.1600
NERMYR	0.0164	X	0.0000	0.0000	0.0164
OXY	5.2232	F	5.2232	0.0000	0.0000
PARA MIA	0.3340	X	0.0000	0.0000	0.3340
PRESIDIO	0.1267	X	0.0000	0.0000	0.1267
RASMUSSEN	0.3651	F	0.3651	0.0000	0.0000
SUMMERS	0.3688	X	0.0000	0.0000	0.3688
SUTTON	0.0082	X	0.0000	0.0000	0.0082
VETETO	0.0348	X	0.0000	0.0000	0.0348
WALSH	0.9131	X	0.0000	0.0000	0.9131
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.5554	F	2.5554	0.0000	0.0000
=====	=====		=====	=====	=====
TOTAL	100.0000		64.3098	31.2073	4.4829

Votes: F-For, A-Against, X-Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Chevron

FORMULA 8: 55% Cumulative Oil + 35% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.9318	A	0.0000	1.9318	0.0000
AMERICAN	3.4885	F	3.4885	0.0000	0.0000
AMOCO	2.3862	X	0.0000	0.0000	2.3862
ARCO	6.5617	A	0.0000	6.5617	0.0000
BROWN	0.0498	X	0.0000	0.0000	0.0498
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0064	X	0.0000	0.0000	0.0064
CHEVRON	46.0950	F	46.0950	0.0000	0.0000
CONOCO	24.8823	F	24.8823	0.0000	0.0000
DASCO	0.2898	X	0.0000	0.0000	0.2898
DAVIDSON	0.2061	X	0.0000	0.0000	0.2061
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0882	X	0.0000	0.0000	0.0882
FLETCHER	0.0064	X	0.0000	0.0000	0.0064
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.2747	A	0.0000	5.2747	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1257	X	0.0000	0.0000	0.1257
NERMYR	0.0129	X	0.0000	0.0000	0.0129
OXY	4.8681	X	0.0000	0.0000	4.8681
PARA MIA	0.2625	X	0.0000	0.0000	0.2625
PRESIDIO	0.0995	X	0.0000	0.0000	0.0995
RASMUSSEN	0.2893	A	0.0000	0.2893	0.0000
SUMMERS	0.2898	X	0.0000	0.0000	0.2898
SUTTON	0.0064	X	0.0000	0.0000	0.0064
VETETO	0.0273	X	0.0000	0.0000	0.0273
WALSH	0.7174	X	0.0000	0.0000	0.7174
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.0253	A	0.0000	2.0253	0.0000
=====	=====		=====	=====	=====
TOTAL	100.0000		74.4658	16.0830	9.4513

Votes: F-For, A-Against, X-Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Arco

FORMULA 9: 65% Cumulative Oil + 25% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER =====	INTEREST =====	VOTE =====	FOR =====	AGAINST =====	ABSTAIN =====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.8513	A	0.0000	1.8513	0.0000
AMERICAN	3.5037	F	3.5037	0.0000	0.0000
AMOCO	2.1705	X	0.0000	0.0000	2.1705
ARCO	6.9246	F	6.9246	0.0000	0.0000
BROWN	0.0588	X	0.0000	0.0000	0.0588
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0076	X	0.0000	0.0000	0.0076
CHEVRON	46.0254	F	46.0254	0.0000	0.0000
CONOCO	23.1462	A	0.0000	23.1462	0.0000
DASCO	0.3424	X	0.0000	0.0000	0.3424
DAVIDSON	0.2436	X	0.0000	0.0000	0.2436
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.1042	X	0.0000	0.0000	0.1042
FLETCHER	0.0076	X	0.0000	0.0000	0.0076
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.9364	F	5.9364	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1486	X	0.0000	0.0000	0.1486
NERMYR	0.0152	X	0.0000	0.0000	0.0152
OXY	5.1360	F	5.1360	0.0000	0.0000
PARA MIA	0.3102	X	0.0000	0.0000	0.3102
PRESIDIO	0.1176	X	0.0000	0.0000	0.1176
RASMUSSEN	0.3389	A	0.0000	0.3389	0.0000
SUMMERS	0.3424	X	0.0000	0.0000	0.3424
SUTTON	0.0076	X	0.0000	0.0000	0.0076
VETETO	0.0323	X	0.0000	0.0000	0.0323
WALSH	0.8478	X	0.0000	0.0000	0.8478
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.3721	A	0.0000	2.3721	0.0000
=====	=====		=====	=====	=====
TOTAL	100.0000		67.5261	27.7085	4.7654

Votes: F-For, A-Against, X-Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: Marathon

FORMULA 10: 60% Cumulative Oil + 30% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER =====	INTEREST =====	VOTE =====	FOR =====	AGAINST =====	ABSTAIN =====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.8916	A	0.0000	1.8916	0.0000
AMERICAN	3.4961	F	3.4961	0.0000	0.0000
AMOCO	2.2783	X	0.0000	0.0000	2.2783
ARCO	6.7432	F	6.7432	0.0000	0.0000
BROWN	0.0543	X	0.0000	0.0000	0.0543
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0070	X	0.0000	0.0000	0.0070
CHEVRON	46.0602	F	46.0602	0.0000	0.0000
CONOCO	24.0143	A	0.0000	24.0143	0.0000
DASCO	0.3161	X	0.0000	0.0000	0.3161
DAVIDSON	0.2249	X	0.0000	0.0000	0.2249
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0962	X	0.0000	0.0000	0.0962
FLETCHER	0.0070	X	0.0000	0.0000	0.0070
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.6056	F	5.6056	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1372	X	0.0000	0.0000	0.1372
NERMYR	0.0141	X	0.0000	0.0000	0.0141
OXY	5.0020	F	5.0020	0.0000	0.0000
PARA MIA	0.2863	X	0.0000	0.0000	0.2863
PRESIDIO	0.1086	X	0.0000	0.0000	0.1086
RASMUSSEN	0.3141	A	0.0000	0.3141	0.0000
SUMMERS	0.3161	X	0.0000	0.0000	0.3161
SUTTON	0.0070	X	0.0000	0.0000	0.0070
VETETO	0.0298	X	0.0000	0.0000	0.0298
WALSH	0.7826	X	0.0000	0.0000	0.7826
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.1987	A	0.0000	2.1987	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		66.9071	28.4187	4.6743

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: American
 FORMULA 11: 58% Cumulative Oil + 32% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER =====	INTEREST =====	VOTE ====	FOR =====	AGAINST =====	ABSTAIN =====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.9077	F	1.9077	0.0000	0.0000
AMERICAN	3.4931	F	3.4931	0.0000	0.0000
AMOCO	2.3215	X	0.0000	0.0000	2.3215
ARCO	6.6706	A	0.0000	6.6706	0.0000
BROWN	0.0525	X	0.0000	0.0000	0.0525
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0068	X	0.0000	0.0000	0.0068
CHEVRON	46.0741	F	46.0741	0.0000	0.0000
CONOCO	24.3615	A	0.0000	24.3615	0.0000
DASCO	0.3056	X	0.0000	0.0000	0.3056
DAVIDSON	0.2174	X	0.0000	0.0000	0.2174
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0930	X	0.0000	0.0000	0.0930
FLETCHER	0.0068	X	0.0000	0.0000	0.0068
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.4732	A	0.0000	5.4732	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1326	X	0.0000	0.0000	0.1326
NERMYR	0.0136	X	0.0000	0.0000	0.0136
OXY	4.9485	X	0.0000	0.0000	4.9485
PARA MIA	0.2768	X	0.0000	0.0000	0.2768
PRESIDIO	0.1050	X	0.0000	0.0000	0.1050
RASMUSSEN	0.3042	A	0.0000	0.3042	0.0000
SUMMERS	0.3056	X	0.0000	0.0000	0.3056
SUTTON	0.0068	X	0.0000	0.0000	0.0068
VETETO	0.0288	X	0.0000	0.0000	0.0288
WALSH	0.7565	X	0.0000	0.0000	0.7565
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.1294	A	0.0000	2.1294	0.0000
=====	=====		=====	=====	=====
TOTAL	100.0000		51.4748	38.9389	9.5863

Votes: F=For, A=Against, X=Abstain or Absent

PROPOSED ARROWHEAD GRAYBURG UNIT
 SECOND WORKING INTEREST OWNERS' MEETING
 UNIT PARTICIPATION NEGOTIATION
 VOTE RECORD

Proposed by: American
 FORMULA 12: 57% Cumulative Oil + 33% Remaining Oil Reserves +
 10% Current Oil Rate

OWNER	INTEREST	VOTE	FOR	AGAINST	ABSTAIN
=====	=====	=====	=====	=====	=====
ABBY	0.0000	X	0.0000	0.0000	0.0000
AMERADA	1.9157	F	1.9157	0.0000	0.0000
AMERICAN	3.4915	F	3.4915	0.0000	0.0000
AMOCO	2.3430	X	0.0000	0.0000	2.3430
ARCO	6.6343	F	6.6343	0.0000	0.0000
BROWN	0.0516	X	0.0000	0.0000	0.0516
BRYANT	0.0088	X	0.0000	0.0000	0.0088
BURR	0.0067	X	0.0000	0.0000	0.0067
CHEVRON	46.0810	F	46.0810	0.0000	0.0000
CONOCO	24.5351	F	24.5351	0.0000	0.0000
DASCO	0.3003	X	0.0000	0.0000	0.3003
DAVIDSON	0.2136	X	0.0000	0.0000	0.2136
ENRON	0.0000	X	0.0000	0.0000	0.0000
EXXON	0.0914	X	0.0000	0.0000	0.0914
FLETCHER	0.0067	X	0.0000	0.0000	0.0067
HANNIFIN	0.0000	X	0.0000	0.0000	0.0000
MARATHON	5.4071	F	5.4071	0.0000	0.0000
MCBRIDE	0.0000	X	0.0000	0.0000	0.0000
MOORE	0.0000	X	0.0000	0.0000	0.0000
MUSSETT	0.1303	X	0.0000	0.0000	0.1303
NERMYR	0.0134	X	0.0000	0.0000	0.0134
OXY	4.9217	F	4.9217	0.0000	0.0000
PARA MIA	0.2720	X	0.0000	0.0000	0.2720
PRESIDIO	0.1031	X	0.0000	0.0000	0.1031
RASMUSSEN	0.2992	F	0.2992	0.0000	0.0000
SUMMERS	0.3003	X	0.0000	0.0000	0.3003
SUTTON	0.0067	X	0.0000	0.0000	0.0067
VETETO	0.0283	X	0.0000	0.0000	0.0283
WALSH	0.7435	X	0.0000	0.0000	0.7435
WESTWAY	0.0000	X	0.0000	0.0000	0.0000
WILLIAMS	2.0947	F	2.0947	0.0000	0.0000
=====	=====	=====	=====	=====	=====
TOTAL	100.0000		95.3804	0.0000	4.6196

Votes: F-For, A-Against, X-Abstain or Absent

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Barbara Hannifin
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Attn: R. C. Anderson

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Attn: David L. Wacker

Attn: W. O. Snyder

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The Williams Partnership
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Attn: Hal Rasmussen

Ruth Sutton
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Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

R. C. Anderson
Division Manager
Production Department
Hobbs Division

December 18, 1989

PROPOSED ARROWHEAD GRAYBURG UNIT
2ND WORKING INTEREST OWNERS' MEETING
DECEMBER 14, 1989

Working Interest Owners
Proposed Arrowhead Grayburg Unit
(Address List Attached)

Gentlemen:

The second Working Interest Owners' Meeting for the proposed Arrowhead Grayburg Unit was held on December 14, 1989. Enclosed, for your information, are minutes of the meeting. If your company was not represented at the meeting, information that was distributed to attendees is also enclosed.

A participation formula for the proposed Unit was tentatively approved at the meeting. The formula allocates unit participation based on 57% cumulative oil, 33% remaining oil reserves, and 10% current oil rate. Attached, for your execution, is a letter ballot for ratification of the formula which at the meeting received support of 95.4% of the total unit working interest ownership. The ballot indicates each owner's participation based on the formula. The participation is subject to correction based on verification of individual tract ownership information. Please execute and return the ballot by January 26, 1990.

If you have any questions concerning the meeting or unitization proceedings, please contact B. C. Cotner at (505) 393- 4121.

Yours Very Truly,

R. C. ANDERSON

BCC/pf 12189/01

Attachment
Enclosures

BEFORE EXAMINER	<i>Morrow</i>
OIL COMPANY	
<i>AGU</i>	EXHIBIT NO. <i>16</i>
CASE NO.	<i>10259</i>



Chevron U.S.A. Inc.
P.O. Box 670, Hobbs, NM 88240

R. C. Anderson
Division Manager
Production Department
Hobbs Division

Hobbs, New Mexico
January 5, 1990

WELLBORE DEDICATION INCENTIVE
PROPOSED ARROWHEAD GRAYBURG UNIT
LEA COUNTY, NEW MEXICO

WORKING INTEREST OWNERS
(Address List Attached)

Gentlemen:

Attached, please find a proposal and ballot for a wellbore dedication incentive method to be used by the proposed Arrowhead Grayburg Unit. This proposal was developed following discussions during the December 14, 1989 Working Interest Owners' meeting. A dedication incentive will encourage the contribution of a maximum number of useable wellbores for Unit operations, thereby reducing the total capital requirements to drill new and replacement wells.

Two dedication incentive methods previously discussed were the wellbore penalty method and the wellbore inventory method. Because of the number of Unit area wells that have been plugged and abandoned or recompleted to different productive horizons, several operators have expressed concern about being required to pay large expenses as a result of one or the other method.

Since the purpose of a dedication incentive is to encourage contribution of wells and not to specifically penalize owners who cannot, the attached wellbore penalty proposal was developed. This method will encourage contribution of existing wells without imposing excessive burdens on any individual party.

Please review the general concepts of the proposed wellbore dedication incentive and the list of demand wells on the attachments. Indicate your approval or disapproval of the proposed method and return your ballot by January 26, 1990.

If you have any questions concerning this matter, please contact Bryan Cotner at (505) 393-4121.

Yours very truly,


R. C. ANDERSON

BCC/sad 01020/02

Attachments

PROPOSED ARROWHEAD GRAYBURG UNIT
DEMAND WELLS

TRACT	OPERATOR	LEASE	WELL
2	CONOCO	LOCKHART B-1	1
2	CONOCO	LOCKHART B-1	2
2	CONOCO	LOCKHART B-1	3
2	CONOCO	LOCKHART B-1	5
2	CONOCO	LOCKHART B-1	7
2	CONOCO	LOCKHART B-1	8
3	MARATHON	SAUNDERS	2
5	HAL J RASMUSSEN	STATE A AC2	13
5	HAL J RASMUSSEN	STATE A AC2	16
5	HAL J RASMUSSEN	STATE A AC2	17
6	CHEVRON	GRAHAM STATE NCT J	1
7	MARATHON	MCDONALD STATE AC2	12
7	MARATHON	MCDONALD STATE AC2	13
7	MARATHON	MCDONALD STATE AC2	14
7	MARATHON	MCDONALD STATE AC2	22
8	AMERICAN EXPLORATION	NEW MEXICO M STATE	5
8	AMERICAN EXPLORATION	NEW MEXICO M STATE	6
8	AMERICAN EXPLORATION	NEW MEXICO M STATE	8
9	AMERADA HESS	STATE PA	4
11	ARCO	STATE D DE	1
12	OXY USA	STATE M	1
12	OXY USA	STATE M	2
13	OXY USA	STATE N	2
13	OXY USA	STATE N	3
14	ARCO	STATE 157 D	1
14	ARCO	STATE 157 D	11
15	CONOCO	STATE J 2	1
15	CONOCO	STATE J 2	2
15	CONOCO	STATE J 2	3
15	CONOCO	STATE J 2	4
15	CONOCO	STATE J 2	5
15	CONOCO	STATE J 2	6
15	CONOCO	STATE J 2	9
15	CONOCO	STATE J 2	11
16	CHEVRON	W A RAMSAY A	4
16	CHEVRON	W A RAMSAY A	5
16	CHEVRON	W A RAMSAY A	8
16	CHEVRON	W A RAMSAY A	9
16	CHEVRON	W A RAMSAY A	10
16	CHEVRON	W A RAMSAY A	11
16	CHEVRON	W A RAMSAY A	16
16	CHEVRON	W A RAMSAY B	4
16	CHEVRON	W A RAMSAY B	5
17	CHEVRON	HARRY LEONARD NCT C	1
17	CHEVRON	HARRY LEONARD NCT C	2
17	CHEVRON	HARRY LEONARD NCT C	3
17	CHEVRON	HARRY LEONARD NCT C	5
17	CHEVRON	HARRY LEONARD NCT C	6

PROPOSED ARROWHEAD GRAYBURG UNIT
DEMAND WELLS

TRACT	OPERATOR	LEASE	WELL
17	CHEVRON	HARRY LEONARD NCT C	20
20	CHEVRON	KINGWOOD	2
21	CHEVRON	SANDY	1
21	CHEVRON	SANDY	2
22	CHEVRON	H T MATTERN NCT D	2
22	CHEVRON	H T MATTERN NCT D	4
22	CHEVRON	H T MATTERN NCT E	1
22	CHEVRON	H T MATTERN NCT E	2
22	CHEVRON	H T MATTERN NCT E	3
22	CHEVRON	H T MATTERN NCT E	4
22	CHEVRON	H T MATTERN NCT E	6
22	CHEVRON	H T MATTERN NCT E	7
22	CHEVRON	H T MATTERN NCT E	9
22	CHEVRON	H T MATTERN NCT E	12
22	CHEVRON	H T MATTERN NCT F	1
22	CHEVRON	H T MATTERN NCT F	2
24	CHEVRON	MATTERN	2
26	CHEVRON	A L CHRISTMAS NCT C	8

AGU WORKING INTEREST OWNERS PAGE 1
Amerada Hess Corporation
P.O. Box 2040
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Attn: J. C. Hefley

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Attn: David L. Wacker

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Amoco Production Company
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Attn: Donald Hughes

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Chevron U.S.A. Inc.
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R. C. Anderson
 Division Manager
 Production Department
 Hobbs Division

February 28, 1990

PARTICIPATION FORMULA AND
 WELLBORE DEDICATION INCENTIVE
 BALLOT RESULTS
 PROPOSED ARROWHEAD GRAYBURG UNIT
 LEA COUNTY, NEW MEXICO

WORKING INTEREST OWNERS
 (Address List Attached)

Gentlemen:

Attached, please find summaries of the participation formula and wellbore dedication incentive ballot that have been returned to Chevron. The summaries indicate approval of both the participation formula and wellbore dedication incentive, with 97.77% and 93.04% affirmative votes, respectively.

The approved participation formula and wellbore dedication incentive are being incorporated in the drafting of the Unit Agreement and Unit Operating Agreement. Both documents will be distributed for review and approval in the near future.

As a result of recent property transactions, working interests in the proposed unit have changed for several operators subsequent to the December 14, 1989 meeting. The attached ballot summaries indicate working interests based on the ownership information we currently have, and are subject to change.

If you have any questions concerning unitization of the Arrowhead Grayburg Pool, please contact B. C. Cotner at (505) 393-4121.

Yours very truly,

R. C. Anderson
 R. C. ANDERSON

BCC/pf 02280/02

Attachments

BEFORE EXAMINER: <i>Morrow</i> DIVISION <i>AGU</i> FEB 28 1990 10259
--

PROPOSED ARROWHEAD GRAYBURG UNIT
Participation Formula Ballot Results

COMPANY	VOTING INTEREST	DATE BALLOT RECEIVED	VOTE	PERCENT APPROVAL INTEREST
CHEVRON	45.9792	12/20/89	Y	45.9792
CONOCO	24.5351	01/30/90	Y	24.5351
ARCO	6.6343	02/06/90	Y	6.6343
MARATHON	5.4071	02/08/90	Y	5.4071
OXY	4.9217	02/12/90	Y	4.9217
AMERICAN EXPLOR.	3.4915	01/08/90	Y	3.4915
AMOCO	2.3430	01/31/90	Y	2.3430
WILLIAMS PART.	2.0947	02/21/90	Y	2.0947
AMERADA HESS	1.9157	01/29/90	Y	1.9157
WALSH	0.7435			
DASCO	0.4241			
PARA MIA	0.3816			
RASMUSSEN	0.2992	01/30/90	Y	0.2992
DAVIDSON	0.2390			
M. MUSSETT	0.1477			
HAWKINS	0.1031			
EXXON	0.0914	01/29/90	Y	0.0914
HARTMAN	0.0764			
BROWN TRUST	0.0516	01/08/90	Y	0.0516
VETETO	0.0424			
D. MUSSETT	0.0354			
NERMYR	0.0134			
BRYANT	0.0088			
FLETCHER	0.0067	12/28/89	Y	0.0067
BURR	0.0067			
SUTTON	0.0067			
TOTAL	100.0000			97.7712

PROPOSED ARROWHEAD GRAYBURG UNIT
Wellbore Dedication Incentive Ballot Results

COMPANY	PERCENT VOTING INTEREST	DATE BALLOT RECEIVED	VOTE	PERCENT APPROVAL INTEREST
CHEVRON	45.9792	01/08/90	Y	45.9792
CONOCO	24.5351	01/30/90	Y	24.5351
ARCO	6.6343	02/06/90	Y	6.6343
MARATHON	5.4071	02/08/90	Y	5.4071
OXY	4.9217	02/14/90	Y	4.9217
AMERICAN EXPLOR.	3.4915	01/30/90	Y	3.4915
AMOCO	2.3430			
WILLIAMS PART.	2.0947	02/21/90	N	
AMERADA HESS	1.9157	01/29/90	Y	1.9157
WALSH	0.7435			
DASCO	0.4241			
PARA MIA	0.3816			
RASMUSSEN	0.2992	01/30/90	N	
DAVIDSON	0.2390			
M. MUSSETT	0.1477			
HAWKINS	0.1031	01/18/90	Y	0.1031
EXXON	0.0914			
BROWN TRUST	0.0516	01/22/90	Y	0.0516
VETETO	0.0424			
D. MUSSETT	0.0354			
NERMYR	0.0134			
HARTMAN	0.0764			
BRYANT	0.0088			
FLETCHER	0.0067			
BURR	0.0067			
SUTTON	0.0067			
TOTAL	100.0000			93.0393

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Arrowhead Grayburg Unit
Lea County, New Mexico

REPORT EXAMINER: *Morrow*
OPERATIONAL APPROVAL
AGU DATE: *19*
CASE NO. *10259*

Initial Plan of Development and Operation

It is proposed to unitize and initiate a full scale waterflood in the Arrowhead Grayburg Pool. This waterflood project will improve ultimate recovery of hydrocarbons and prevent waste in the 5922 acre unit area. It is anticipated that unit operations will recover 15 MMSTBO that will otherwise not be recovered.

The initial plan of operation is to waterflood the 5922 acre unit with an 80 acre five-spot pattern. The waterflood will consist of 75 producers, 52 injectors, and 2 water supply wells. Sixty-six existing completions (57 active, 9 inactive) will be utilized in the flood. The remaining 63 wells will be from plugbacks of marginal wells, re-entries of plugged and abandoned wells, or newly drilled wells.

Of the 57 currently active producers, 25 are planned to be converted to water injection. Several of the remaining 32 injectors will come from the currently closed-in wells or recompletions, but a large portion of them will be newly drilled and completed.

The typical water injection conversion workover will consist of cleaning-out the wellbore, deepening if necessary, logging, setting liners if necessary to control injection, and equipping for injection. Injection tubing will be internally plastic coated with a packer set 50 to 100' above the top perforation or the casing shoe. Corrosion inhibiting fluid will be circulated in the casing tubing annulus to protect both strings of pipe.

It is anticipated that the initial injection rate will be maintained at 500-600 barrels of water per day per injector. This rate compares to the average rate in the Eunice Monument South Unit, adjusted for the thinner pay thickness in the Arrowhead Pool. The surface injection pressure will initially be limited to 0.2 psi/ft. If step-rate tests indicate that the fracture gradient is greater than 0.2 psi/ft, injection pressures may be increased to optimize injection rates below the parting pressure. However, OCD approval will be obtained prior to exceeding 0.2 psi/ft surface injection pressure.

All existing wellbores utilized as producing wells in the Unit will be reconditioned during the initial phase of operations. Wells will be cleaned-out, additional perforations will be added where appropriate, modern logs will be run, and liners run where necessary to isolate production. The pumping capacity of wells will be increased as necessary to handle increased production from the waterflood.

The surface injection facilities will consist of a central pump station that will deliver high pressure water to injection manifolds through 6" and 4" trunk lines and 3" high pressure fiberglass laterals. Injection rates and pressures will be monitored and controlled at the manifold, with the water being delivered to the wellhead through 2" high pressure fiberglass pipe.

The injection plant will be designed to handle 30,000 barrels of water per day. San Andres water supply wells will be utilized for make-up injection water. Based on the performance of the water supply wells in the EMSU, one supply well should be capable of supplying all make-up water requirements.

The production gathering facility will utilize five satellite batteries, each with production testing and gas separation and sales capabilities. Oil and water will be transferred to a central battery for separation and oil sales.

It is anticipated that all construction and initial well work will be completed within the first two years of unit operations. Initial water injection should occur approximately one year after construction begins.

Long term plans for the Unit include evaluation of infill drilling potential, pattern realignment, and tertiary CO₂ recovery. Quantitative reservoir data will be gathered during initial well work, and a reservoir model will be built to evaluate the potential of future flood enhancements and to monitor project performance.

PROPOSED ARROWHEAD GRAYBURG UNIT
TRACT PARTICIPATION FACTOR CALCULATION
57% A/B + 33% C/D + 10% E/F

TRACT	CUMULATIVE OIL (A)	REMAINING OIL (C)	CURRENT OIL RATE (E)	PARTICIPATION FACTOR
1A	465,366	0	0.0	0.860151
2	1,759,082	749,143	4,593.3	9.372108
3	536,424	56,757	647.0	1.545808
4B	86,986	0	0.0	0.160779
5	1,256,799	5,878	111.7	2.393932
6	4,853,177	1,617,565	9,937.0	22.192084
7	1,109,830	180,149	1,000.0	3.491527
8	462,904	120,566	987.0	1.915734
9	49,446	0	0.0	0.091393
10	1,028,687	129,193	635.7	2.909505
11	873,124	53,154	207.3	2.012171
12	1,358,847	27,263	313.0	2.778537
13	35,102	3,190	40.0	0.097137
14A	1,873,513	24,046	160.0	3.663146
14B	107,190	0	0.0	0.198123
15A	224,314	21,552	192.0	0.608830
16	3,900,755	185,177	2,293.7	9.073810
17	2,897,572	1,309,041	7,459.7	15.879297
18	0	0	0.0	0.000000
19	489,027	0	0.0	0.903885
20	0	0	0.0	0.000000
21A	39,706	6,820	79.7	0.140590
22	4,773,017	692,746	4,210.7	14.470929
23	167,424	0	0.0	0.309455
24B	183,025	0	0.0	0.338291
25B	603,349	0	0.0	1.115190
26A	1,648,838	45,455	136.0	3.375745
26B	55,100	0	0.0	0.101843
TOTAL	30,838,604	5,227,695	33,003.8	100.000000

Morrow
AGU 20
10259



Chevron U.S.A. Inc.
P.O. Box 1150, Midland, TX 79702

Permian Basin Production Business Unit

January 4, 1991

Project AFE
Proposed Arrowhead Grayburg Unit
Lea County, New Mexico

Working Interest Owners
(Address List Attached)

Chevron U. S. A. requests Working Interest Owners' approval of a project AFE in the amount of \$29,710 MM to implement the Arrowhead Grayburg Unit Waterflood. Initial expenditures should commence during mid 1991, following New Mexico Oil Conservation Division Statutory Unitization Orders and sufficient Working Interest and Royalty Owner joinders.

It is expected that the proposed project will recover 15 MMSTBO incremental oil at a development cost of \$1.98/STBO. Please consult the Technical Committee Report of September, 1989 for a detailed secondary recovery forecast and plan of operations.

This AFE request totals approximately \$1.5 MM greater than the original cost estimates, reflecting an increase in the number of new/replacement wells to be drilled and a decrease in the number of workovers.

Please indicate your approval to this AFE by signing and returning one copy to Chevron U.S.A. Inc., Attention: L. K. Felan, P. O. Box 1150, Midland, Texas 79702. Direct any technical questions or requests for additional information to B. C. Cotner at (915) 687-7314.

Very truly yours,

D. G. Simolke

BCC/raj
PSP10102.02

Attachments

BEFORE EXAMINER	Morrow
AGU	21
10259	

Arrowhead Grayburg Unit
Project AFE Approval
Lea County, New Mexico

Capitalized	\$27,821,000
Expense	<u>1,889,000</u>
Total	\$29,710,000

AFE approval is given subject to regulatory approvals of the Arrowhead Grayburg Unit by the New Mexico Oil Conservation Division, The Commissioner of Public Lands, and The Bureau of Land Management.

Approval

Company: _____

By: _____

Date: _____

Return to: L. K. Felan
Chevron U.S.A. Inc.
P. O. Box 1150
Midland, Texas 79702

Arrowhead Grayburg Unit
Project AFE
Cost Detail

<u>Unit</u>	<u>Description</u>	<u>Tangibles</u> (M\$)	<u>Intangibles</u> (M\$)	<u>Total</u> (M\$)
1.0	D&C New Producers (39)	4,290	4,290	8,580
2.0	D&C New Injectors (22)	1,980	2,420	4,400
3.0	D&C Water Supply Wells (2)	430	340	770
4.0	Producing Well Workovers (36)	1,270	1,889	3,159
5.0	Injection Well WO/Conversions (30)	867	1,914	2,781
6.0	Testing & Coring	0	500	500
7.0	Surface Facilities	5,295	3,775	9,070
8.0	Overhead	<u>0</u>	<u>450</u>	<u>450</u>
Total		14,132	15,578	29,710

ADBY Corporation
P. O. Box 1629
Grand Junction, CO 81502
WI 1

AMERICAN EXPLORATION CO.
2100 Republic Bank
700 Louisiana
Houston, Texas 77002
Attn: Bill Hayes

AMERICAN RESS CORPORATION
Box 2040
Tulsa, OK 74102
Attn: J. C. Hefley
WI 3

Amoco Production Co.
Box 3092
Houston, TX 77253
Attn: J. C. Allen
WI 4

Arco Oil and Gas Company
Box 1610
Midland, TX 79702
Attn: R. D. Johnston

Gregory J. Brose
6100 Beckworth Court
Parker CO 80134
WI 6

John R. Brose
3000 Claydesta Nat. Bank
Midland, Texas 79705
WI 7

Thomas A. & Sharon P. Brose
3 Colonial Court
Lufkin, Texas 75901
WI 8

Trust U/D Donaldson Brown c/o
Broventure Co., Inc.
16 West Madison Street
Baltimore, MD 20201
Attn: Donald Hughes

John R. Bryant
911 West Silver
Hobbs, NM 88240
WI 10

Andrew B. Burleson
2823 Cimmaron Dr.
Midland, TX 79705
WI 11

James E. Burr
3803 Wedgewood CT.
Midland, TX 79707-4705
WI 12

Chevron U.S.A. Inc
P. O. Box 1150
Midland, TX 79702
Attn: R. C. Anderson
WI 13

Conoco, Inc.
10 Desta Dr.
Midland, TX 79705
Attn: Jerry Hoover
WI 14

Larry A. Cress
3702 Bermuda Court
Midland, TX 79707
WI 15

DASCO Energy Corp.
Drawer 2545
Hobbs, NM 88240
WI 16

James A. Davidson
P. O. Box 494
Midland, TX 79702
WI 17

El Paso Natural Gas Co.
One Petroleum Center
Midland, TX 79701
WI 18

ENRON
P. O. Box 2267
Midland, TX 79702
WI 19

Exxon Company
P. O. Box 1700
Midland, TX 79702
Attn: R. R. Hickman
WI 20

Doyle Hartman
P. O. Box 10426
Midland, TX 79702
WI 21

Barbara Hannifin
P. O. Box 182
Roswell, NM 88201
WI 22

Kim D. Jones
4000 Dyer Circle
Midland, TX 79705
WI 23

Randy M. Kidwell
4204 Crestrige
Midland, TX 79707-2732
WI 24

L. Paul Latham
6500 Claydesta National Bank
Midland, TX 79705
WI 25

Marathon Oil Company
P. O. Box 552
Midland, TX 79702
Attn: R. F. Unger
WI 26

G. T. McAlpin
P. O. Box 49
Cuero, TX 77954-0049
WI 27

Lora B. McAlpin
900 Ethel Blvd
Bryan, TX 77802-1707
WI 28

McBride Oil & Gas
Hanson McBride Petroleum Co.
P. O. Box 1515
Roswell, NM 88201
WI 29

Meridian Oil Producing
21 Desta Drive
Midland, TX 79705
Attn: Dennis Sledge
WI 30

THE MOORE TRUST
P. O. Box 1733
Midland, TX 79702
WI 31

THOMAS H. MOORE
#3 Cambridge Court
Midland, TX 79705
WI 32

DAVID MUSSETT
Marion Mussett
214 W. Texas Avenue Suite 604
Midland, TX 79701
WI 33

Larry Nermyr
HC-37 Box 4106
Sidney, MT 59270
WI 34

Nuevo Seis, Inc.
P. O. Box 182
Roswell, NM 88202-1515
WI 35

OXY, U.S.A.
P. O. Box 50250
Midland, TX 79710
Attn: Robert D. Hunt
WI 36

Para Mia
Borrego Properties, Inc.
P. O. Box 2541
Midland, TX 79702
WI 37

Aubrey C. Price
700 Meadowpark Dr.
Midland, TX
WI 38

W. Scott Ramsey
1302 Lawson
Midland, TX 79701
WI 39

Hal J. Rasmussen
Operating Inc.
6 Desta Drive Suite 5850
Midland, TX 79705
Attn: Hal Rasmussen

Bernard G. Scott
3002 Goddard Place
Midland, TX 79705
WI 41

Ruth Sutton
2826 Moss Avenue
Midland, TX 79705
WI 42

Burton Veteto
607 Abo
Hobbs, NM 88240
WI 43

Mary F. Walsh
c/o Walsh & Watts
1111 Seventh Street
Wichita Falls, TX 76301
WI 44

Belco Development Company
Lock Box 70
500 N. Ackard Street
Dallas, TX 75201-3394

Gary C. Burnett, Trustee of
Jefferson W. Gataga and
Chicora M. Williams Trusts
P. O. Box 10909
Midland, TX 79702

The Williams Partnership
6 Desta Drive Suite 5800
Midland, TX 79705
WI 48

James W. Winkel
2101 Woodlawn
Midland, TX 79701
WI 49

Celia A. Zinn
2603 Hughes
Midland, TX 79705
WI 50

PSP01116.17/mc

**PROPOSED ARROWHEAD GRAYBURG UNIT
PROJECT AFE APPROVAL RECEIVED
FEBRUARY 28, 1991**

Chevron	46.179420
Conoco	24.535111
DASCO	0.424077
Exxon	0.091393
D. Brown Trust	0.051576
American Expl.	<u>3.491527</u>
	74.773104 %

BLANK DOCUMENT: Morrow
AGU 22
10259

DEPARTMENT OF REVENUE
 DIVISION OF OIL AND GAS
 OPERATOR: MORRO
 AGU NUMBER: 24
 10259

ARROWHEAD GRAYBURG AND PENROSE SKELLY
 OIL POOLS
 CURRENT AND HISTORIC COMPLETIONS
 OVERLAPPING INTO EUMONT OIL POOL

(TABLE D)

OPERATOR, LEASE & WELL NO.	PROPOSED AGU WELL NUMBER	SECTION TOWNSHIP RANGE	UNIT	TOP GRAYBURG	FEET		CURRENT STATUS	LOG
					COMPLETED INTO EUMONT POOL			
Chevron W. A. Ramsay "B" 2	104	25-21-36	E	3757 (-195) Est.	26		EG	No
ARCO J. M. Brown Lee 3	111	25-21-36	L	3778 (-240) Est.	54		P&A	No
Chevron Sandy 2	116	25-21-36	P	3673 (-147)	20		PS	Yes
Chevron W. A. Ramsay "A" 13	122	35-21-36	B	3834 (-273) Est.	88		EG	No
Chevron W. A. Ramsay "A" 9	124	35-21-36	G	3820 (-254)	63		EO	Yes
Chevron W. A. Ramsay "A" 8	135	35-21-36	J	3784 (-205) Est.	23		AG	No
Chevron W. A. Ramsay "A" 7	138	35-21-36	N	3831 (-245) Est.	46		EG	No
Chevron W. A. Ramsay "A" 3	139	35-21-36	O	3765 (-179)	5		EG	Yes
Conoco State "J" 1	151	2-22-36	B	3740 (-173)	243		AG	Yes
Conoco State "J" 11	152	2-22-36	C	3818 (-246)	106		AG	Yes
Conoco State "J" 12	153	2-22-36	D	3881 (-307) Est.	207		EG	No
Conoco State "J" 10	154	2-22-36	E	3848 (-294)	154		TA	Yes
Conoco State "J" 8	155	2-22-36	F	3768 (-214)	64		P&A	Yes
Conoco State "J" 9	156	2-22-36	G	3729 (-170)	11		AG	Yes
Chevron H. T. Matern "D" 1	163	6-22-37	K	3677 (-215) Est.	257		P&A	No
Oxy State "N" 2	171	2-22-36	K	3747 (-218) Est.	52		TA	No

<u>OPERATOR, LEASE & WELL NO.</u>	<u>PROPOSED AGU WELL NUMBER</u>	<u>SECTION TOWNSHIP RANGE</u>	<u>UNIT</u>	<u>TOP GRAYBURG</u>	<u>FEET COMPLETED INTO EUMONT POOL</u>	<u>CURRENT STATUS</u>	<u>LOG</u>
Oxy State "N" 3	172	2-22-36	L	3829 (-290) Est.	127	AG	No
Oxy State "N" 4	173	2-22-36	M	3876 (-320) Est.	168	TA	No
Oxy State "N" 1	174	2-22-36	N	3779 (-240) Est.	79	P&A	No
Conoco State "J" 6	175	2-22-36	O	3744 (-214)	41	AG	Yes
Chevron H.T. Mattern "D" 6	182	6-22-37	N	3664 (-194)	9	EG	Yes
Chevron H.T. Mattern "D" 5	183	7-22-37	C	3642 (-193)	15	P&A	Yes
Chevron H.T. Mattern "E" 3	188	12-22-36	D	3709 (-215)	33	AG	Yes
Rasmussen State "AC" 13	189	11-22-36	A	3755 (-234)	118	AG	Yes
Rasmussen State "AC" 14	190	11-22-36	B	3775 (-235) Est.	94	E	No
Rasmussen State "AC" 15	191	11-22-36	C	3878 (-317) Est.	169	E	No
Rasmussen State "AC" 18	192	11-22-36	G	3788 (-255) Est.	123	P&A	No
Rasmussen State "AC" 17	193	11-22-36	H	3767 (-247)	107	TA	Yes
Chevron H.T. Mattern "E" 5	194	12-21-36	E	3752 (-245) Est.	58	P&A	No
Chevron H.T. Mattern "E" 6	195	12-21-36	F	3701 (-215) Est.	31	AG	No
Chevron H.T. Mattern "E" 7	196	12-21-36	G	3674 (-199)	14	AG	Yes
ARCO State "157-D" 4	203	12-21-36	I	3633 (-177)	61	EG	Yes
ARCO State "157-D" 3	204	12-21-36	J	3664 (-190) Est.	14	AG	Yes
ARCO State "157-D" 2	205	12-21-36	K	3698 (-210) Est.	42	P&A	No
ARCO State "157-D" 1	206	12-21-36	L	3752 (-245) Est.	81	AG	No

<u>OPERATOR, LEASE & WELL NO.</u>	<u>PROPOSED AGU WELL NUMBER</u>	<u>SECTION TOWNSHIP RANGE</u>	<u>UNIT</u>	<u>TOP GRAYBURG</u>	<u>FEET COMPLETED INTO EUMONT POOL</u>	<u>CURRENT STATUS</u>	<u>LOG</u>
Rasmussen State "AC" 16	207	11-22-36	I	3803 (-283) Est.	155	TA	No
ARCO State "157-D" 8	208	12-22-36	M	3766 (-260) Est.	87	P&A	No
ARCO State "157-D" 7	209	12-22-36	N	3692 (-210) Est.	42	EG	Poor
ARCO State "157-D" 6	210	12-22-36	O	3660 (-185) Est.	63	P&A	No
ARCO State "157-D" 5	211	12-22-36	P	3632 (-190) Est.	63	P&A	No
Presidio Mattem 7	213	7-22-37	N	3638 (-200)	7	EG	Yes
Presidio Mattem 5	214	7-22-37	O	3636 (-210) Est.	222	TA	No
Chevron A. L. Christmas "C" 8	216	18-22-37	A	3634 (-215)	9	AG	Yes
Chevron A. L. Christmas "C" 1	219	18-22-37	D	3636 (-194)	4	P&A	Yes
Marathon McDonald St. AC 11	220	13-22-36	A	3657 (-205) Est.	37	AG	No
Marathon McDonald St. AC 12	221	13-22-36	B	3671 (-195) Est.	52	TA	No
Marathon McDonald St. AC 13	222	13-22-36	C	3707 (-215) Est.	66	AG	No
Marathon McDonald St. AC 14	223	13-22-36	D	3779 (-270) Est.	89	AG	No
Marathon McDonald St. AC 16	224	13-22-36	F	3755 (-260) Est.	133	P&A	No
Marathon McDonald St. AC 18	225	13-22-36	G	3695 (-215) Est.	53	P&A	No
Marathon McDonald St. AC 17	226	13-22-36	H	3660 (-197)	31	TA	Yes
Chevron A. L. Christmas "C" 7	230	18-22-37	H	3639 (-226)	15	EO	Yes
American Exploration State "M" 1	232	18-22-37	J	3617 (-195)	4	TA	Yes
Marathon McDonald St. AC 24	237	13-22-36	K	3772 (-285) Est.	219	P&A	No

<u>OPERATOR, LEASE & WELL NO.</u>	<u>PROPOSED AGU WELL NUMBER</u>	<u>SECTION TOWNSHIP RANGE</u>	<u>UNIT</u>	<u>TOP GRAYBURG</u>	<u>FEET COMPLETED INTO EUMONT POOL</u>	<u>CURRENT STATUS</u>	<u>LOG</u>
Marathon McDonald St. AC 23	238	13-22-36	O	3760 (-290) Est.	207	P&A	No
American Exploration State *M* 2	242	18-22-37	O	3630 (-212)	21	P&A	Yes
American Exploration State *M* 3	243	18-22-37	P	3646 (-237)	47	P&A	Yes
American Exploration State *M* 6	245	19-22-37	B	3636 (-213)	33	LM	Yes
American Exploration State *M* 21	248	24-22-36	A	3736 (-295) Est.	238	JG	No

EG = Eumont Gas
 EO = Eumont Oil
 JG = Jalmat Gas
 E = Eunice 7R-Queen Oil
 LM = Langlie Matix Oil
 AG = Arrowhead Grayburg
 PS = Penrose Skelly Oil
 P&A = Plugged and Abandoned
 TA = Temporarily Abandoned

**EUMONT OIL POOL
COMPLETION OVERLAPPING INTO
ARROWHEAD GRAYBURG OIL POOL**

(TABLE ID)

<u>OPERATOR, LEASE & WELL NO.</u>	<u>PROPOSED AGU WELL NUMBER</u>	<u>SECTION TOWNSHIP RANGE</u>	<u>UNIT</u>	<u>TOP GRAYBURG</u>	<u>FEET COMPLETED INTO ARROWHEAD POOL</u>	<u>CURRENT STATUS</u>	<u>LOG</u>
Exxon State "G" 2	112	26-21-36	P	3798 (-270)	28	EG	Yes
Chevron W. A. Ramsay "A" 10	136	35-21-36	K	3882 (-295) Est.	12	EO	No

EG = Eumont Gas
EO = Eumont Oil

ENM10301.08

DEPOSITEE NAME: <i>Norva</i> COUNTY: <i>25</i> AGU: <i>10259</i> DATE: <i>10/25/99</i>

**LANGLIE MATTIX OIL POOL
COMPLETIONS OVERLAPPING
QUEEN/PENROSE AND GRAYBURG SECTIONS**

(TABLE III)

<u>OPERATOR, LEASE & WELL NO.</u>	<u>PROPOSED AGU WELL NUMBER</u>	<u>SECTION TOWNSHIP RANGE</u>	<u>UNIT</u>	<u>TOP GRAYBURG</u>	<u>FEET COMPLETED INTO QUEEN/PENROSE</u>	<u>FEET COMPLETED INTO GRAYBURG</u>	<u>CURRENT STATUS</u>	<u>LOG</u>
American Exploration State "M" 8	231	18-22-37	I	3688 (-277)	208	52	LM	Yes
American Exploration State "M" 4	246	19-22-37	C	3660 (-234) Est.	70	66	LM	No

LM = Langlie Mattix Oil

ENM10301.08

Efficient Energy Services, Morrow
 AGU 10259 26