

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

APPLICATION OF CHEVRON U.S.A., INC.,  
FOR STATUTORY UNITIZATION, ARROWHEAD  
GRAYBURG UNIT, LEA COUNTY, NEW MEXICO

RECEIVED  
FEB 11 1991  
OIL CONSERVATION DIVISION  
CASE NO. 10259

A P P L I C A T I O N

CHEVRON U.S.A., INC. ("CHEVRON") hereby applies to the New Mexico Oil Conservation Division for an order pursuant to the New Mexico Statutory Unitization Act (70-7-1 through 70-7-21 N.M.S.A. 1978) providing for the unitized management, operation and further development of the area and formation known as the Arrowhead Grayburg Unit, Lea County, New Mexico, and in support of its application states:

1. Chevron U.S.A., Inc. is a Delaware corporation authorized to transact business in the State of New Mexico, and is engaged in the business of, among other things, producing and selling oil and gas as defined by the New Mexico Statutory Unitization Act (70-7-1 through 70-7-21 N.M.S.A. 1978), hereinafter referred to as the "Act".)

2. The proposed area for which application is made for unitized operations pursuant to the act is known as the Arrowhead Grayburg, Lea County, New Mexico (the "Unit Area"), and consists of 5922.26 acres, more or less, in Lea County, New Mexico, being more particularly described in Exhibit "B" attached hereto and incorporated herein by reference. A map of the Unit Area is attached hereto and incorporated herein by reference as Exhibit "A".

3. "Unitized Formation" shall mean that interval underlying the Unit Area, the vertical limits of which extend 150 feet below sea level or the top of the Grayburg formation, whichever is shallower, to a depth of 1,500 feet below sea level. The top of the Grayburg formation for unitization purposes is defined as that point at 3,671 feet in the Chevron Harry Leonard (NCT-C) No. 20 well (located 660 feet from the North line and 990 feet from the West line of Section 36, T21S, R36E, Lea County, New Mexico) as recorded by the Gearhart Compensated Neutron Log measured from the Kelly Drive Bushing elevation of 3,532 feet and dated February 25, 1985, save and except the following: Southwest Eunice San Andres Pool in the SE/4 of Section 18, T22S, R37E, and N/2N/2 of Section 19, T22S, R37E, Lea County, New Mexico, the top of which, for

Operating Agreement, a true and correct copy of which is attached hereto and incorporated herein by reference as Exhibit "E".

8. Chevron projects that the unitized management, operation and further development of the Unitized Formation will increase reserves by approximately 15.0 MMSTBO and will improve the producing rate of this reservoir. It is therefore evident that the unitized management, operation and further development of the Unitized Formation is reasonably necessary in order to effectively carry on pressure maintenance and secondary recovery operations to substantially increase the ultimate recovery of oil and gas from the Unitized Formation within the Unit Area.

9. The method of operation which is proposed in the Unit Operating Agreement is feasible, will prevent waste and will result with reasonable probability in the increased recovery of substantially more oil and gas from the Unitized Formation than would otherwise be recovered.

10. The estimated additional costs of conducting unitized operations will not exceed the estimated value of the additional oil and gas to the recovered plus a reasonable profit.

unitization purposes, occurs at 3,804 feet below the Kelly Drive Bushing on the Dresser Atlas Compensated Density Neutron Log dated August 16, 1978 on the Zia (Exxon) New Mexico "M" No. 49 well which is located 2,610 feet from the South line and 2,310 feet from the East line of Section 18, T22S, R37E, Lea County, New Mexico. A copy of a portion of the logs for said wells on said dates are attached hereto and incorporated herein by reference as Exhibits "C-1" and "C-2".

4. The portion of the Unitized Formation included within the Unit Area has been reasonably defined by development.

5. Chevron proposes to institute a project for the secondary recovery of oil and gas from the Unitized Formation within the Unit Area.

6. The proposed plan of unitization is embodied in the Unit Agreement, a true and correct copy of which is attached hereto and incorporated herein by reference as Exhibit "D", and said plan is fair, reasonable and equitable.

7. The proposed operating plan covering the manner in which the unit will be supervised and managed and costs allocated and paid is embodied in the Unit

11. The proposed unitization and adoption of the methods of operation embodied in the Unit Operating Agreement will benefit the working interest owners and royalty owners of the oil and gas rights within the Unitized Formation of the Unit Area.

12. Chevron has made a good faith effort to secure voluntary unitization within the Unitized Formation of the Unit Area.

13. Pursuant to Division rules, a copy of this application was mailed by certified mail, return-receipt requested, to all parties listed on Exhibit "F" notifying them of the hearing set for March 7, 1991.

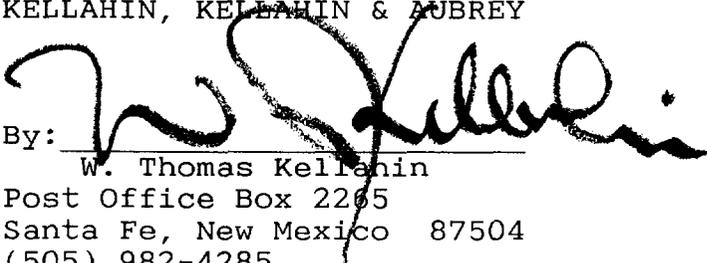
14. The participation formula contained in the Unit Agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the Unit area on a fair, reasonable and equitable basis, and protects the correlative rights of all owners of interest within the Unit Area.

15. The statutory unitization of the Unitized Formation within the Unit Area in accordance with the plan embodied in the Unit Agreement and Unit Operating Agreement will prevent waste and protect correlative rights.

WHEREFORE, Chevron respectfully requests that this application be set for hearing before the Oil Conservation Division at the earliest practicable date and that the Division enter its order approving the Unit Agreement and Unit Operating Agreement and providing for the unitized management, operation and further development of the Unitized Formation and the Unit Area in accordance with the Act.

Respectfully submitted,

KELLAHIN, KELLAHIN & AUBREY

By: 

W. Thomas Kellanin  
Post Office Box 2265  
Santa Fe, New Mexico 87504  
(505) 982-4285

ATTORNEYS FOR CHEVRON U.S.A., INC.

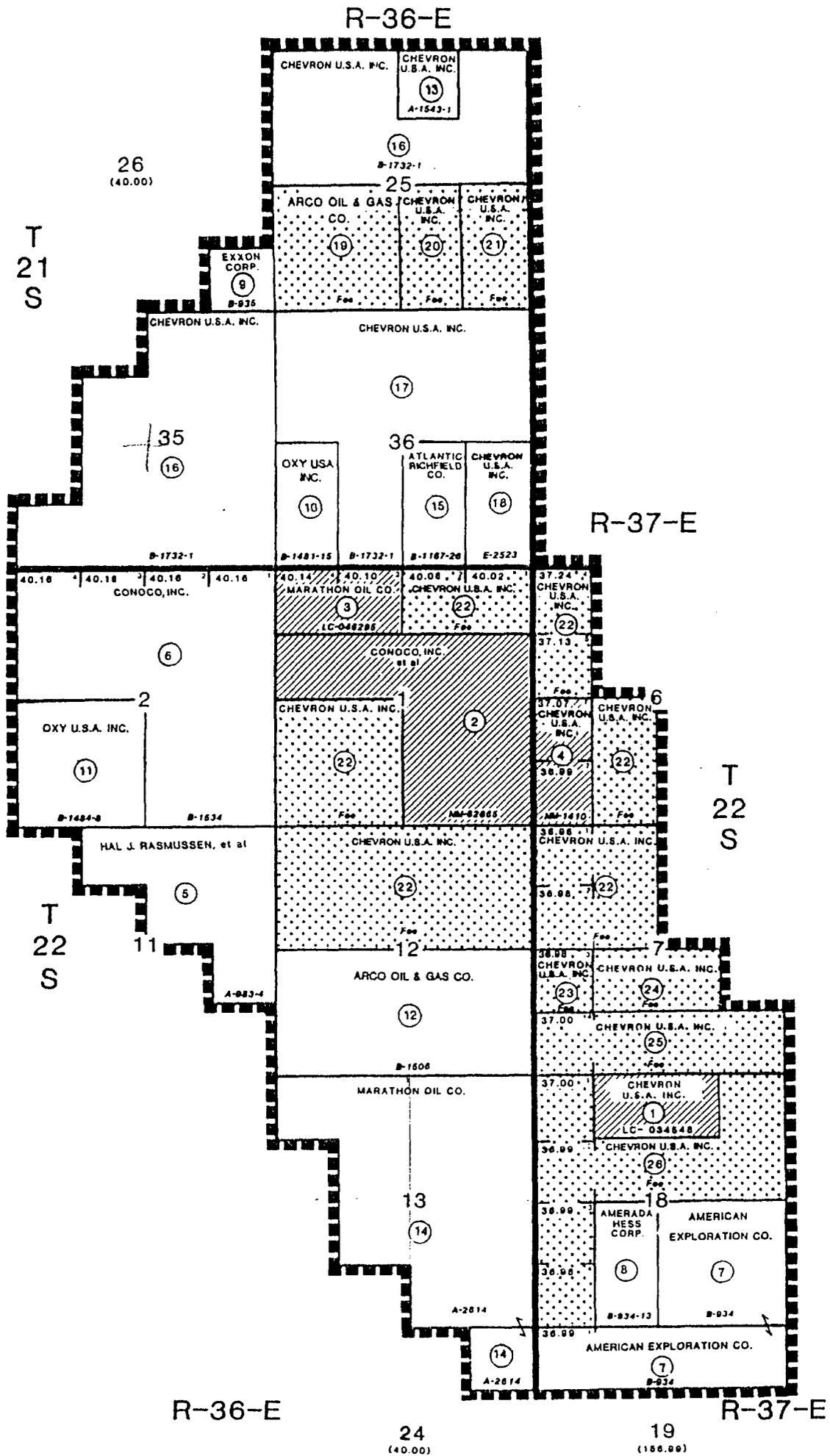


EXHIBIT "A"  
**ARROWHEAD GRAYBURG  
 UNIT AREA**  
 LEA COUNTY, NEW MEXICO

	ACREAGE	PERCENTAGE
FEDERAL LANDS	554.30	9.36%
STATE LANDS	3,697.83	60.75%
PATENTED LANDS	1,770.33	29.89%
<b>TOTAL</b>	<b>5,922.28</b>	<b>100.00%</b>
UNIT OUTLINE		
TRACT NUMBERS		
SCALE 1"=3000 ft		

CHEVRON U.S.A. INC.  
 MIDLAND TX.

EXHIBIT "A"

NOTE: UNLESS OTHERWISE INDICATED, THE VARIOUS SECTIONS ON THIS PLAT CONTAIN 640.00 AC.

EXHIBIT "B"

T21S, R36E

Section 25: A11  
Section 26: SE/4SE/4  
Section 35: E/2; E/2SW/4; SW/4SW/4; SE/4NW/4  
Section 36: A11

T22S, R36E

Section 1: A11  
Section 2: A11  
Section 11: NE/4NW/4; NE/4; NE/4SE/4  
Section 12: A11  
Section 13: E/2; E/2NW/4; NW/4NW/4; NE/4SW/4  
Section 24: NE/4NE/4

T22S, R37E

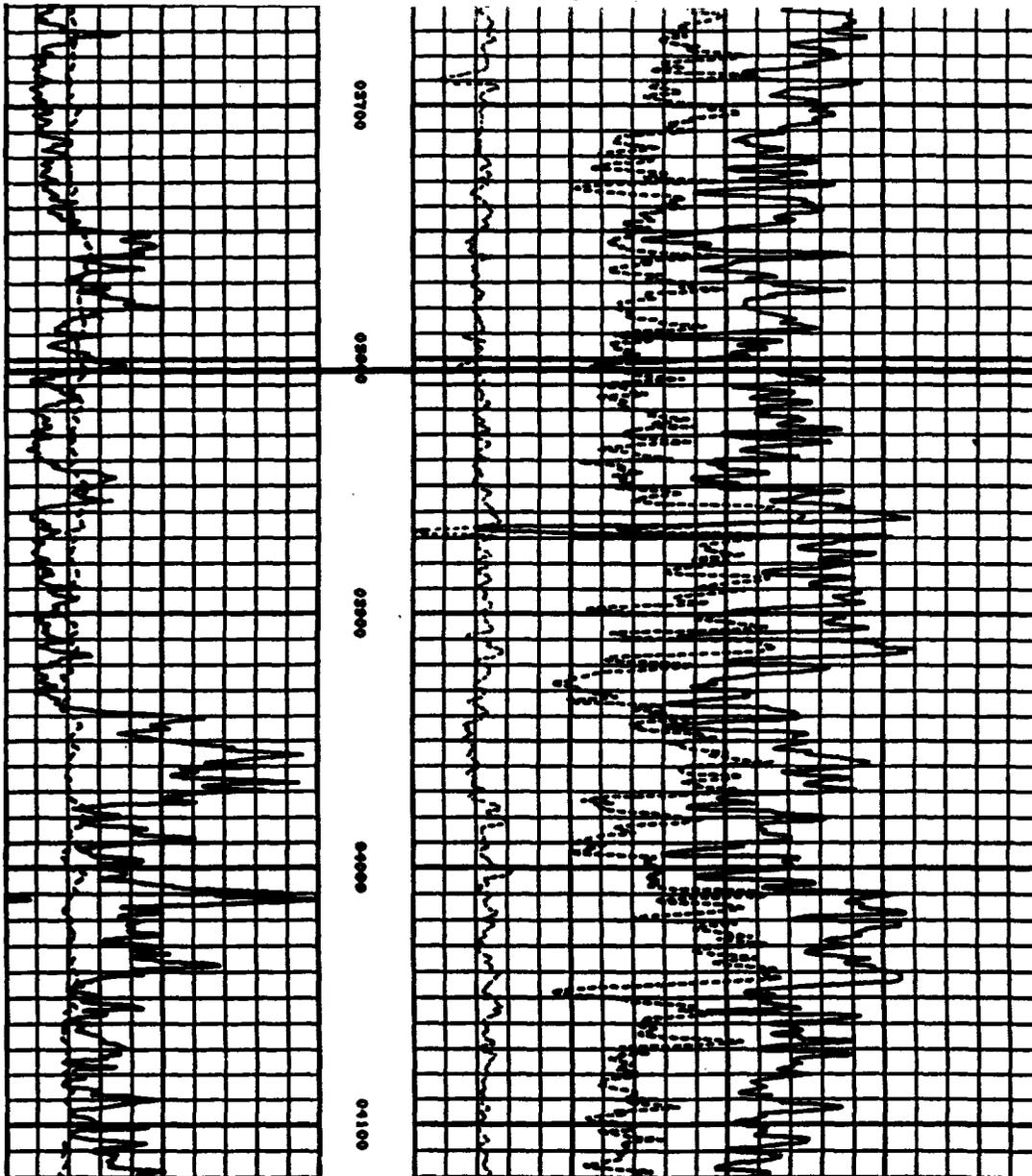
Section 6: W/2NW/4; SW/4  
Section 7: W/2; S/2SE/4; NW/4SE/4  
Section 18: A11  
Section 19: N/2N/2

**TYPE LOG**

**Southwest Eunice - San Andres Pool  
Exxon New Mexico State 'M' # 49**

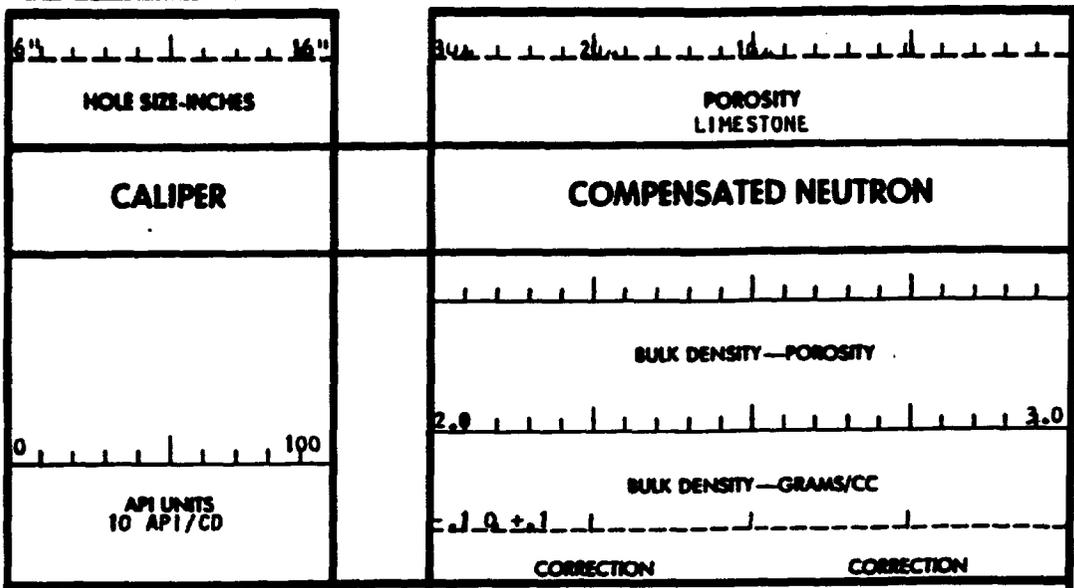
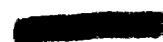
Section 18, T-22-S, R-37-E

Lea County, New Mexico



**T/SAN ANDRES**

MD = 3804'



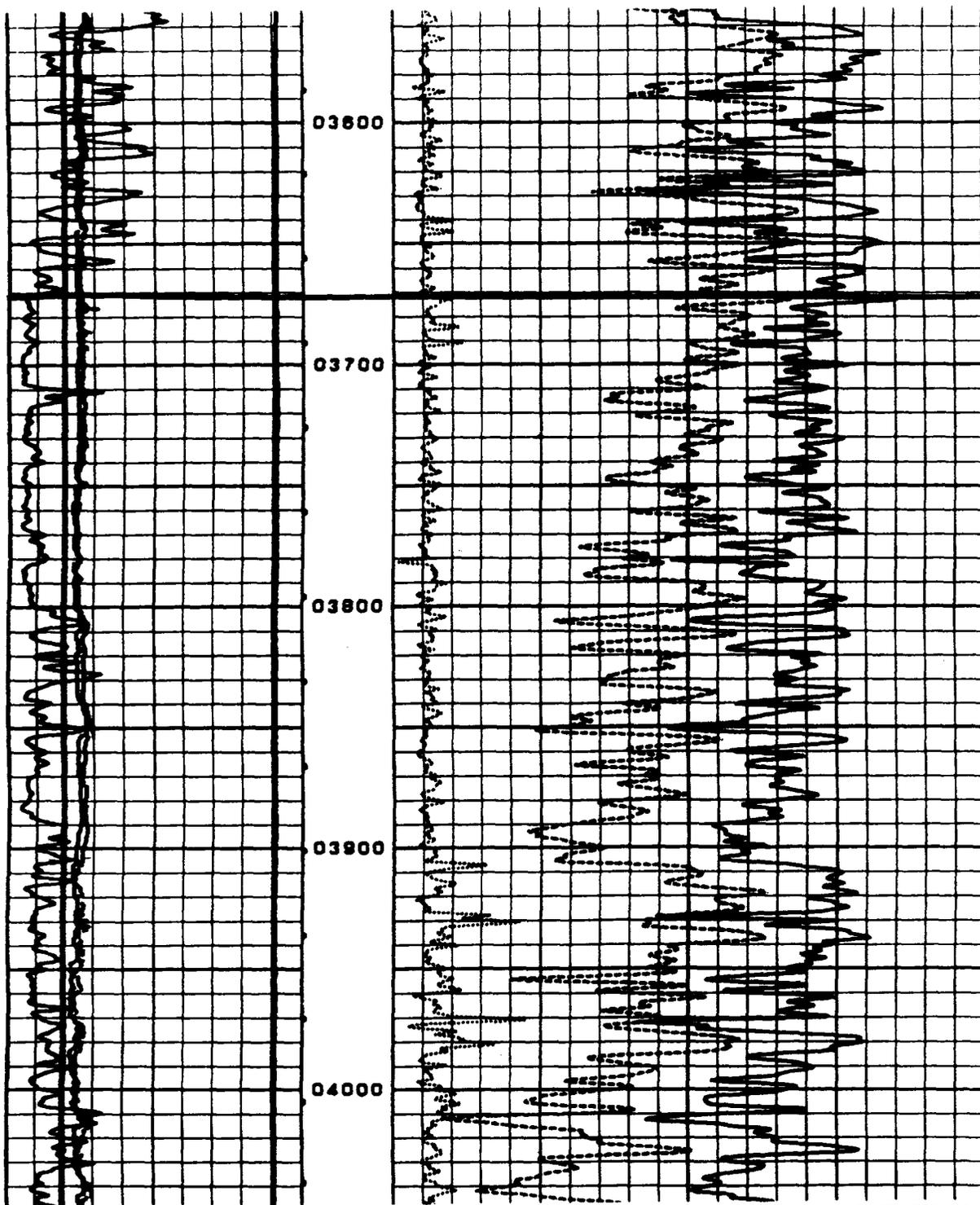
# TYPE LOG

## Arrowhead Grayburg

Chevron (Gulf) Harry Leonard (NCT-C) # 20

Section 36, T-21-S, R-36-E

Lea County, New Mexico



**T/GRAYBURG**

MD = 3671'

(-139'SS)

8	BITSIZE	16					
150	GR API	300		-0.05	ΔP	0.45	
6	Y - CAL	16		70	φ (CNS)		30
8	X - CAL	16		30	φ (CNS)		-10
0	GR API	150		2	P (B)		3

AGU C-108  
FEDERAL AND STATE AGENCIES

UNITED STATES DEPT OF INTERIOR  
BUREAU OF LAND MANAGEMENT  
ROSWELL DISTRICT OFFICE  
ATTN MR ARMONDO LOPEZ  
P O BOX 1397  
ROSWELL NEW MEXICO 88201

STATE OF NEW MEXICO  
COMMISSIONER OF PUBLIC LANDS  
ATTN MR FLOYD PRONDO  
P O BOX 1148  
SANTA FE NEW MEXICO 87504

STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY AND MINERALS  
OIL CONSERVATION DIVISION DISTRICT 1  
ATTN MR JERRY SEXTON  
P O BOX 1980  
HOBBS NEW MEXICO 88240

ABBY CORPORATION WI 01  
PO BOX 1829  
GRAND JUNCTION COLORADO 81602

AMERADA HESS CORPORATION WI 03  
PO BOX 2040  
TULSA OKLAHOMA 74102

AMERICAN EXPLORATION CO WI 02  
700 LOUISIANA  
HOUSTON TEXAS 77002

AMOCO PRODUCTION COMPANY WI 04  
PO BOX 3082  
HOUSTON TEXAS 77253

ATLANTIC RICHFIELD COMPANY R 008  
PO BOX 1810  
MIDLAND TEXAS 79702

ARCO OIL & GAS COMPANY WI 05  
PO BOX 1810  
MIDLAND TEXAS 79702

BELCO DEVELOPMENT COMPANY WI 51  
PO BOX 2287  
MIDLAND TEXAS 79702

BORREGO PROPERTIES INC WI 52  
PO BOX 2541  
MIDLAND TEXAS 79702

BOYS CLUB OF AMERICA R 016  
771 FIRST AVENUE  
NEW YORK NEW YORK 10017

BRADLEY NOMINEE CORPORATION R 018  
PO BOX 292  
WELLSVILLE NEW YORK 14886

BRAILLE INSTITUTE OF AMERICA INC R 019  
AGENCY #831-00  
NCNB TRUSTEE O & G SEC  
PO BOX 830308  
DALLAS TEXAS 75283-2029

CHARON OIL GROUP R 033  
PO BOX 785  
FORT DODGE IOWA 50501-0785

CHEVRON USA INC WI 13  
PO BOX 1150  
MIDLAND TEXAS 79702

COLONIAL SECURITIES CO R 038  
PO BOX 381  
SHAWNEE MISSION KANSAS 66201-0381

CONOCO INC WI 14  
10 DESTA DR  
MIDLAND TEXAS 79705

DASCO ENERGY CORP WI 16  
PO BOX 2646  
HOBBBS NEW MEXICO 88240

DAVID PETROLEUM CORP R 044  
118 WEST FIRST  
ROSWELL NEW MEXICO 88201-4702

EL PASO NATURAL GAS CO WI 18  
ONE PETROLEUM CENTER BLDG II  
3300 NORTH 'A' STREET  
MIDLAND TEXAS 79701

ELKS NATIONAL FOUNDATION R 052  
CARE BANK OF NEW ENGLAND N A  
ACCT 5-5429  
28 STATE STREET  
BOSTON MASSACHUSETTS 02108

ELLIOTT OIL COMPANY R 053  
PO BOX 1355  
ROSWELL NEW MEXICO 88201

ENRON OIL & GAS WI 19  
PO BOX 2287  
MIDLAND TEXAS 79701

EXXON COMPANY USA WI 20  
ATTN: SAM JOLLIFFE  
PO BOX 1700  
MIDLAND TEXAS 79702

GEODYNE RESOURCES INC R 068  
320 S BOSTON AVENUE  
TULSA OKLAHOMA 74103-3708

HAL J RASMUSSEN OPERATING INC WI 40  
ATTN: HAL J RASMUSSEN  
8 DESTA DRIVE - STE 5850  
MIDLAND TEXAS 79705

HANSON-MCBRIDE PETROLEUM CO WI 54  
PO BOX 1515  
ROSWELL NEW MEXICO 88201

HENDRICK MEMORIAL HOSPITAL R 083  
1242 19TH ST  
ABILENE TEXAS 79801

HIGGINS TRUST INC R 084  
PO BOX 2421  
GAINESVILLE GEORGIA 30503

JOHN H HENDRIX CORP R 099  
233 W WALL STE 525  
MIDLAND TEXAS 79701

LADD PETROLEUM CORP R 224  
PO BOX 85878  
DALLAS TEXAS 75285

MAIN STREET HOLDING CO R 129  
PO BOX 381  
SHAWNEE MISSION KANSAS 66201

HAWKINS OIL & GAS INC  
ATTN LORI DAUGHERTY  
400 S BOSTON SUITE 800  
TULSA OKLAHOMA 74103

R 238 WLDO1214.04X

D C TRUST MARILYN CONE TRUSTEE BOX 64244 LUBBOCK TX 79404	R 040	SUE STINSON TESTAMENTARY #2046-12 NCNB TEXAS NATIONAL BANK ATTN GREG HOLCOMB P O BOX 270 MIDLAND TEXAS 79702	R 198	NCNB TEXAS NATIONAL BANK TRUSTEE OF THE JESSIE B CRUMP FAMILY TRUST #1069 P O BOX 270 MIDLAND TEXAS 79702	R 203
ELYSE S PATTERSON TRUST "B" COMMERCE BANK OF KANSAS CITY NA ATTN REAL ESTATE DEPT BOX 419248 KANSAS CITY MO 64141-9248	R 206	LINWOOD SECURITIES TRUST COMMERCE BANK OF KANSAS CITY NA TRUSTEE P O BOX 419248 KANSAS CITY MISSOURI 64141	R 118	JAMES R CRAVENS TRUST TEXAS COMMERCE BANK NA BOX 2558 HOUSTON TEXAS 77262-8033	R 092
C W GRIMES TRUST GLORIA MCFARLAND TRUSTEE BOX 702075 TULSA OKLAHOMA 74170	R 021	CALDWELL J SAUNDERS TRUST 2500 SOUTH TOWER LB 201 800 N PEARL DALLAS TEXAS 75201-2880	R063	HOWARD PAYNE COLLEGE F/B/O MCARTHUR ACADEMY OF FREEDOM C/O COMMERCIAL NATL BANK TRUST DEPT BOX 21119 SHREVEPORT LOUISIANA 71152	R 086
EVELYN L GREEN & ROBERT GREEN CO-EXECUTORS U/W/O JACOB M GREEN C/O EDWARD BARTH 1530 PALISADE AVENUE FORT LEE NEW JERSEY 07024-6497	R 090	THE WILSON CHILDREN TRUST 102 SADBERRY RD CONCORD MASSACHUSETTS 01742	R 208	ROY G BARTON SR & OPAL BARTON TRUST ROY G BARTON JR TRUSTEE P O BOX 978 HOBBS NEW MEXICO 88240	R 205
NEWBY-FORESEE TRUST LIBERTY NATIONAL BANK ATTN: CHRIS BUCK P O BOX 25848 OKLAHOMA CITY OKLAHOMA 73126	R 178	CHARLES PFILE TRUST LIBERTY NATIONAL BANK TRUSTEE BOX 25848 OKLAHOMA CITY OKLAHOMA 74868	R 031	ANNIE TAYLOR ESTATE THELMA TAYLOR EXECUTRIX C/O JOHN F GEISTER JR 1046 DONAGHEY BUILDING LITTLE ROCK ARKANSAS 72201	R 006
ANDREA SINGER POLLACK REVOCABLE TRUST JOSEPH B SINGER TRUSTEE BOX 2632 DENVER COLORADO 80201	R 004	KATHERINE K MCINTYRE REVOCABLE TRUST #4641 TEAM BANK TRUSTEE TRUSTS MINERAL STATION #31 BOX 2050 FORT WORTH TEXAS 76113	R 107	THE JOHN K CLEARY TRUST BANK OF OKLAHOMA N A TRUSTEE OF JOHN K CLEARY TRUST P O BOX 1688 TULSA OKLAHOMA 74101	R 204
JOE & JESSIE CRUMP FUND #2312 TEAM BANK TRUSTEE ATTN CINDY BYARS BOX 2050 FORT WORTH TEXAS 76113	R 095	SELMA E ANDREWS TRUST #5188-01/02 NCNB TEXAS NATIONAL BANK TRUSTEE FOR THE SELMA E ANDREWS TRUST P O BOX 830308 DALLAS TEXAS 75283-0308	R 184	NATHAN APPLEMAN TRUST ACCT 45-3080 C/O BESSEMER TRUST CO N A ATTN GUY WALTMAN 630 FIFTH AVENUE NEW YORK NEW YORK 10111-001	R 147
WILLIAM G SEAL & MARCELLYN J SEAL JOINT TENANT 4882 SOUTH TROOST TULSA OKLAHOMA 74105	R 220	JAMES W WINKEL ESTATE CAROL WINKEL EXECUTRIX 2101 WOODLAWN MIDLAND TX 79701	WI 49	MARY G MORAN FAGAN PAYNE BASDEN TRUST C/O TEXAS COMMERCE BANK NA MINERAL SECTION 6314001 P O BOX 2558 HOUSTON TEXAS 77262-8033	R 138
RANDY M KIDWELL ESTATE SUZANNE KIDWELL EXECUTRIX 4204 CRESTRIDGE MIDLAND TEXAS 79707-2732	WI 24	ROY S MAGRUDER TRUST FORT WORTH NATIONAL BANK TRUSTEE P O BOX 2050 FORT WORTH TEXAS 76101	R 175	LLOYD GARRINGER ESTATE ETTA VIVIAN BROOKS EXECUTRIX C/O H B BRADBURY P O BOX 685 WOODWARD OKLAHOMA 73801-0688	R 119
GEORGE W BROWNLEE ESTATE EDGIE B BROWNLEE INDEPENDENT EXECUTRIX 10055 OLYMPIA DRIVE HOUSTON TEXAS 77042	R 071	KIRBY D SCHENCK C/O LIBERTY NATIONAL BANK PERSONAL REPRESENTATIVE BOX 1827 LOVINGTON NM 88260-1827	R 074	CHARLES F DOORNBOS REVOCABLE TRUST ATTN SUE ABBE P O BOX 839 BARTLESVILLE OK 74005	R 235

DANIEL TRAMMEL ESTATE  
JULIE PAYNE EXECUTRIX  
118 REAMER AVE  
WILMINGTON DELAWARE 19804

K 041

POWRIAN & BEVERLY T CARTER REV TRUST R 180  
BEVERLY T CARTER TRUSTEE  
P O BOX 328  
FT SUMNER NEW MEXICO 88119

WLD01231072

A J TRAMMELL R 001  
RT 13 312 CLAY ST  
BERMINGHAM MISSOURI 64181

ALVIN LUSKEY R 002  
101 N HOUSTON STREET  
FORT WORTH TEXAS 76102

ANDERSON CARTER R 003  
PO BOX 988  
LAS CRUCES NEW MEXICO 88004

ANDREW B BURLESON WI 11  
2823 CIMMARON DRIVE  
MIDLAND TEXAS 79705

ATHENIA M HUNT R 008  
338 RANDOLPH STREET  
EAST PEORIA ILLINOIS 61611

AUBREY C PRICE WI 38  
700 MEADOWPARK DRIVE  
MIDLAND TEXAS 79705

B A CHRISTMAS JR R 010  
CHICO ROUTE  
RATON NEW MEXICO 87740

BARBARA E HANNIFIN WI 22  
PO BOX 2588  
ROSWELL NEW MEXICO 88202-2588

BEATRICE V COOK R 011  
PO BOX 1076  
ROSWELL NEW MEXICO 88202

BERNARD G SCOTT WI 41  
3002 GODDARD PLACE  
MIDLAND TEXAS 79705

BETTY MORAN RICE R 012  
6223 LUPTON  
DALLAS TEXAS 75225

BILLIE JUNE CROW R 014  
PO BOX 643  
ROSWELL NEW MEXICO 88201

BRADFORD ACE CHRISTMAS R 017  
PO BOX 173  
WAGON MOUND NEW MEXICO 87752

BURTON VETETO WI 43  
670 ABO  
HOBBBS NEW MEXICO 88240

BUSTER TRAMMELL R 020  
2515 YELLOW FIR RD  
TILLAMOOK OREGON 97141

CANDY CHRISTMAS R 022  
PO BOX 1564  
MOORESVILLE NORTH CAROLINA 28115

CAROLYN LOVELESS SCHLICHER R 023  
PO BOX 606  
ROSWELL NEW MEXICO 88202-0606

CATHIE CONE AUVENSHINE R 025  
PO BOX 658  
DRIPPING SPRINGS TEXAS 78620

CECIL FRANK WILSON R 026  
613 NE 5TH STREET  
AMARILLO TEXAS 79107

CELIA A ZINN WI 50  
2603 HUGHES  
MIDLAND TEXAS 79705

CHARLES B BROWNLEE R 027  
129 CRESTBROOK  
RED OAK TEXAS 75154-9819

CHARLES DANIEL RANSOM R 029  
PO BOX 221  
EUREKA CALIFORNIA 95602

CHARLES H PRICE II R 028  
ONE W ARMOUR BLVD-STE 300  
KANSAS CITY MISSOURI 64111

CHARLOTTE FRANCIS WELDON R 032  
RR 2 BOX 16  
SEMINOLE OKLAHOMA 74868

CHICORA MODESTA WILLIAMS TRUST WI 47  
PO BOX 10908  
MIDLAND TEXAS 79702

CLIFFORD CONE R 035  
PO BOX 6010  
LUBBOCK TEXAS 79413

COLIN MCMILLAN R 037  
118 WEST 1ST STREET  
ROSWELL NEW MEXICO 88201-4702

DAVID E PRICE R 042  
77 S BIRCH RD APT 11-D  
FT LAUDERDALE FLORIDA 33318

DAVID LUSKEY R 043  
101 N HOUSTON ST  
FORT WORTH TEXAS 76102

DELLA LONG R 045  
RT 72 PIONEER VILLAGE B27  
MOUNTAIN VIEW ARKANSAS 72560

DORIS B NEAL R 047  
1201 BERING #79-  
HOUSTON TEXAS 77067-2308

DOYLE & MARGARET M HARTMAN R 232  
P O BOX 10426  
MIDLAND TEXAS 79702

DOSHA GILBERT R 048  
HC 73 BOX 478  
MOUNTAIN VIEW ARKANSAS 72580

EDGAR LEWIS KILLINGSWORTH R 051  
2112 NW 118 TERRACE  
OKLAHOMA CITY OKLAHOMA 73120

ELLIS TRAMMELL R 054  
HC-73 BOX 804  
ONIA ARKANSAS 97388

EMELY ANN EDWARDS R 058  
226 W 7TH ST  
BRISTOW OKLAHOMA 74010

EUNICE JAMES GRAY R 059  
177 TWEED BOULEVARD  
NYACK NEW YORK 10980

FANCHER ARCHER R 062  
PO DRAWER 430  
HALE CENTER TEXAS 79041

FRANK LYNN KILLINGSWORTH R 066  
414 W WALNUT  
SHAWNEE OKLAHOMA 74868

G T MCALPIN WI 27  
PO BOX 49  
CUERO TEXAS 77954-2732

GEORGE ETTA EMERSON R 070  
7216 COMANCHE  
OKLAHOMA CITY OKLAHOMA 73132

GREGORY J BROSE WI 08  
6100 BECKWORTH COURT  
PARKER COLORADO 80134

GWEN G HALL R 072  
4004 TERRACE DRIVE  
AMARILLO TEXAS 79109

HARMON HESS JR R 078  
1614 PIERSON STREET  
PEORIA ILLINOIS 61647

HAROLD B BRADBURY R 079  
808 W COLORADO  
COLORADO SPRINGS COLORADO 80901

HARVEY ROBERTS R 081  
6512 GOTHAM ST  
BELL GARDENS CALIFORNIA 90201

HELEN JANE CHRISTMAS BARBY R 082  
PO BOX 2767  
EDMOND OKLAHOMA 73034

IMA JO BRISCOE R 087  
623 MCGRAW  
HEALDTON OKLAHOMA 73438

JACK FLETCHER R 089  
P O BOX 10887  
MIDLAND TEXAS 79702

JAMES A DAVIDSON R 233  
PO BOX 484  
MIDLAND TEXAS 79702

JAMES E BURR WI 12  
3803 WEDGEWOOD COURT  
MIDLAND TEXAS 79707-4705

JEAN ANDERSON SIMPSON R 093  
5802 S DELAWARE PLACE  
TULSA OKLAHOMA 74105

JIMMIE OLIS HESS R 094  
1326 GANNON  
ENID OKLAHOMA 73703

JOHN ALBERT HESS R 097  
PO BOX 979  
VELMA OKLAHOMA 73091-0979

JOHN B WHITLEY R 098  
2620 DESOTO  
SHREVEPORT LOUISIANA 71103

JOHN HENRY KILLINGSWORTH R 100  
1933 MINNESOTA  
SHAWNEE OKLAHOMA 74801

JOHN R BROSE WI 07  
3000 CLAYDESTA NAT BANK  
MIDLAND TEXAS 79705

JOHN R BRYANT WI 10  
911 WEST SILVER  
HOBBS NEW MEXICO 88240

JOHN W BURRESS R 101  
PO BOX 36363  
ALBUQUERQUE NEW MEXICO 87178

JOHN W BURRESS & CONSTANCE F BURRESS R 102  
PO BOX 36363  
ALBUQUERQUE NEW MEXICO 87178

JOHNNIE TRAMMELL R 103  
RT 2 BOX 74  
LIBERTY MISSOURI 64068

JOYCE ANN BROWN R 104  
PO BOX 72  
WATROUS NEW MEXICO 87753

JULIE HESS HOSHOR R 105  
132 ERMA COURT  
CREVE COEUR ILLINOIS 61611

JUNE D SPEIGHT R 108  
P O DRAWER 1887  
LOVINGTON NEW MEXICO 88260

KATHLEEN CONE R 108  
PO BOX 1509  
LOVINGTON NEW MEXICO 88260

KELLY H BAXTER R 109  
PO BOX 11193  
MIDLAND TEXAS 79702

KENNETH G CONE R 110  
PO BOX 11310  
MIDLAND TEXAS 79701

KEVIN HESS R 111  
R R #2  
MAPLETON ILLINOIS 61647

KIM D JONES WI 23  
4000 DYER CIRCLE  
MIDLAND TEXAS 79705

KIRBY D SCHENCK R 074  
C/O LIBERTY NATIONAL BANK  
PERSONAL REPRESENTATIVE OF  
KIRBY D SCHENCK  
P O BOX 1827  
LOVINGTON, NM 88260-1827

L O CARROLL R 112  
1218 COUNTRY CLUB DRIVE  
NORMAN OKLAHOMA 73069

L PAUL LATHAM WI 25  
8500 CLAYDESTA NAT'L BANK  
MIDLAND TEXAS 79705

LARRY A CRESS WI 16  
3702 BERUDA COURT  
MIDLAND TEXAS 79707

LARRY NERMYR WI 34  
HC-37 BOX 4106  
SIDNEY MONTANA 59270

LEE ROBERTS R 113  
PO BOX 27  
LOVINGTON NEW MEXICO 88260

LEE WOOD ROBERTS R 114  
STAR RT 2 BOX 1827  
TULAROSA NEW MEXICO 88339

LEO WIMAN R 116  
PO BOX 12073  
DALLAS TEXAS 75226

LILLIAN MYERS R 117  
10232 REGAL OAKS APT C  
DALLAS TEXAS 75230

LORENE JANE HESS R 121  
736 N PALM ST  
PONCA CITY OKLAHOMA 74601

LOUIS LUSKEY R 122  
101 N HOUSTON ST  
FORT WORTH TEXAS 76102

LOUISE B DIGGLES R 123  
10123 GREENTREE STREET  
HOUSTON TEXAS 77042-1229

LOUISE C SUMMERS R 124  
PO BOX 778  
HOBBS NEW MEXICO 88240

LUCINDA LOVELESS R 125  
419 WEST WELLINGTON #1  
CHICAGO ILLINOIS 60657-5803

LUCY MAE LITRELL R 126  
C/O HELEN BEMIS  
9812 NE 85TH ST  
VANCOUVER WASHINGTON 98662

MACK H WOOLRIDGE R 230  
P O BOX 1946  
ALBANY TEXAS 74630

MARGARET ELIZABETH BURNS R 131  
3113 NW 80TH STREET  
OKLAHOMA CITY OKLAHOMA 73112

MARTHA FARRIS R 133  
RT 73 BOX 912  
ONIA ARKANSAS 72663

MARY ALLISON R 134  
814 CHERI WAY  
FAIRDALE KENTUCKY 40118

MARY FRANCES HURLEY R 137  
297 W LOMA ALTA DRIVE  
ALTADENA CALIFORNIA 91001

MARY LEE S REESE R 139  
PO BOX 8531  
SALT LAKE CITY UTAH 84108-8531

MARY T CHRISTMAS HOLLADAY R 141  
PO BOX 201204 -  
ARLINGTON TEXAS 76006-1204

MARY VERN RANSOM R 142  
28890 LILAC RD SP 148  
VALLEY CENTER CALIFORNIA 92082

MYRTLE PFLE R 145  
C/O JAMES BRUTON  
PO BOX 218  
WAURIKA OKLAHOMA 73573

NADINE PRIDEAU LOVELESS SMITH R 146  
C/O MR BAYNARD W MALONE  
ATTORNEY-AT-LAW  
PO BOX 568  
ROSWELL NEW MEXICO 88202

NORMA JEAN TALBERT R 150  
1704 ASPEN ACRES  
BENTON ARKANSAS 72015

OLIS S HESS R 151  
1029 SHADY PLACE  
PONCA CITY OKLAHOMA 74801

OTIS E RAMSEY JR R 152  
18610 24TH PLACE NE  
SEATTLE WASHINGTON 98156

OTIS TRAMMELL R 153  
3513 MAPLE LANE  
TILLAMOOK OREGON 97141

PATRICK J LEONARD R 156  
PO BOX 335  
DALLAS TEXAS 75221

R H TRAMMELL R 162  
RR 13  
KANSAS CITY MISSOURI 64161

RANDOLPH E WILSON R 164  
5949 SHERRY LANE  
DALLAS TEXAS 75225

ROBERT BOOTH KELLOUGH R 168  
3824 N RIVER ROAD  
PORT ALLEN LOUISIANA 70787

ROBERT E KING ESTATE R 169  
JANET E ALBRIGHT,  
PERSONAL REPRESENTATIVE  
11940 MT LAUREL DRIVE  
ROSWELL GEORGIA 30075

ROBERT E KING NO 2 R 170  
JANET E ALBRIGHT  
PERSONAL REPRESENTATIVE  
11940 MT LAUREL DR  
ROSWELL GEORGIA 30075

ROBERT J LEONARD R 171  
PO BOX 400  
ROSWELL NEW MEXICO 88201

ROBERT L E BURRESS R 172  
PO BOX 671  
FARMINGTON NEW MEXICO 87499

ROY G BARTON JR R 174  
PO BOX 978  
HOBBS NEW MEXICO 88240

RUBIE C BELL R 178  
1331 THIRD STREET  
NEW ORLEANS LOUISIANA 70130

RUTH SUTTON WI 42  
2828 MOSS AVENUE  
MIDLAND TEXAS 79705

SARA H STOVALL R 181  
3800 MINOT  
FORT WORTH TEXAS 76133

SAVANNAH HESS ALTMAN R 182  
1604 HUDSON DRIVE  
PONCA CITY OKLAHOMA 74801

STANLEY W CROSBY III R 193  
P O BOX 2346  
ROSWELL NEW MEXICO 88202-2346

STEPHEN N JAMES R 196  
5406 SCOUT ISLAND CIRCLE SOUTH  
AUSTIN TEXAS 78731

SUE SAUNDERS GRAHAM R 197  
PO BOX 987  
ROSWELL NEW MEXICO 88201

THELMA BLACK R 210  
PO BOX 205  
MIDLAND TEXAS 79701

THOMAS H MOORE WI 32  
4461 HACKBERRY CT  
MIDLAND TEXAS 79707-1614

TIMOTHY T LEONARD R 211  
PO BOX 6006  
SAN ANTONIO TEXAS 78209

TOM R CONE R 212  
PO BOX 778  
JAY OKLAHOMA 74348

TOM W ELLISON R 213  
2502 CIMMARON  
MIDLAND TEXAS 79701

W SCOTT RAMSEY WI 39  
1302 LAWSON  
MIDLAND TEXAS 79701

WILLIAM A KOLLIKER R 218  
3812 HILLCREST DRIVE  
EL PASO TEXAS 79902-1707

WILLIAM COLEMAN RANSOM R 219  
PO BOX 31  
WHITETHORN CALIFORNIA 95489 -

WILLIAM G SEAL & MARCELLYN J SEAL R 220  
JOINT TENANTS  
4862 SOUTH TROOST  
TULSA OKLAHOMA 74106

WILLIAM W BURRESS R 221  
3 MAXWELL LANE  
PLANO TEXAS 75094

WOODLAN PERRY SAUNDERS R 222  
PO BOX 1538  
SANTA FE NEW MEXICO 87501-1538

WYNANT S WILSON R 223  
2014 BROOK HOLLOW DRIVE  
ABILENE TEXAS 79605

VELMA B WOODY R 237  
ROUTE 3 BOX 888  
ONIA ARKANSAS 72663

WLD0121807X

MARATHON OIL COMPANY  
PO BOX 552  
MIDLAND TEXAS 79702

WI 26

MARSHALL & WINSTON INC  
PO BOX 50880  
MIDLAND TEXAS 79710

R 132

MCBRIDE OIL & GAS CORPORATION  
PO BOX 1515  
ROSWELL NEW MEXICO 88202-1515

WI 29

MERIDIAN OIL INC  
21 DESTA DRIVE  
MIDLAND TEXAS 79705

WI 30

NEW MEXICO BOYS RANCH INC  
BOYS RANCH STATION  
BOYS RANCH NEW MEXICO 87002

R 149

NUEVO SEIS INC  
PO BOX 182  
ROSWELL NEW MEXICO 88202-0182

WI 35

OXY USA  
PO BOX 50250  
MIDLAND TEXAS 79710

WI 38

PARA MIA INC  
PO BOX 2541  
MIDLAND TEXAS 79702

WI 37

PETCO LIMITED  
PO BOX 911  
BRECKENRIDGE TEXAS 76024

R 157

REBEL OIL COMPANY  
8333 MOCKINGBIRD  
BLDG 147 STE 247  
DALLAS TX 75214

R 186

REGENTS OF THE UNIVERSITY OF NEW MEXICO  
UNIVERSITY HILL NE  
ALBUQUERQUE NEW MEXICO 87131

R 167

ROCA PROPERTIES LTD  
2001 GULF AVENUE  
MIDLAND TEXAS 79705

R 226

SHATTUCK ST MARY'S SCHOOL  
PO BOX 218  
FAIRBAULT MINNESOTA 55021

R 185

SOHIO PETROLEUM COMPANY  
PO BOX 4597  
HOUSTON TEXAS 77210

R 187

SOUTHLAND ROYALTY COMPANY  
PO BOX 910497  
DALLAS TEXAS 75391

R 188

SOUTHWEST ROYALTIES INC  
PO BOX 11390  
MIDLAND TEXAS 79702

R 190

SPINDLETOP EXPLORATION CO INC  
PO BOX 25604  
DALLAS TEXAS 75225-5604

R 191

SUN OPERATING LTD PTN  
ORYX ENERGY CO  
MANAGING PARTNER  
PO BOX 2880  
DALLAS TEXAS 75221

R 200

THE HOME STAKE ROYALTY CORPORATION  
15 EAST FIFTH STREET  
TULSA OKLAHOMA 74103

R 202

THE TOLES COMPANY  
PO BOX 1380  
ROSWELL NEW MEXICO 88202

R 227

THE W A YEAGER GROUP  
PO BOX 990  
MIDLAND TEXAS 79702

R 207

THE WILLIAMS PARTNERSHIP  
8 DESTA DRIVE - SUITE 5800  
MIDLAND TEXAS 79705

WI 48

THE WISER OIL COMPANY  
DEPT L 464-P  
PITTSBURGH PENNSYLVANIA 15264-0454

R 209

TRIBUTE ROYALTIES INC  
ONE RODNEY SQUARE  
10TH AND KING STREET  
WILMINGTON DELAWARE 19801

R 214

TRINITY PROPERTIES II  
PO BOX 2111  
MIDLAND TEXAS 79702

R 225

WESTWAY PETROLEUM COMPANY  
LOCK BOX 79  
500 N ACKARD STREET  
DALLAS TEXAS 75201-3394

WI 45

SHELL WESTERN E&P INC  
P O BOX 576  
HOUSTON TX 77001

R 062

STATE STREET BANK & TRUST CO  
801 STATE STREET  
QUINCY ILLINOIS 62301

R 195

TRIO PETROLEUM CORPORATION  
ROUTE 78 BOX 35 E  
GLENVILLE WV 36351

R 239

HICKORY TIMBERS LTD PTN  
ATTN VAUGHN D VENNBERG II  
810 HOUSTON STREET SUITE 2000  
FORT WORTH TEXAS 76102

R 234



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR

MEMORANDUM

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

TO: ALL INTERESTED PARTIES

FROM: WILLIAM J. LEMAY, Director  
Oil Conservation Division *MS for WJL*

SUBJECT: EXAMINERS HEARING SCHEDULED FOR APRIL 4, 1991

DATE: FEBRUARY 25, 1991

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The April 4, 1991 Examiner Hearing is currently heavily docketed with two cases involving statutory unitization and the institution of a waterflood project with 108 injection wells (Case No. 10252 and 10253); also the Basin Fruitland Coal Gas Pool special Rules and Regulations review case (Case No. 9420) is scheduled for this date. The length of time involved to hear these cases alone could possibly extend into 2 days. Therefore no new cases will be scheduled for this date nor will any current cases be continued to this docket.

Further, for those parties involved in the April 4th hearing, a determination has not yet been made as to the location of the hearing. Please check with the docket issued at that time for verification whether the April 4th Examiner hearing will be in Farmington or Santa Fe.



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

MEMORANDUM

TO: NEW MEXICO OIL PRODUCERS  
FROM: WILLIAM J. LEMAY, DIRECTOR *WJL*  
SUBJECT: REGULATORY INITIATIVES TO INCREASE NEW MEXICO'S OIL PRODUCTION

The Oil Conservation Commission conducted a hearing on September 24, 1990, to receive comments and suggestions from industry concerning regulatory actions which might be taken to encourage industry activity and increase New Mexico oil production. The hearing was conducted as a result of the Persian Gulf crisis and in response to the Department of Energy requests for increased domestic oil production.

Hearing participants were generally in agreement that OCD should authorize higher well allowables in those pools where higher producing rates would not cause waste or damage correlative rates.

Since the September, 1990 hearing, OCD has heard and approved four cases which involved requests by the applicant to increase pool allowables. Orders have not yet been issued for two other cases involving increased allowables which were heard at the February 7, 1991 hearing. It will be OCD policy to continue this initiative and to entertain hearing requests for higher pool allowables which can be supported by performance data from the pool provided it can also be shown that the increase in allowable will not cause waste or harm correlative rights.

Other suggestions which the OCD plans to implement involve the encouragement of new oil field technology such as horizontal drilling and improving the overall efficiency of our regulatory process.

February 22, 1991

dr/

Nos. 8-91 and 9-91 are tentatively set for March 21, 1991 and April 4, 1991. Applications for hearing must be filed at least in advance of hearing date.

DOCKET: EXAMINER HEARING - THURSDAY - MARCH 7, 1991

8:15 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,  
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Jim Morrow, Examiner, or Michael E. Stogner, or David R. Catanach, Alternate Examiners:

CASE 10141: (Continued from February 7, 1991, Examiner Hearing.)

Application of Samuel Gary Jr. and Associates, Inc. for a gas reinjection/pressure maintenance project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a gas reinjection/pressure maintenance project in its San Isidro (Shallow) Unit Area located in Townships 20 and 21 North, Ranges 2 and 3 West, by the injection of gas into the Rio Puerco-Mancos Oil Pool through the openhole interval from approximately 3793 feet to 4188 feet in its San Isidro 11 Well No. 16 located 660 feet from the South line and 630 feet from the West line (Unit P) of Section 11, Township 20 North, Range 3 West. Said project area is located approximately 5 to 13 miles west-southwest of Cuba, New Mexico.

CASE 10233: (Continued from February 7, 1991, Examiner Hearing.)

Application of Mobil Exploration & Producing Company for approval of salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the South Vacuum Devonian Pool, in the open hole interval from approximately 11,800 feet to 13,970 feet in its State Section 27 Well No. 1 located 660 feet from the North line and 1983 feet from the East line (Unit B) of Section 27, Township 18 South, Range 35 East. Said well is located approximately 5 miles east of the old Hobbs Army Air Corps Auxiliary Airfield No. 4.

CASE 10255: Application of Mobil Exploration & Producing U.S. Inc. for an unorthodox oil well location and a non-standard oil proration unit, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox oil well location in the Undesignated West Lindrith Gallup-Dakota Oil Pool for its Lindrith "B" Unit Well No. 78 to be drilled 2030 feet from the South line and 143 feet from the West line (Unit L) of Section 6, Township 24 North, Range 2 West, Lots 6 and 7 and the E/2 SW/4 (SW/4 equivalent) of said Section 6 to be dedicated to said well forming a non-standard 151.34-acre oil spacing and proration unit for said pool. Said unit is located approximately 3.5 miles northwest of Lindrith, New Mexico.

CASE 10241: (Readadvertised)

Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox gas well location in the Undesignated West Dagger Draw-Morrow Gas Pool to be drilled 560 feet from the South and East lines (Unit P) of Section 9, Township 20 South, Range 24 East, the E/2 of said Section 9 to be dedicated to said well forming a standard 320-acre gas spacing and proration unit. Said unit is located approximately 10 miles west of Seven Rivers, New Mexico.

CASE 10234: (Continued from February 7, 1991, Examiner Hearing.)

Application of Yates Petroleum Corporation for compulsory pooling and an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Ordovician formation underlying the following described acreage in Section 29, Township 9 South, Range 26 East, and in the following manner: the N/2 to form a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated Four Ranch-PrePermian Gas Pool and Undesignated East Bitter Lakes-Wolfcamp Gas Pool; the NE/4 to form a standard 160-acre gas spacing and proration unit for any and all formations and/or pools developed on 160-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the South Pecos Slope-Abo Gas Pool; and the SW/4 NE/4 to form a standard 40-acre oil spacing and proration unit for any and all formations developed on 40-acre oil spacing within said vertical extent. Said units are to be dedicated to a single well to be drilled 1980 feet from the North line and 2310 feet from the East line (Unit G) of said Section 29, which is a standard oil and gas well location for zones spaced on 320 acres and 40 acres but is an unorthodox gas well location for zones spaced on 160 acres. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 7 miles north of Mile Marker No. 167 on U.S. Highway 380.

CASE 10256: Application of LBO New Mexico, Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Mississippian formation or to a depth of 11,200 feet, whichever is deeper, underlying the following described acreage in Section 9, Township 11 South, Range 33 East and in the following manner: the S/2 forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent; the W/2 SW/4 forming a standard 80-acre oil spacing and proration unit in the North Bagley-Permo Pennsylvanian Pool; and the NW/4 SW/4 forming a standard 40-acre oil spacing and proration unit for any and all formations and/or pools within said vertical extent developed on 40-acre spacing. Said units are to be dedicated to a single well to be drilled 1980 feet from the South line and 660 feet from the West line (Unit L) of said Section 9 being a standard oil well location but an unorthodox gas well location. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 5 miles east by south of Caprock, New Mexico.

CASE 10202: (Continued from February 7, 1991, Examiner Hearing.)

Application of Seay Exploration, Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Abo formation underlying the following described acreage and in the following manner: Lots 1 and 2 and the S/2 NE/4 (NE/4 equivalent) of Section 6, Township 20 South, Range 39 East, forming a 160.12-acre gas spacing and proration unit for any and all formations and/or pools within said vertical extent developed on 160-acre spacing, which presently includes but is not necessarily limited to the House-Yates Seven Rivers Gas Pool and the SW/4 NE/4 of said Section 6 forming a standard 40-acre oil spacing and proration unit for any and all formations and/or pools within said vertical extent developed on 40-acre spacing, which presently includes but is not necessarily limited to the House-San Andres, Undesignated House-Blinbery and House-Drinkard Pools. Said units are to be dedicated to a single well to be drilled at a standard location in the SW/4 NE/4 (Unit G) of said Section 6. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 3 miles east-southeast of the community of Nadine, New Mexico.

CASE 10257: Application of Nearburg Producing Company for compulsory pooling and a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Undesignated North Osudo-Morrow Gas Pool underlying all of irregular Section 19, Township 19 South, Range 36 East, forming a non-standard 629.62-acre gas spacing and proration unit for said pool, to be dedicated to a well to be drilled at a standard gas well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 8 miles west by north of Monument, New Mexico.

CASE 10258: Application of Nearburg Producing Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Morrow formation underlying the N/2 of Section 23, Township 20 South, Range 34 East, forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools within said vertical extent developed on 320-acre spacing, which presently includes but is not necessarily limited to the Laguna Valley-Morrow Gas Pool. Said unit is to be dedicated to a well to be drilled at a standard gas well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 4.5 miles south of U.S. Highway 62/180 at Mile Marker No. 80.5.

CASE 10259: Application of Chevron U.S.A., Inc. for statutory unitization, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order unitizing, for the purpose of establishing a secondary recovery project, all mineral interests in the Grayburg and San Andres formations, more or less, underlying 5922.26 acres, more or less, of Federal, State, and Fee lands comprising portions of Townships 21 and 22 South, Ranges 36 and 37 East. Said unit is to be designated the Arrowhead Grayburg (San Andres) Unit. Among the matters to be considered at the hearing will be the necessity of unit operations; the designation of a unit operator; the determination of horizontal and vertical limits of the unit area; the determination of the fair, reasonable, and equitable allocation of production and costs of production, including capital investment to each of the various tracts in the unit area; the determination of credits and charges to be made among the various owners in the unit area for their investment in wells and equipment; and such other matters as may be necessary and appropriate for carrying on efficient unit operations, including but not limited to, unit voting procedures, selection, removal or substitution of unit operator, and time of commencement and termination of unit operations. Said Unit Area is located 3 to 5 miles west of Eunice, New Mexico.

CASE 10260: Application of Chevron U.S.A., Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its proposed Arrowhead Grayburg (San Andres) Unit Area (Division Case No. 10259) located in portions of Townships 21 and 22 South, Ranges 36 and 37 East, by the injection of water into the unitized interval which includes the Grayburg and San Andres formations, more or less, through 50 certain wells to either be drilled, recompleted or converted from producing to water injection wells. Said project area is located 3 to 5 miles west of Eunice, New Mexico.

CASE 10261: Application of Chevron U.S.A., Inc. for pool extensions and contractions, Lea County, New Mexico. Applicant, in the above-styled cause, in conjunction with its Arrowhead Grayburg (San Andres) Unit and waterflood project (Division Cases Nos. 10259 and 10260), applicant seeks to contract and extend the horizontal and/or vertical limits of the Arrowhead-Grayburg, Penrose-Skelly, Langlie-Mattix, and Eumont Gas Pools in portions of Townships 21 and 22 South, Ranges 36 and 37 East, which is 3 to 5 miles west of Eunice, New Mexico.

CASE 10236: (Continued from February 7, 1991, Examiner Hearing.)

Application of Meridian Oil Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from 50 feet below the base of the Queen formation to 50 feet below the base of the Delaware formation underlying the NW/4 SE/4 (Unit J) of Section 12, Township 18 South, Range 31 East, to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated East Shugart-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard oil well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 2.75 miles south by west of New Mexico State Highway No. 529 at the Lea/Eddy County line.

CASE 10237: (Continued from February 7, 1991, Examiner Hearing.)

Application of Meridian Oil Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from 50 feet below the base of the Queen formation to 50 feet below the base of the Delaware formation underlying the NE/4 SW/4 (Unit K) of Section 12, Township 18 South, Range 31 East, to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated East Shugart-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard oil well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 3 miles south by west of the New Mexico State Highway 529 at the Lea/Eddy County line.

CASE 10238: (Continued from February 7, 1991, Examiner Hearing.)

Application of Meridian Oil Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from 50 feet below the base of the Queen formation to 50 feet below the base of the Delaware formation underlying the SE/4 SW/4 (Unit N) of Section 12, Township 18 South, Range 31 East, to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated East Shugart-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard oil well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 3 miles south by west of the New Mexico State Highway 529 at the Lea/Eddy County line.

CASE 10239: (Continued from February 7, 1991, Examiner Hearing.)

Application of Meridian Oil Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from 50 feet below the base of the Queen formation to 50 feet below the base of the Delaware formation underlying the SW/4 SE/4 (Unit O) of Section 12, Township 18 South, Range 31 East, to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated East Shugart-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard oil well location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 3.25 miles south by east of the New Mexico State Highway 529 at the Lea/Eddy County line.

CASE 10249: (Continued from February 21, 1991, Examiner Hearing.)

Application of Pacific Enterprises Oil Company (USA) for a non-standard gas proration unit and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the current Special Rules and Regulations for the McMillan-Morrow Gas Pool, as promulgated by Division Order No. R-2917, as amended, and to establish a non-standard 320-acre gas spacing and proration unit comprising the S/2 of Section 18, Township 20 South, Range 27 East, to be dedicated to a well to be drilled at an unorthodox gas well location 660 feet from the South line and 1980 feet from the West line (Unit M) of said Section 18. Said unit is located approximately 9.5 miles south of the Old Illinois Camp.

CASE 10250: (Continued from February 21, 1991, Examiner Hearing.)

Application of Pacific Enterprises Oil Company (USA) for the rescission of special pool rules and for two non-standard 640-acre gas proration units or, in the alternative, to amend Division Order No. R-2917, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the rescission of the Special Rules and Regulations for the spacing and location of wells in the McMillan-Morrow Gas Pool, comprising Sections 13 and 24, Township 20 South, Range 26 East and Sections 7, 18, and 19, Township 20 South, Range 27 East, and seeks to have said pool governed by the provisions of General Rule 104.C.II(a) for gas pools of Pennsylvanian age. Further, the applicant requests the concomitant creation of two non-standard 640-acre gas spacing and proration units for the McMillan-Morrow Gas Pool in Section 13, Township 20 South, Range 26 East, for the existing Yates Drilling Company Pecos River Deep Unit located in Unit H of said Section 13 and in Section 19, Township 20 South, Range 27 East, for the existing Presidio Exploration Inc. State "I" Com Well No. 1 located in Unit F of Section 19, Township 20 South, Range 27 East. IN THE ALTERNATIVE, the applicant seeks to amend the current Rules and Regulations for said McMillan-Morrow Gas Pool, as promulgated by Division Order No. R-2917, as amended, to permit the optional drilling of an additional well on each 640-acre proration unit. Said pool is located approximately 5 miles south-southeast of Lakewood, New Mexico.

CASE 10262: Application of J. Oil and Gas Production Company, d.b.a. P. T. Adams, for an unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox well location 1340 feet from the South line and 990 feet from the East line (Unit I) of Section 26, Township 7 South, Range 28 East, to test the Fusselman formation. The S/2 of said Section 26 forming a standard 320-acre gas spacing and proration unit to be dedicated should the well be classified as a gas well in the Undesignated South Elkins-Fusselman Gas Pool or the NE/4 SE/4 of said Section 26 forming a standard 40-acre oil spacing and proration unit should the well be classified as an oil well in the Undesignated South Elkins-Fusselman Pool. Said well location is approximately 1.5 miles south of Elkins, New Mexico.

CASE 10211: (Continued from February 21, 1991, Examiner Hearing.)

Application of Santa Fe Energy Operating Partners, L.P. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Wolfcamp formation underlying the following described acreage in Section 8, Township 18 South, Range 33 East, and in the following manner: the W/2 NW/4 to form a standard 80-acre oil spacing and proration unit for any and all formations and/or pools developed on 80-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated South Corbin-Wolfcamp Pool; and the SW/4 NW/4 to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated West Corbin-Delaware Pool, Undesignated Central Corbin-Queen Pool, Undesignated West Corbin-San Andres Pool, and Undesignated Corbin-Bone Spring Pool. Said units are to be dedicated to a single well to be drilled at a standard oil well location 1980 feet from the North line and 660 feet from the West line of said Section 8. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 7.5 miles southeast by south of Maljamar, New Mexico

CASE 10219: (Continued from February 21, 1991, Examiner Hearing.)

Application of Hanley Petroleum Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Wolfcamp formation underlying the following described acreage in Section 8, Township 18 South, Range 33 East, and in the following manner: the W/2 NW/4 to form a standard 80-acre oil spacing and proration unit for any and all formations and/or pools developed on 80-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated South Corbin-Wolfcamp Pool; and the SW/4 NW/4 to form a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on 40-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated West Corbin-Delaware Pool, Undesignated Central Corbin-Queen Pool, Undesignated West Corbin-San Andres Pool, and Undesignated Corbin-Bone Spring Pool. Said units are to be dedicated to a single well to be drilled at a standard oil well location 1980 feet from the North line and 660 feet from the West line of said Section 8. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 7.5 miles southeast by south of Maljamar, New Mexico.

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FEB 28 1991

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION  
OIL CONSERVATION DIV.  
SANTA FE

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION TO CONSIDER THE  
APPLICATION OF CHEVRON USA INC.  
FOR STATUTORY UNITIZATION LEA  
COUNTY, NEW MEXICO

Case No. 10259

PRE-HEARING STATEMENT

This Pre-Hearing Statement is submitted on behalf of Carolyn Loveless Schlicher, Colin McMillan, David Petroleum Corp., Lucinda Loveless, Nadine Prideaux Loveless Smith, and Ladd Petroleum Corp., as required by the Oil Conservation Division.

APPEARANCES OF PARTIES

Opponents: Carolyn Loveless Schlicher  
Colin McMillan  
David Petroleum Corp.  
Lucinda Loveless  
Nadine Prideaux Loveless Smith  
Ladd Petroleum Corp.

Contact Person: Bill Owen and R.J. Kepke  
David Petroleum Corp. Ladd Petroleum Corp.  
116 West 1st Street P.O. Box 42806  
Roswell, New Mexico 88201 Houston, TX 77042  
(505) 623-8800 (713) 978-7700

Attorney: W. Perry Pearce  
Montgomery & Andrews, P.A.  
Post Office Box 2307  
Santa Fe, New Mexico 87504  
(505) 982-3873

OPPONENT'S STATEMENT OF OPPOSITION

Opponents are parties interested in this matter because they are the holders of overriding royalty interests on properties within

the boundaries of the proposed statutory unit. The tracts within the unit area subject to the opponents' overriding royalty interests have been assigned a participating interest in unit production of zero percent (0%).

The New Mexico Statutory Unitization Act § 70-7-1 et seq. NMSA 1978 provides in pertinent part that at the hearing of a statutory unitization case, the division shall consider whether or not each of the following conditions exists:

(4) That such unitization and adoption of one or more of such unitized methods of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the pool or portion thereof directly affected;

\* \* \*

(6) That the participation formula contained in the Unitization Agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the unit area on a fair, reasonable and equitable basis.

§ 70-7-6 NMSA 1978 (emphasis added)

Applicant believes that the proposal submitted by applicant in this case fails to meet the requirements.

#### OPPONENT'S PROPOSED EVIDENCE

Opponent expects to call one witness, a petroleum engineer at such hearing. Opponent does not presently know whether it will submit exhibits at such hearing but expects that its direct presentation would require 45 minutes to 1 hour. Opponents expect to participate in this hearing through cross-examination of applicant's witnesses.

#### PROCEDURAL MATTERS

Opponent is unaware of any procedural matters which must be resolved prior to the hearing of this case.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By 

W. Perry Pearce  
Post Office Box 2307  
Santa Fe, New Mexico 87504-2307  
(505) 982-3873

Attorneys for Opponents

CERTIFICATE OF SERVICE

I certify that I had a copy of this Pre-Hearing Statement hand-delivered to W. Thomas Kellahin, Esq., 117 N. Guadalupe, Santa Fe, New Mexico 87501 on February 28, 1991.

  
W. Perry Pearce

[wpp:77]

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 10259

APPLICATION OF CHEVRON U.S.A., INC.,  
FOR STATUTORY UNITIZATION, ARROWHEAD  
GRAYBURG UNIT, LEA COUNTY, NEW MEXICO

PRE-HEARING STATEMENT

This pre-hearing statement is submitted by CHEVRON  
U.S.A., INC. as required by the Oil Conservation Division.

APPEARANCE OF PARTIES

APPLICANT  
(name, address, phone  
and contact person)

Chevron U.S.A., Inc.  
P.O. Box 1150  
Midland, TX 79702  
Attn: Bryan Cotner  
(915) 687-7314

ATTORNEY

W. Thomas Kellahin  
KELLAHIN, KELLAHIN & AUBREY  
P.O. Box 2265  
Santa Fe, New Mexico 87504  
(505) 982-4285

OPPOSITION OR OTHER PARTY  
(name, address, phone  
and contact person)

ARCO Oil & Gas Company

ATTORNEY

William F. Carr  
Campbell & Black, P.A.  
P.O. Box 2208  
Santa Fe, New Mexico 87504  
(505) 988-4421

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OIL CONSERVATION DIV.  
SANTA FE

Pre-hearing Statement  
NMOCD Case No. 10259  
Page 2

Carolyn Loveless Schlicher  
Colin McMillan  
David Petroleum Corp.  
Lucinda Loveless  
Nadine Prideaux Loveless  
Smith  
Ladd Petroleum Corp.

W. Perry Pearce  
Montgomery & Andrews, P.A.  
P.O. Box 2307  
Santa Fe, New Mexico 87504  
(505) 982-3873

#### STATEMENT OF CASE

##### APPLICANT

(Please make a concise statement of what is being sought with this application and the reasons therefore.)

Chevron U.S.A., Inc. seeks an order unitizing, for the purpose of establishing a secondary recovery project, all mineral interests in the Grayburg and San Andres formations, more or less, underlying 5922.26 acres, more or less, of Federal, State and Fee lands comprising portions of Townships 21 and 22 South, Ranges 36 and 37 East. Said unit is to be designated the Arrowhead Grayburg (San Andres) Unit. Among the matters to be considered at the hearing will be the necessity of unit operations; the designation of a unit operator; the determination of horizontal and vertical limits of the unit area; the determination of the fair, reasonable, and equitable allocation of production and costs of production, including capital investment to each of the various tracts in the unit area; the determination of credits and charges to be made among the various owners in the unit area for their investment in wells and equipment; and such other matters as may be necessary and appropriate for carrying on efficient unit operations, including but not limited to, unit voting procedures, selection, removal or substitution of unit operator, and time of commencement and termination of unit operations.

**PROPOSED EVIDENCE**

APPLICANT

WITNESSES (name and expertise)	EST. TIME	EXHIBITS
Bryan Cotner (PE)	60 Min.	20
Don Lindsay (geologist)	20 Min.	8
Denise Beckham (landman)	20 Min.	14

OPPOSITION OR OTHER PARTY

WITNESSES (name and expertise)	EST. TIME	EXHIBITS
-----------------------------------	-----------	----------

**PROCEDURAL MATTERS**

(Please identify any procedural matters which need to be resolved prior to the hearing)

KELLAHIN, KELLAHIN & AUBREY

By: 

W. Thomas Kellahin

P.O. Box 2265

Santa Fe, New Mexico 87504

(505) 982-4285

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 10259

APPLICATION OF CHEVRON U.S.A. INC.  
FOR STATUTORY UNITIZATION,  
LEA COUNTY, NEW MEXICO.

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**PRE-HEARING STATEMENT**

OIL CONSERVATION DIV.

This Prehearing Statement is submitted by William F. Carr, as required by the Oil Conservation Division.

SANTA FE

**APPEARANCES OF PARTIES**

**APPLICANT**

**ATTORNEY**

Chevron U.S.A., Inc. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

W. Thomas Kellahin, Esq. \_\_\_\_\_  
Kellahin, Kellahin & Aubrey \_\_\_\_\_  
Post Office Box 2265 \_\_\_\_\_  
Santa Fe, New Mexico 87504 \_\_\_\_\_  
(505) 982-4285

name, address, phone and  
contact person

**OPPOSITION OR OTHER PARTY**

**ATTORNEY**

ARCO Oil & Gas Company \_\_\_\_\_  
Post Office Box 1610 \_\_\_\_\_  
Midland, Texas 79702 \_\_\_\_\_  
Attn: Kent Bickham \_\_\_\_\_  
(915) 688-5632

William F. Carr \_\_\_\_\_  
Campbell & Black, P.A. \_\_\_\_\_  
Post Office Box 2208 \_\_\_\_\_  
Santa Fe, New Mexico 87504 \_\_\_\_\_  
(505) 988-4421 \_\_\_\_\_

name, address, phone and  
contact person

**STATEMENT OF CASE**

APPLICANT

OPPOSITION OR OTHER PARTY

(Please make a concise statement of the basis for opposing this application or otherwise state the position of the party filing this statement.)

**PROPOSED EVIDENCE**

APPLICANT

WITNESSES  
(Name and expertise)

EST. TIME

EXHIBITS

OPPOSITION

WITNESSES  
(Name and expertise)

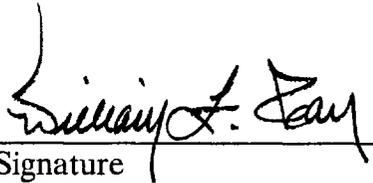
EST. TIME

EXHIBITS

None.

**PROCEDURAL MATTERS**

None.

  
Signature

**PROPOSED EVIDENCE**

APPLICANT

WITNESSES  
(Name and expertise)

EST. TIME

EXHIBITS

OPPOSITION

WITNESSES  
(Name and expertise)

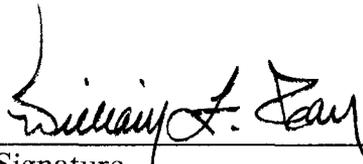
EST. TIME

EXHIBITS

None.

**PROCEDURAL MATTERS**

None.

  
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STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING )  
CALLED BY THE OIL CONSERVATION )  
DIVISION FOR THE PURPOSE OF )  
CONSIDERING: )  
  
APPLICATION OF CHEVRON U.S.A., )  
INC. )  
\_\_\_\_\_ )

CASE NOS. 10259,  
10260, 10261

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: JIM MORROW, Hearing Examiner

March 7, 1991

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on March 7, 1991, at 1:52 p.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Freda Donica, RPR, Certified Court Reporter No. 417, for the State of New Mexico.

FOR: OIL CONSERVATION DIVISION BY: FREDA DONICA, RPR  
Certified Court Reporter  
CCR No. 417

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I N D E X

March 7, 1991  
Examiner Hearing  
CASE NO. 10259, 10260, 10261

PAGE

APPEARANCES

3

CHEVRON'S WITNESSES:

BRYAN C. COTNER

Direct Examination by Mr. Kellahin 8

Examination by Mr. Stovall 85

DON LEE LINDSEY

Direct Examination by Mr. Kellahin 85

DENISE K. BECKHAM

Direct Examination by Mr. Kellahin 102

Examination by Mr. Stovall 117

REPORTER'S CERTIFICATE

121

\* \* \*

E X H I B I T S

Applicant's 1-28

ID ADMTD

63 63

Applicant's 29-33

80 80

Applicant's 34-43

100 100

Applicant's 44-61

116 116

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A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL, ESQ.  
General Counsel  
Oil Conservation Commission  
State Land Office Building  
310 Old Santa Fe Trail  
Santa Fe, New Mexico 87501

FOR THE APPLICANT:

KELLAHIN, KELLAHIN & AUBREY  
117 N. Guadalupe  
Santa Fe, New Mexico  
BY: W. THOMAS KELLAHIN, ESQ.

FOR ARCO:

CAMPBELL & BLACK, P.A.  
110 N. Guadalupe  
Santa Fe, New Mexico  
BY: WILLIAM F. CARR, ESQ.

1 HEARING EXAMINER: We're ready to start again, and  
2 we'll call case 10259.

3 MR. STOVALL: Application of Chevron U.S.A., Inc. for  
4 statutory unitization, Lea County, New Mexico.

5 HEARING EXAMINER: Do you want to call the other two?

6 MR. KELLAHIN: If you please, Mr. Examiner.

7 HEARING EXAMINER: Also call 10260 and 10261.

8 MR. STOVALL: Application of Chevron U.S.A., Inc. for a  
9 waterflood project, Lea County, New Mexico. Case 10261 is  
10 the application of Chevron U.S.A., Inc. for pool extensions  
11 and contractions, Lea County, New Mexico.

12 MR. KELLAHIN: Call for appearances now.

13 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the  
14 Santa Fe law firm of Kellahin, Kellahin & Aubrey, appearing  
15 on behalf of the applicant Chevron U.S. Inc.

16 MR. CARR: May it please the Examiner, my name is  
17 William F. Carr with the law firm Campbell & Black, P.A., of  
18 Santa Fe. I represent Arco Oil and Gas, and I do not intend  
19 to call a witness.

20 MR. PEARCE: May it please the Examiner, I'm W. Perry  
21 Pearce of the Santa Fe law firm of Montgomery & Andrews.  
22 I'm appearing in this matter on behalf of Carolyn Lovelace  
23 Schlicher, Collin McMillan, David Petroleum Corp., Lucinda  
24 Lovelace and Nadine Trudeau Lovelace Smith.

25 Mr. Examiner, I have previously filed a

1 prehearing statement in this matter which also listed a  
2 company called Ladd Petroleum Corp. I have since been  
3 informed by Ladd that they do not wish to participate in  
4 this hearing, and I'd like for the record to make it clear  
5 that I am not at this time representing Ladd Petroleum.

6 HEARING EXAMINER: Yes, sir. Thank you. Will the  
7 witnesses to testify please stand and be sworn?

8 MR. KELLAHIN: I have three witnesses to be sworn.

9 MR. STOVALL: Mr. Carr, do you have any?

10 MR. CARR: I do not.

11 (Witnesses sworn.)

12 MR. KELLAHIN: Mr. Examiner, I'd like to call my first  
13 witness Mr. Bryan Cotner. Mr. Cotner is a petroleum  
14 engineer and will explain to you the bulk of the  
15 presentation concerning Chevron's request to have the  
16 division use its statutory unitization authority so that we  
17 might implement a waterflood project.

18 Despite our efforts, it is apparent that we will  
19 not receive unanimous support from a hundred percent of the  
20 working interest owners, nor a hundred percent of the  
21 royalty owners. In that regard then, we would ask that you  
22 impose the Statutory Unitization Act to allow this project  
23 to go forward.

24 In the course of putting together the  
25 presentation, there was a group of overriding royalty owners

1 who hold an interest in what is known as Tract 20. A  
2 portion of that group is represented by Mr. Pearce today.

3           The parameters selected by the working interest  
4 owners upon which to allocate secondary reserves for the  
5 unit were such that in a single, unique situation, which Mr.  
6 Cotner can explain in more detail, there is a group of  
7 overriding royalty owners on a lease which is held by  
8 Chevron as the working interest owners, under the  
9 participation formula, have a zero percent participation as  
10 a result of the calculation. While it is our position that  
11 that is permitted under the statutory unitization, we have  
12 agreed with Mr. Pearce's clients to seek your approval of an  
13 additional provision in the order, the language of which we  
14 will specifically submit to you later. We're happy to draft  
15 the order if you desire it. And with Mr. Pearce's approval,  
16 we'll have language in there that specifically addresses the  
17 unique situation of those overriding royalty owners. In  
18 effect, what we will provide is that those overriding royal  
19 owners will receive their royalty as if their tract did not  
20 participate in the unit so that when there is a producing  
21 well on that tract, they will get their royalty calculated  
22 from production from that well. That, in principal, is the  
23 proposal, and it has been accepted by Mr. Pearce and his  
24 clients. That is a little different solution than we have  
25 asked in the past. We think it's allowed and permitted.

1           Other than that, I am unaware of any working  
2 interest owner or royalty owner that actively opposes the  
3 approval of either the waterflood project, the nomenclature  
4 adjustments or the statutory unitization case.

5           We are prepared to proceed at this point then  
6 with Mr. Cotner's technical presentation on the engineering  
7 work and all the details necessary to satisfy you that you  
8 may exercise the authority to prove this project.

9           HEARING EXAMINER: Would it affect the monies received  
10 by any other interest owner such as -- obviously it would  
11 have to -- but would it affect other royalty interest owners  
12 to pay these overriding royalty interests more than they  
13 would get under the agreement?

14          MR. KELLAHIN: No, sir, it does not proportionately  
15 reduce any other royalty owner. It is proposed to be  
16 handled as a unit expense chargeable against the working  
17 interest owners of the unit.

18          HEARING EXAMINER: I assume they're all in agreement on  
19 it; is that correct?

20          MR. KELLAHIN: Their agreement is yet to be determined  
21 and can be effected once the order is entered, and we have  
22 to seek their post-order approval. Under statutory  
23 unitization procedures, we are obligated after the order is  
24 entered, within a six-month period, to obtain the necessary  
25 threshold percentages of approval; 75 percent for the

1 working interest owner and 75 percent for the royalty  
2 group. It may occur that with that language in the order,  
3 we may not receive the 75 percent. We are hopeful that we  
4 will. And so by that mechanism we will have the necessary  
5 approvals to implement this solution for Tract 20.

6 MR. STOVALL: Sounds fine to me.

7 HEARING EXAMINER: All right, go ahead.

8 BRYAN C. COTNER

9 the Witness herein, having been first duly sworn, was  
10 examined and testified as follows:

11 DIRECT EXAMINATION

12 BY MR. KELLAHIN:

13 Q. For the record, Mr. Cotner, would you please  
14 state your name and occupation?

15 A. My name is Bryan C. Cotner. My current  
16 occupation is unitization coordinator for Chevron U.S.A. in  
17 Midland, Texas.

18 Q. Do you hold a professional degree?

19 A. Yes, sir. I'm a petroleum engineer with a  
20 Bachelor of Science degree from the University of Texas at  
21 Austin.

22 Q. In what year did you obtain your degree?

23 A. 1981.

24 Q. Subsequent to graduation, Mr. Cotner, would you  
25 summarize your professional engineering experience?

1           A.     I have worked for Gulf Oil and Chevron U.S.A., a  
2           successor to Gulf Oil, since 1981, eight years in the  
3           capacity of a reservoir engineer and two years in the  
4           capacity of a field engineer.

5           Q.     Summarize for us your involvement in the  
6           Arrowhead Grayburg Unit process.

7           A.     I began work on studying the feasibility of  
8           waterflooding and unitizing the Arrowhead Pool in 1987 and  
9           have been involved in all aspects that Chevron has conducted  
10          in this unitization effort since the first working interest  
11          owners meeting in May of 1988.

12          Q.     Was Chevron the instigator of the unit?

13          A.     Yes, sir, we were.

14          Q.     And were you one of the engineers that supplied  
15          the work for the Technical Committee Report?

16          A.     Yes, sir, I was.

17          Q.     In addition, have you participated in the working  
18          interest owners committee discussions and meetings?

19          A.     Yes, sir, I have.

20          Q.     And you have also prepared under your direction  
21          the necessary waterflood documents for filing before this  
22          division, we characterize it as the C-108 application  
23          filing?

24          A.     Yes, sir.

25          Q.     That was done under your direction and control?

1           A.     Yes, it was.

2           Q.     Have you, along with other technique people of  
3 Chevron, participated in completing the Technical Committee  
4 Report?

5           A.     Yes, sir, I participated.

6           Q.     When we talk about the Technical Committee  
7 Report, are we talking about the document that's date  
8 September of 1989?

9           A.     Yes, sir, that is the report.

10          Q.     And it's marked for introduction as Exhibit  
11 Number 5 to this hearing?

12          A.     Yes, sir.

13          Q.     Based upon that study, have you formulated  
14 opinions as a professional engineer concerning the formation  
15 of this waterflood project?

16          A.     Yes, sir, I have.

17          Q.     Have you formulated opinions about whether or not  
18 it would be successful?

19          A.     Yes, sir, I have.

20          Q.     Have you determined that you will need the  
21 implementation of the Statutory Unitization Act in order to  
22 make the unit and the waterflood fully effective?

23          A.     Yes, sir, because through our process we have  
24 never had 100 percent correspondence received back from  
25 partners. We have had up to 98.8 percent of the working

1 interest owners respond on certain issues, but we've always  
2 had a small element that has just not ever returned any  
3 correspondence.

4 MR. KELLAHIN: At this point, Mr. Examiner, I tender  
5 Mr. Cotner as an expert petroleum engineer.

6 HEARING EXAMINER: We'll accept his qualifications.

7 Q. (By Mr. Kellahin) Mr. Cotner, let me direct your  
8 attention, sir, to what is marked as Exhibit Number 1.  
9 Would you identify that for us, please?

10 A. Yes, sir. It's an existing and proposed Grayburg  
11 and San Andres waterflood map for southeast New Mexico. The  
12 purpose of this exhibit is to orientate the Examiner on the  
13 location of the proposed Arrowhead Grayburg Unit. It is  
14 approximately one mile southeast of the Chevron-operated  
15 Eunice Monument South Unit, which was a statutory unit  
16 formed in 1985 that produces also from the Grayburg  
17 formation. The Arrowhead Unit is on the same structural  
18 trend as this Eunice Monument South Unit. In 1990, the  
19 Eunice Monument South Unit was expanded in the area  
20 indicated EMSUB, which is the Eunice Monument South Unit  
21 expansion area B. Again, this is the same element of the  
22 Grayburg reservoir that will be flooded in the proposed  
23 unit. Just to the north of that is the Amaratta Hess  
24 proposed North Monument Grayburg Unit.

25 Q. Let me have you turn to Exhibit Number 2 and look

1 specifically at the proposed configuration of the unit.

2 What is shown on Exhibit Number 2?

3 A. Exhibit Number 2 is a unit outline through the  
4 sections included in the unit which occurs in Townships 21  
5 and 22 South, Range 36 and 37 East. This map indicates  
6 current tract numbers that will be seen on a land exhibit  
7 later. It indicates the portions of the unit that are  
8 federal land, state lands and patented lands or fee lands.  
9 The total proportion of each is 9.36 percent federal, 60.75  
10 percent for the State of New Mexico and a little less than  
11 30 percent in fee lands.

12 Q. If we use Exhibit Number 2 as a guideline for  
13 tract identification, are these still the tract  
14 identification numbers to be used in the unit?

15 A. These will be the tract numbers used in the  
16 unit. As we go through the Technical Committee Report,  
17 there will be some deviation of that. I have included in  
18 the exhibits, I believe it's Exhibit Number 32, which is a  
19 cross reference to the new tract number as compared to the  
20 old or steady tract number.

21 The reason for these changes is we originally had  
22 issued the numbers based on the exchange date of state  
23 leases, and we were later corrected, and it was determined  
24 we should base that on original lease date. So, for  
25 example, in the study, what we call Tract 15, which was

1 based on the sequence of exchange dates, became Tract 6  
2 because it was, indeed, an earlier lease than Tract 7  
3 through 14.

4 Q. For clarity in our discussion, Mr. Cotner, I  
5 propose that you and I will continue to identify the tracts  
6 using the tract identification numbers shown on Exhibit  
7 Number 2.

8 A. Yes, sir. When I refer to tracts in the  
9 Technical Committee Report, I'll make it clear what the  
10 correct number is if it's different from the report.

11 Q. Do you have a schematic or a display that will  
12 give us a visual reference vertically so that we can see the  
13 proposed impact on the zones to be unitized?

14 A. Yes, sir. There's a schematic, which is Exhibit  
15 Number 3, which indicates a cross-section through the unit.  
16 It shows the Penrose member of the Queen formation just  
17 above the Grayburg. It indicates the top of the unit where  
18 the San Andres formation occurs, which is the aquifer  
19 portion, and where the proposed base of the unit is.

20 You'll see that we have indicated the top of the  
21 unit to be at minus 150 subsea, or the top of the Grayburg,  
22 whichever is shallower. On the left-hand edge, which would  
23 be the western boundary of the unit, we show that the  
24 boundary was drawn where the top of the Grayburg occurred  
25 above minus 325 subsea. On the eastern portion we show that

1 the boundary of the unit was drawn where the percent  
2 carbonate, or dolomite, if you will, was greater than 60  
3 percent. I'll explain this, and there will be some geology  
4 testimony explaining this in more detail. We show the base  
5 of the unit at minus 1,500 subsea, which will include the  
6 majority portion of the San Andres aquifer that falls within  
7 100 to 200 feet above the base of the San Andres.

8 Q. Using the schematic now, let me have you give the  
9 Examiner a summary of the justification for the base of the  
10 unit being in the aquifer. What is the argument for using  
11 that nomenclature to describe in a consistent way the base  
12 of the unit?

13 A. It was our intention to include the aquifer in  
14 the unit so we could enjoy maximum control of the water  
15 supply for makeup injection purposes. And it also would  
16 allow us to equitably treat any trace hydrocarbon production  
17 that came with the high volumes of water from the water  
18 supply wells. We had reviewed this proposal very early in  
19 the project with Mr. Jerry Sexton of the Hobbs district  
20 offers of the OCD, and he had no problems with that.

21 Q. As we deal with the details of the unit process,  
22 are we going to have to resolve any problem with unit wells  
23 that penetrate below the base of the proposed unit?

24 A. I'm sorry, I don't believe I understand your  
25 question fully.

1 Q. When we're looking at the base of the unit, do we  
2 have any unit wells, wells that will be dedicated as  
3 contributing wells to the unit that must be recompleted in  
4 such a fashion to get them out of an interval below the base  
5 of the unit?

6 A. No, sir, we do not.

7 Q. When we look at the top of the unit, as we go  
8 through west to east, there is a proposed change in  
9 nomenclature, is there not?

10 A. Yes, sir, there is.

11 Q. Why do you need the change in nomenclature?

12 A. The -- a very large portion, in fact, over 60  
13 wells within the proposed unit were completed in both the  
14 Grayburg formation and the Penrose Member of the Queen. In  
15 the early days of the pool, the pool definition allowed for  
16 the inclusion of Penrose and Grayburg production from the  
17 Arrowhead Grayburg well. Subsequent to that, and I believe  
18 it was about 1957, and I will have some notes to that effect  
19 later, the commission redefined the Arrowhead Grayburg Pool  
20 to include only the Grayburg formation, and any new wells to  
21 be classified as Arrowhead should be completed only in the  
22 Grayburg formation that after that date. The commission,  
23 however, did not require any remedial work to isolate Eumont  
24 or Pequano Monument, Penrose production from the Grayburg  
25 production from wells that were completed prior to 1957. By

1 including this minus 150 subsea, which is the apparent gas  
2 well contact, we will be including the entire oil column in  
3 this waterflood unit.

4 Q. If we were to stay with a nomenclature  
5 description that described the top of the unit as being the  
6 top of the Grayburg, we will on both the western edge and  
7 the eastern edge of the unit inadvertently omit part of the  
8 oil column that should be in the unit.

9 A. Yes, sir, that's correct. And at the same time  
10 we will be eliminating some of the production or allowing  
11 for inclusion of production in the parameter tables that  
12 would not be part of the unit because we could not directly  
13 measure how much production came from the Penrose and how  
14 much production came from the Grayburg.

15 Q. If the Examiner desires a quick reference to the  
16 pool designations, if you will, that will accompany Exhibit  
17 Number 3, he might look at figure 5, I believe, in Exhibit  
18 5, the technical report? There is a cartoon, if you will,  
19 in Exhibit 5, if you'll turn to the figure section. It  
20 should be in the white book. Figure 5 in Exhibit 5 would  
21 also aid the Examiner in understanding the difference  
22 nomenclatures applied in the study area?

23 A. Yes, sir, it would.

24 Q. When you're dealing with the proposed plan to  
25 establish a top of the unit, did you find that there are

1 proposed unit wells that are open hole or perforated or  
2 completed above the top of the proposed unit in any  
3 individual wellbores?

4 A. Yes, sir, there are several occurrences of that.

5 Q. And you have taken appropriate measures to  
6 provide a solution for that situation?

7 A. Yes, sir. Prior to commencing unit operations  
8 and producing from those wells, we will isolate the unitized  
9 formation only.

10 HEARING EXAMINER: Pardon me, you said some of the  
11 Arrowhead wells are completed above the 150?

12 THE WITNESS: Yes, sir, and it's not only the Arrowhead  
13 wells, it's a couple of the Langlie Mattix wells as well.

14 Q. (By Mr. Kellahin) Again then, describe in the  
15 summary fashion the solution for those wellbores in the top  
16 section that are penetrating through the Grayburg into the  
17 unitized interval and correspondingly also would be above  
18 the unit.

19 A. Yes, sir. We can isolate the unit interval  
20 production by either squeezing perforations on wells that  
21 are cased hole across the top of the unit and have  
22 perforations above the unit, or we can run and submit liners  
23 and then perforate them on wells that are open hole across  
24 the top of the unit.

25 Q. Now that you've generally described the unit

1 boundary, both horizontally and vertically, let me have you  
2 to go to the next display, Exhibit Number 4, and within the  
3 context of explaining that display, describe for us what has  
4 been the past pool history of production out of the pool.

5 A. Okay. Exhibit 5 is a rate versus time production  
6 plot indicating oil, water, GOR and well count for all wells  
7 in the proposed Arrowhead Grayburg Unit. The discovery of  
8 the Arrowhead Grayburg was credited to the Continental Oil  
9 Company State J-2 Number 1 in May of 1938. However, several  
10 wells in the unit produced prior to that date, as seen by  
11 the production of '36 and '37. This is production that was  
12 then classified as Penrose South Eunice or Eunice area that  
13 was later incorporated into the Arrowhead Grayburg Pool.

14 The cumulative production to date has been 31.3  
15 million stocktank barrels of oil. The peak production rate,  
16 which occurred in about 1943 or four, was about 5,500  
17 barrels of oil per day. There's been a total of 134 wells  
18 produced in the unitized area. There are currently 55 wells  
19 producing, and the current rate is 530 barrels of oil per  
20 day, 5,400 barrels of water per day, 3,700 MCF per day.

21 Initial reservoir pressure was approximately 1460. The last  
22 pressure required to be recorded by the state of in about  
23 1965, at which time the pressure was about 450 PSI.

24 Reviewing the pressure data versus cume over those years  
25 indicates that solution gas drive is the predominant

1 recovery mechanism. But as indicated by the increased water  
2 production in midforties and continued through date, there  
3 are some elements of water drive present. We believe these  
4 are localized and not efficient in increasing recovery from  
5 the pool and that there is sufficient secondary reserves  
6 target this way.

7 Q. As part of the technical analysis of the  
8 feasibility of the unit for waterflood operations, have you  
9 and the geologist come to certain geologic conclusions about  
10 the suitability of this formation for flooding?

11 A. Yes, sir, we have.

12 Q. Summarize for us the ability of this formation to  
13 be successfully flooded.

14 A. We see a permeability seal at the top of the  
15 Grayburg, between the Grayburg and the Penrose, and repeated  
16 seals within the Penrose oil column that will allow for  
17 water injection to remain in the target waterflood. We see  
18 pay continuity between current producing wells on the 40  
19 acres that the fill was developed on, indicating that water  
20 injection in a well will affect production from an  
21 offsetting well. In fact, this continuity travels more than  
22 one location across. We see some of these permeability  
23 seals separating members of the Grayburg formation, which  
24 would say that if you had some active element of water drive  
25 in a portion of the Grayburg, that the other portion of the

1 Grayburg penetrated by individual well may not be affected  
2 at all by that water drive.

3 Q. In terms of a logical boundary, both north,  
4 south, east and west for this unit, what is your assessment  
5 of the feasibility of the boundaries as being logical  
6 boundaries for the waterflood?

7 A. We have picked the most logical boundaries for  
8 the waterflood.

9 Q. The current status of the unitized area is you've  
10 got 56 producers left?

11 A. Fifty-five or 56 to date.

12 Q. Producing on average of five to ten barrels of  
13 oil a day?

14 A. Yes, sir, that would be the average.

15 Q. The proposed plan of operation will involve some  
16 6,000 acres?

17 A. Yes, sir, just shy of 6,000 acres.

18 Q. How many producing wells do you anticipate and  
19 how many injectors?

20 A. If developed as planned, we'll have 75 producers  
21 and 52 injectors.

22 Q. What type of waterflood spot pattern will you  
23 utilize when fully developed?

24 A. We'd incorporate an 80-acre five-spot pattern.

25 Q. Sometimes the division has to deal with the

1 complexity of having significant gas volumes being produced  
2 or subject to production within a unitized interval in the  
3 statutory unit waterflood project. Do you have that problem  
4 to cope with in this unit?

5 A. No, sir, although we may have a secondary gas cap  
6 that has formed since initial discovery. It's a small gas  
7 cap, and we anticipate that all gas will go back in the  
8 solution as we repressurize the reservoir.

9 Q. Let me direct your attention now to Exhibit  
10 Number 5, which is -- some of you have the three-ring  
11 binders -- it's the white book -- others may have it as a  
12 bound spiral. It's the Technical Committee Report dated  
13 September 1989. Before we go into the details of the book,  
14 describe for the Examiner how the book is organized.

15 A. The book was compiled by members of -- several of  
16 the major partners of this proposed waterflood that -- each  
17 working interest owner was invited to designate a technical  
18 committee representative. And we had several meetings of  
19 the technical committee to review the proposed boundaries,  
20 the secondary recovery performance prediction, the economics  
21 for the project. As part of their work and charged by the  
22 working interest owners, we compiled this report, which  
23 begins with an introduction, has the conclusions and  
24 recommendations of the technical committee, followed by the  
25 reservoir information which includes pool history, the

1 proposed boundaries, the secondary recovery potential, the  
2 capital requirements, the economics, the equity parameters  
3 presented to the working interest owners for use in  
4 participation negotiations, and as a breakdown of the costs  
5 or the ownership in each tract.

6 Q. What percentage of the working interest owners,  
7 if you recall, provided technical people to work on the  
8 technical committee?

9 A. In terms of participating percent, it was  
10 typically 95 percent.

11 Q. During what period of time did the technical  
12 committee meet and work on preparing the technical report?

13 A. We began meeting in August of 1988 and completed  
14 our charge in October of 1989.

15 Q. Prior to writing the section and coming to an  
16 agreement on the secondary recovery potential of the unit,  
17 summarize for us the types of data acquired in order to make  
18 that assessment.

19 A. The Arrowhead Pool, because of the time that it  
20 was developed, in the thirties and forties, lacked a -- very  
21 much quantitative data that could be used for traditional  
22 performance predictions. The premise of the performance  
23 prediction was based on analogies of other five-spot  
24 carbonate and Grayburg waterfloods in the area. This was  
25 the same approach originally used on the EMSU in 1985, and

1 we repeated it for the Arrowhead Grayburg. The analogy  
2 looks at the statistical averages of the performance of  
3 other floods, including what the secondary to primary  
4 recovery ratio would be, what the peak production rate would  
5 be in terms of injection rate, the time to initial response,  
6 the time until peak response, and the duration of peak  
7 response. And then this was reinforced while we were  
8 working by simulation work that was being conducted on the  
9 EMSU, which was having quantitative data gathered as the  
10 unit was being developed, which indicated that our secondary  
11 to primary ratio of 50 percent was a reasonable number to  
12 apply for the Arrowhead Unit.

13 Q. Let's turn to that portion of Exhibit 5 behind  
14 the tab that talks about secondary recovery potential.  
15 There's a separate blue tab that simply says that,  
16 "Secondary Recovery Potential."

17 A. Yes, sir.

18 Q. Summarize for us the conclusions that the  
19 technical committee reached concerning the secondary  
20 recovery potential for the unit.

21 A. The conclusion was that we should expect to  
22 recover an additional 15 million barrels of oil from the  
23 Arrowhead Pool.

24 Q. Describe for us the methodology applied then  
25 again to reach that number.

1           A.     We applied the secondary to primary ratio of 50  
2 percent to the proposed swept area or the area that would be  
3 directly affected by injection within the proposed unit  
4 boundaries. So this wasn't simply applying the 50 percent  
5 to the cumulative or ultimate production from the entire  
6 unit are, but taking into account that the secondary  
7 production would only come from the areas directly flooded  
8 by injectors. As a result, we're really talking in terms of  
9 about 46 percent of secondary/primary ratio to the entire  
10 unit area. By applying the analogy after determination of  
11 the reserves, we concluded that the peak production rate  
12 would be 5,850 barrels of oil per day, which is based on 25  
13 percent of the anticipated injection rate, which is expected  
14 to be between 450 and 500 barrels of water per day for each  
15 of the 52 injection wells.

16                 The time to initial response assumed was one-half  
17 fill-up, and the peak response was fill-up. And based on  
18 the depletion, the reservoir being similar to the EMSU and  
19 on use of the Calaway equation, we calculated there was  
20 slightly less than 20 percent free gas saturation, and the  
21 time to one-half fill-up and fill-up were approximately  
22 three-and-a-half and seven years respectively.

23           Q.     What, if any, consensus was arrived at among the  
24 reservoir engineers participating in the technical committee  
25 on behalf of their various companies to this approach to

1 secondary reserve analysis?

2 A. That it was a reasonable approach, considering  
3 the lack of quantitative data available.

4 Q. Was there any reservoir engineer for any of the  
5 other companies participating on the technical committee  
6 that proposed alternative ways to assess secondary recovery  
7 potential?

8 A. No, sir, there was not.

9 Q. Having come for an agreement on the technical  
10 committee concerning the secondary recovery potential, did  
11 the committee also address the capital requirements  
12 necessary in order to attain that secondary potential?

13 A. Yes, sir, we did.

14 Q. And is that set forth in a chapter of the book?

15 A. Yes, sir, it's in chapter VII.

16 Q. This will be shown on Exhibit 5 behind the blue  
17 tab that says "Capital Requirements"?

18 A. Yes, sir.

19 Q. Summarize for us -- no reason to read the details  
20 of it, the Examiner can read it himself if he desires -- but  
21 summarize for us the details of, first of all, the  
22 methodology applied for analyzing the capital requirements  
23 and then the conclusions you reached after applying that  
24 analysis.

25 A. Each individual well within the unit and its

1 current status was reviewed by members of the technical  
2 committee to determine how many additional wells we'd have  
3 to drill because a large portion of the wells that  
4 historically produced from the Arrowhead Grayburg Pool had  
5 either been plugged back to the Eumont or plugged and  
6 abandoned. So we estimated for the proposed waterflood  
7 pattern how many wells we'd have to drill, producers and  
8 injectors. We assumed how many -- or that each producer  
9 that came from an existing well would be worked over, in  
10 terms of an acid job. We reviewed the completion to see if  
11 wells would be deepened or perforations added and added that  
12 to the cost element also. We evaluated which of the current  
13 producing wells would be converted to injection and  
14 calculated the cost for those conversions. And then we  
15 reviewed the surface facilities requirements and cost  
16 estimates, the costs for putting in a production gathering  
17 system that would include five satellite batteries and  
18 central gathering point, the water injection station and  
19 water injection distribution system -- or the abandonment of  
20 the existing tank batteries that would be replaced by the  
21 satellite batteries and central batteries, and the  
22 electrical distribution system. And the total cost estimate  
23 for all of this is shown in Table 3 of this Exhibit 5, and  
24 it shows that 28.2 million dollars would be required. And  
25 that table also indicates the breakdown for the drill and

1 completion costs, the workover costs and the surface  
2 facility costs.

3 Q. Having reached conclusions on the secondary  
4 recovery potential, the capital requirements, did you apply  
5 an economic analysis to the unit to determine whether or not  
6 it was economic?

7 A. Yes, sir, and that is indicated behind the tab  
8 indicated "Economics," which is chapter VIII of the Exhibit  
9 5.

10 Q. What are the economic conclusions?

11 A. Our analysis, which assumed the base case of the  
12 remaining primary production from the unit, subtracted from  
13 the proposed case, which included both remaining primary and  
14 incremental secondary production, indicated for the 15  
15 million barrels of oil additional recovery and a  
16 28.2-million-dollar expense that the owners of the unit  
17 would realize a 20 percent discounted cash flow rate of  
18 return and a present worth profit discounted at ten percent  
19 of 24.6 million dollars.

20 Q. If the unit and waterflood is approved by the  
21 division, the estimated secondary oil recovery is what  
22 volume of oil, estimated?

23 A. Fifteen million barrels of oil.

24 Q. In your opinion, can the operators acting  
25 individuals, without the benefit of the unit, recover that

1 volume of secondary oil potential from the unit area?

2 A. No, sir, I do not believe so.

3 Q. Does unitized management operation and  
4 development of the reserves to be assigned under this unit  
5 operation necessary -- start over again. Is unitized  
6 operation necessary for this formation in order to  
7 effectively and efficiently recover that secondary reserve  
8 potential?

9 A. Yes, sir, it is.

10 Q. Can it be done using unitized operations?

11 A. Yes, sir, it can.

12 Q. Let's talk now about the equity parameters  
13 developed by the technical committee. The process is to  
14 come to an agreement on all the parameters. Once that is  
15 agreed upon, then you submit it to the working interest  
16 owners committee and that committee then decides how to  
17 establish participation formulas using those parameters to  
18 share production in the unit?

19 A. Yes, sir.

20 Q. Let's talk about the equity parameters then. Is  
21 there a list of those parameters in the technical report?

22 A. Yes, sir. Behind the tab marked "Equity  
23 Parameters," which is chapter IX of Exhibit 5, there is a  
24 list of six parameters originally charged the technical  
25 committee by the working interest owners. The technical

1 committee reviewed each of those parameters and made -- each  
2 of those parameters and made some modifications to what was  
3 in return reported to the working interest owners.

4 Q. Summarize for us each of the parameters and the  
5 basis for having those as an equity parameter.

6 A. The first parameter was cumulative oil  
7 production, which was cumulative oil as of December 31st,  
8 1988, which was a cutoff date within the scope of the time  
9 period of the work by the technical committee. It allowed  
10 the technical committee to use the most recent data that it  
11 had available before completing the report. Remaining  
12 primary oil and gas reserves are based on proven producing  
13 reserves and calculated by using tract decline curves and  
14 applying the apparent tract decline rate to the initial rate  
15 as of 1-1-1989. Each of those are shown in Appendix B of  
16 the report, which indicates the IP, the economic limit,  
17 which was based on two barrels oil and equivalent gas per  
18 day, and then the decline rate. And you see the remaining  
19 oil and gas reserves approved by the technical committee.

20 The ultimate primary oil reserves is simply the  
21 summation of cumulative oil production prior to 1989 and  
22 remaining primary reserves allocated to tract subsequent to  
23 that date. The current oil and gas production rates are  
24 based on rates of the fourth quarter of 1989, which would be  
25 October 1st through December 31st. And that's production

1 actually reported to the state on form C-115.

2           The next parameter was gross acreage, which would  
3 just indicate what acreage within the 5,922-acre unit each  
4 tract or owner would receive. Since we're including the San  
5 Andres in this unit, there are several ownership splits that  
6 occur at or near the aquifer. In fact, most of them occur  
7 slightly below the top of the aquifer portion of the unit.  
8 In recognizing that the technical committee elected to add  
9 an additional term, which was surface acres allocated on  
10 ownership from the top of the unit to 325 feet below the top  
11 of the Grayburg, which was then identified as including the  
12 full productive limit of the reservoir. So instead of  
13 having gross acreage and having to allocate it  
14 disproportionately for 300 feet to an owner in an oil column  
15 and 1,200 feet to an owner in the aquifer, the technical  
16 committee elected to add this additional parameter. So we  
17 had gross acreage and surface acreage based on this window  
18 from the top of the unit to 325 feet below the top of the  
19 Grayburg.

20           The sixth parameter was introduced from the floor  
21 at the first working interest owners meeting as usable  
22 wellbores. And after review, the technique committee  
23 concluded that that was really an inappropriate parameter  
24 for participation negotiations because whether or not a well  
25 was usable would not actually be determined until after the

1 unit operator had an opportunity to test the well and to  
2 make sure that there was no casing leaks or obstructions in  
3 the hole. Instead, the technical committee opted to  
4 recommend a wellbore dedication incentive method to entice  
5 partners in the unit to dedicate usable wellbores instead of  
6 using it as an equity parameter.

7 Q. Did the technical committee discuss establishing  
8 a parameter that simply had surface acres alone? And if so,  
9 is that one of the six listed?

10 A. Surface acreage is only listed in the terms with  
11 the ownership allocated from the top of the unit to 325 feet  
12 below the top of the Grayburg.

13 Q. The selection of participation formula based upon  
14 these parameters was something the working interest  
15 ownership committee did?

16 A. Yes, sir.

17 Q. Did the technical committee attempt to develop a  
18 pour volume by tract parameter, for example, develop an  
19 isopach or some net pay map to try to value each tract in  
20 terms of its potential storage capacity of oil?

21 A. No, sir, because they recognized that they could  
22 not accurately do that because of the lack of quantitative  
23 data. Along the eastern side of the unit, where the  
24 production has been actually the least per acre, is the only  
25 place that we have modern logs. And we're afforded those

1 modern logs because the Blinebry and Drinkard wells that  
2 were completed in the seventies that were logged through the  
3 Grayburg interval where most of the production has come  
4 from, the wells that were open hole completions and drilled  
5 in the thirties and forties, and we either had a gamma ray  
6 neutron log of questionable accuracy or no log at all. So  
7 the technical committee did not attempt to come up with a  
8 pour volume calculation for equity negotiations.

9 Q. Despite the extensive development that has taken  
10 place within the unit area, there were, in fact, tracts that  
11 did not have either past or current production from that  
12 tract.

13 A. Yes, sir.

14 Q. Was the committee aware of that fact?

15 A. Yes, sir, they were.

16 Q. How did they deal with it?

17 A. They dealt with it by assigning a zero  
18 cumulative production, obviously. The remaining reserves  
19 were assigned zero because there were no proven producing  
20 remaining reserves, and so only the equity parameter acreage  
21 was -- either surface acres or gross acres was allocated to  
22 the tract.

23 Q. If the Examiner wants to see -- well, let me ask  
24 you this: Did the technical committee then break out, on a  
25 tract by tract basis, a spreadsheet showing the column

1 entries for each of the parameters and what the impact is on  
2 that tract if that parameter is applied?

3 A. Yes, sir.

4 Q. Where do we find that in the book?

5 A. That's in Appendix A of the exhibit. The first  
6 page indicates the gross volumes for each tract. And,  
7 again, these are the old state tract numbers and not the  
8 current tract numbers. The second page indicates the  
9 percent of total for each tract, and then the third page  
10 breaks it down to percent of total by owner, taking the  
11 ownership takeoff data that our land department had  
12 furnished and applying the tract values to actual ownership.

13 Q. Let's have you look at the information that's  
14 shown in the book following the word "Figures." What's  
15 contained in the Technical Committee Report after that?

16 A. Would you like me just to go --

17 Q. Go through and summarize what you've included so  
18 the Examiner recognizes what the working interest owner  
19 group had to work with.

20 A. The first page is the actual charges to the  
21 technical committee made by the working interest owners.  
22 And that was to determine what the logical unit boundaries  
23 should be, to develop a plan of secondary recovery for the  
24 unit, including a cost estimate and a performance  
25 prediction, and prepare a tabulation of the equity

1 parameters that we just discussed.

2 The second figure just indicates the relative  
3 location of the proposed unit in southeast New Mexico.

4 The third figure indicates the proposed unit  
5 outline.

6 And then figure four is what we have today as  
7 Exhibit 2, which indicates the breakdown of the federal,  
8 state and fee acreage.

9 Figure five is the -- a pool limits cartoon, if  
10 you will, of the pools above and below and through the unit  
11 in this area, including the Eumont Oil and Gas, Langlie  
12 Mattix, Arrowhead, Penrose Skelly, etcetera.

13 Figure six is a structure map for the unit area,  
14 the structure map on the top of the Grayburg.

15 Figure seven is a type log through one of the  
16 unit wells, the Chevron-operated Harry Leonard C-20,  
17 indicating where the top of the Queen, the top of the  
18 Penrose Member of the Queen, the top of the Grayburg and the  
19 zonation within the Grayburg.

20 Figure eight is a percent dolomite map which was  
21 used to help define the eastern boundary of the unit in  
22 terms of pay quality, where, as we discussed before, the  
23 eastern boundary was indicated where a percent dolomite was  
24 in excess of 60 percent.

25 Figure ten is a cumulative oil for the study area

1 of the unit.

2 Figure 11 is cumulative oil only for wells  
3 actually within the unit area.

4 Figures 12 through 18 reflect different  
5 production contour maps for cumulative water, cumulative  
6 water/oil ratio, current oil, water and gas production  
7 rates, and current producing water/oil ratios and GORs.

8 Figure 19 is a stick diagram index map that goes  
9 for figures 20 through 24. And each of these indicate a  
10 cross-section through the unit, indicating the -- where the  
11 top of the Grayburg is, where the gas producing horizon is  
12 in red, where the oil producing interval has been in green,  
13 where the Grayburg zones 1 through 5 are, and the subsea  
14 complete depths of each of these completions.

15 Figure 25 is the proposed pattern map for the  
16 unit.

17 Figure 26 indicates the secondary recovery  
18 prediction and the base case primary recovery prediction  
19 assumed by the technical committee.

20 HEARING EXAMINER: Why don't you break about 60  
21 seconds? I got behind.

22 THE WITNESS: Okay.

23 HEARING EXAMINER: All right, go ahead.

24 A. Figure 27 indicates the surface facilities  
25 production gathering system where the satellite batteries

1 and central battery will be.

2 28 indicates the water injection distribution  
3 system, and 29 the electrical distribution system.

4 Q. (By Mr. Kellahin) If the Examiner wants to refer  
5 to the minutes of the various technical committee meetings,  
6 where will he find those in the technical book?

7 A. That is indicated in Appendix D. He should find  
8 minutes for each of the four technical committee meetings.

9 Q. In addition, the technical committee took ballots  
10 on certain of the parameters, and that's shown also in that  
11 portion of the book?

12 A. Yes, sir. That should be in the minutes of the  
13 fourth technical committee meeting.

14 Q. Does the book also contain a description of the  
15 reservoir parameters used for analyzing the reservoir?

16 A. Yes. That will be found in the table section. I  
17 believe that's Table 1, gives some pertinent reservoir data.

18 Q. What else is found in Table 1 of the book?

19 A. In the table section?

20 Q. In the table section of the technical report,  
21 what other kinds of information has been included?

22 A. There's a tract orientation map indicating for a  
23 tract number who the operator and what the lease is and  
24 where it's located, is Table 2.

25 There are several tables indicating how the cost

1 estimate for the unit was developed, including the Table 3  
2 that we looked at previously to see the total of 28  
3 million. There's a breakdown of how much the -- surface  
4 facilities cost estimate, how much different elements  
5 contributed to that. There is a typical cost estimate for a  
6 producing well to drill and complete, the same for an  
7 injection well and a water supply well. And then there are  
8 elements for the workover cost element of how much each  
9 element of the workover would cost.

10 Subsequent to that, Table 9 indicates an  
11 estimation of the capital investment schedule for the unit  
12 in terms of drilling and completion costs, workover costs,  
13 constructions. And it indicates that the majority of the  
14 investments were made in the first two years. Subsequent to  
15 that, there's 3, 4 and 5. There's some tangible workover  
16 money which is included for upgrading pumping capacities of  
17 wells as the waterflood response kicks in and we see the  
18 need for lifting more fluids.

19 Table 10 indicates completion data for existing  
20 wells in the unit. And Table 11 indicates a completion data  
21 if the wells are recompleted or PNA wells.

22 Table 12 indicates the oil/gas production by year  
23 and the operating costs that were assumed in the economics  
24 previously reported for the base case.

25 And Table 13 indicates the investments in those

1 productions and operating costs schedules for the proposed  
2 waterflood case.

3 Q. Having completed the technical committee work,  
4 written the report and made the conclusions and  
5 recommendations, was a working interest owner committee  
6 formed?

7 A. The working interest owners committee was formed  
8 prior to the conclusion of the Technical Committee Report.  
9 The working interest owners met and charged the technical  
10 committee to develop this report, and upon conclusion and  
11 acceptance by the committee members, then this report was  
12 submitted to the working interest owners.

13 Q. Have you prepared a tabulation of the working  
14 interest owners for the unit?

15 A. Yes, sir, I have.

16 Q. And that's Exhibit Number 6?

17 A. Yes, sir, it is.

18 Q. When it shows a percentage, what does that  
19 reflect?

20 A. That's the percentage afforded under the  
21 participation formula approved by the working interest  
22 owners.

23 Q. Let's turn now to a chronology of activity by the  
24 working interest owner committee. Have you prepared a  
25 display showing the chronology of meetings and events?

1           A.     Yes, sir. It is Exhibit Number 7.

2           Q.     Take us through in summary fashion the work of  
3 the working interest owner committee.

4           A.     Well, the first working interest owners meeting  
5 was called by Chevron in May of 1989. And we invited all  
6 owners that we could determine from takeoff data within our  
7 proposed -- or what we saw as a logical unit area. Those  
8 owners then agreed to pursue the study of the waterflood  
9 feasibility and formed the technical committee, which met  
10 four times between August of '88 and May of 1989.

11                     In number of '89 the Technical Committee Report,  
12 which was submitted to committee members in September of  
13 '89, was adopted. At the first working interest owners  
14 meeting each owner was asked to designate a technical  
15 committee representative and a working interest owners  
16 representative. Most of the companies did, some of the  
17 smaller organizations did not. In each case, when there was  
18 a technical committee meeting, if an owner had not specified  
19 a technical committee representative, the working interest  
20 owner was invited to the technical committee and then  
21 subsequently sent the minutes and findings of the committee  
22 meetings.

23                     In December of '89, after the Technical Committee  
24 Report had been approved by the committee members, a second  
25 working interest owners meeting was called, at which time

1 the working interest owners approved the Technical Committee  
2 Report as completion of their charge and negotiated  
3 participation formula for the unit. And shortly after that  
4 meeting, a formal ballot requesting approval of the  
5 participation formula agreed upon at the meeting was sent to  
6 all working interest owners since not all were present at  
7 the meeting. And we received that ballot approval in  
8 February of 1990.

9 Q. Let's talk about two things that occurred at this  
10 working interest owner meeting about this time.

11 A. Okay.

12 Q. One is you came to a solution with regards to the  
13 Zia Energy issue --

14 A. Yes, sir.

15 Q. -- down in the southeastern corner of the unit.  
16 Summarize for the Examiner what the solution is with regards  
17 to the Zia issue.

18 A. In the southeastern portion of the unit and to  
19 the east there is an operator in Hobbs, New Mexico, named  
20 Zia Energy who has completed several wells and a pool  
21 designated as Eunice San Andres Southwest. This pool was  
22 within the proposed limits of the Arrowhead Grayburg Unit,  
23 initially. When we began the working interest owners and  
24 technical committee meetings, Zia had not yet completed a  
25 well within this pool interval within the unit area, and

1 they did complete a well by the time we had the second  
2 working interest owners meeting. Their well is in what we  
3 classify as zone 5 of the Grayburg and in the San Andres,  
4 and it produces approximately a barrel of oil per day, 600  
5 barrels of water and 200 MCF of gas per day. They have  
6 additional wells east of that that had similar performance.

7 In the Technical Committee Report under the  
8 boundaries, you'll find a description of the request for  
9 exclusion from the unit from Zia Energy. At Chevron we  
10 reviewed the effects of complying with Zia's request on what  
11 effect would it have on the unit to carve out, if you would,  
12 this lower part of the Grayburg and San Andres in the  
13 southeast portion of the unit. And we determined it would  
14 have no effect on the secondary reserves because of the  
15 nature of the production that Zia was getting.

16 We met with Zia to determine how we could come to  
17 terms with each other on what we -- each of us would do if  
18 the unit San Andres Southwest was excluded from the unit.  
19 And Chevron's commitment was that we would not inject water  
20 into the unit San Andres Southwest either on the acreage  
21 that was excluded or on immediate offsetting injection  
22 wells. Zia Energy agreed to indemnify the unit from any  
23 damages if we agreed to not inject water into their zone.

24 We presented this request and our findings at the  
25 working interest owners meeting and had unanimous approval

1 of exclusion of Zia Energy. We subsequently met with the  
2 OCD and the state land office to insure that they would  
3 concur with the appropriateness of this exclusion, and they  
4 did concur.

5 Q. For the Examiner's purpose, it will require  
6 action on his part to complete a resolution of the Zia  
7 question in that he needs to, if he agrees, change the  
8 nomenclature, if you will, for that portion of the pool that  
9 is being excluded from the unit?

10 A. Well, that portion of the pool that's being  
11 excluded from the unit is currently classified as Eunice San  
12 Andres Southwest. So I do not believe it will require any  
13 special action on the Examiner's part. What will be  
14 required is when we reclassify some of the other acreage,  
15 like the Langlie Mattix, that we do not pull in this unit  
16 San Andres Southwest and reclassify it as Arrowhead as we  
17 are some other acreage.

18 Q. The other issue dealt with at this second working  
19 interest owners meeting was negotiation of a participation  
20 formula?

21 A. Yes, sir, that's correct.

22 Q. Let's go backwards and start with the conclusion  
23 on what was finally approved for the participation formula  
24 and then talk about the other choices.

25 A. Okay. And if I can refer you to Exhibit 15,

1 which is a supplement to the minutes of the second working  
2 interest owners meeting, and at the very back of that  
3 exhibit you will see Formula 12, which was proposed by  
4 American Exploration. The formula proposed was that the  
5 participation formula for the unit would be based on 57  
6 percent cumulative oil, 33 percent remaining oil reserves  
7 and 10 percent current oil rate. As you can see in the  
8 column indicated four, at that meeting there was 95.38  
9 percent approval with four.6 percent abstain. That 4.6  
10 percent reflects the members that were not present at the  
11 meeting. So that shows that we had unanimous approval at  
12 the meeting of the formula proposed by American.

13 Again, it was the 12th formula proposed at the  
14 meeting. The previous 11 pages show Formula 1 through 12,  
15 which included other proportions of the same parameters, and  
16 it also included the parameter surface acres and so forth.  
17 None of the other formulas proposed came close in receiving  
18 the amount of approval that Formula 12 did.

19 Q. Formula 12 then is the participation formula that  
20 has been incorporated into the unit agreement?

21 A. Yes, sir, that's correct.

22 Q. And it is the proposed participation formula that  
23 you're seeking approval from the division?

24 A. Yes, sir, that's correct.

25 Q. In your opinion, Mr. Cotner, is this

1 participation formula 1 that is fair and equity to all  
2 parties?

3 A. Yes, it is.

4 Q. Does it apply relative value to each of the  
5 individual tracts within the unit so that they have a fair  
6 opportunity to receive income for their contributing value  
7 of their tracts?

8 A. Yes, sir, it does.

9 Q. Describe for us some of the alternative choices  
10 and why, in your opinion, they were not able to obtain the  
11 necessary percentages for approval. For example, why was  
12 not a straight acreage component put into the participation  
13 formula?

14 A. The secondary reserves for the unit were by  
15 applying the SP ratio are literally based on ultimate  
16 primary recovery, and not on surface acres. And if you look  
17 back at the cumulative production contour maps, you'll see  
18 that cumulative production or ultimate production is not  
19 directly associated to acreage, that there are areas of high  
20 cumulative and areas of much lower cumulative. And so  
21 acreage does not fairly distribute this evaluation of  
22 secondary reserves. An easy conclusion to draw from that is  
23 ultimate primary recovery should be the basis, but that  
24 doesn't fairly allocate out your current cash flows and your  
25 present values of, one, remaining primary and, secondly, the

1 present value of your secondary recovery. By using a  
2 combination of the cumulative and the remaining oil and the  
3 current rate, you're able to fairly distribute, to preserve  
4 to a large degree current cash flow as well as secondary  
5 reserves. By incorporating acreage, you're not really  
6 addressing either one of those things directly.

7 Q. Are there any other parameters or combination of  
8 parameters, in your opinion, that could have been utilized  
9 to arrive at a participation formula that was more fair,  
10 reasonable or equitable than the one ultimately adopted by  
11 the working interest owners?

12 A. No, sir, I do not believe that there is a formula  
13 that would be more fair or equitable. And I would give  
14 evidence to that by the support by the working interest  
15 owners.

16 Q. Let's turn to -- let me have you identify for the  
17 record the series of correspondence, minutes and tables here  
18 in a summarize fashion so that we don't have to tell the  
19 Examiner every one of these. But you have put in the  
20 exhibit book, starting with exhibit number 8, I believe?

21 A. Yes, sir.

22 Q. And continuing on through Exhibit 18?

23 A. Okay. Exhibit Number 8 is the minutes of the  
24 first working interest owners meeting, an important part to  
25 the inclusion of these in -- as an exhibit today, it

1 indicates the working interest owners at the time of the  
2 initial working interest owners meeting that were identified  
3 and invited to the meeting. It also indicates what --  
4 excuse me, this is not a copy of minutes of the meeting, it  
5 is a letter inviting the working interest owners to the  
6 initial meeting, and it indicates who was invited to the  
7 meeting.

8 Q. Exhibit 9 is the minutes?

9 A. Exhibit 9 is the minutes of the meeting, which  
10 indicates in the back part of it what percent of the  
11 cumulative oil at that time was present at the first  
12 meeting, the charges to the technical committee arrived at  
13 by the working interest owners, the interim voting procedure  
14 that was developed which was to be based on cumulative oil  
15 as of 12-31-87, and that a motion requires 75 percent  
16 approval to pass. And then it has the partners that  
17 participated in the meeting.

18 Exhibit 10 is a summary of the ballot approval of  
19 the Technical Committee Report by technical committee  
20 members. It indicates that 87 percent of the voting  
21 interest approved the report. Figure -- or attached behind  
22 that is the actual letter sent to the committee members in  
23 asking for their approval.

24 Exhibit 11 is a meeting -- or is a letter calling  
25 the second working interest owners meeting. It indicates at

1 that time 79 percent of the technical committee members have  
2 approved the report. The previous exhibit showed a higher  
3 number because there was additional ballots received after  
4 the meeting was called. It spells out an agenda for the  
5 second working interest owners meeting to review and adopt  
6 the report, to review the requests for exclusion and to  
7 participate unit negotiations -- or for unit participation  
8 -- to negotiate unit participation.

9 Exhibit 12 is a handout at the second working  
10 interest owners meeting. It includes the charges that were  
11 given to the technical committee originally, the recommended  
12 vertical and horizontal limits of the unit, the proposed  
13 waterflood pattern, the secondary recovery performance  
14 prediction with a cost estimate in economics, a definition  
15 of usable wellbores to be used in a wellbore dedication  
16 incentive, the equity parameter tables. It includes the  
17 discussion on the request of Zia Energy to exclude the unit  
18 San Andres Southwest portion of the pool. It also includes  
19 a request by Exxon to exclude their 40 acres then known as  
20 Tract 10 from the unit. Exxon felt that they were going to  
21 have too small of a working interest in the unit to want to  
22 participate actively. We presented -- although Exxon did  
23 not appear at the meeting, we did present their case for  
24 them and make a motion for exclusion of their acreage, and  
25 there was no second. Since that time I'd like to point out

1 that Exxon has ratified the unit operating agreement and  
2 joined in all subsequent correspondence.

3 Exhibit 13 is the revised equity parameter table  
4 for the unit, which is an adjustment to reflect the  
5 exclusion of the Zia Energy's acreage.

6 Figure -- or Exhibit 14 is the -- is minutes for  
7 the second working interest owners meeting.

8 Figure 16 is a transmittal letter for the minutes  
9 of the second working interest owners meeting with an  
10 attached ballot asking for formal approval of the  
11 participation formula.

12 HEARING EXAMINER: Take another 30 seconds there,  
13 please.

14 THE WITNESS: Okay.

15 HEARING EXAMINER: Go ahead.

16 A. Figure 17 is a letter to discuss a wellbore  
17 dedication incentive. I'd like to stop and talk about this  
18 exhibit for just a minute. When the technical committee  
19 decided usable wellbores was not a reasonable parameter, it  
20 did recommend to the owners that a dedication incentive be  
21 used to entice working interest owners to contribute the  
22 maximum number of wells for unit operations to minimize unit  
23 drilling and completion expenses. We've identified two  
24 traditional, if you will -- I use that word loosely since  
25 there's not that much tradition -- two methods that had been

1 proposed or used before. One was to assess a wellbore  
2 penalty to working interest owners who did not contribute a  
3 usable wellbore on each 40-acre tract that had not previous  
4 produced. Since many of the Arrowhead Grayburg wells had  
5 been plugged back to the Eumont or plugged and abandoned,  
6 and many of the wells plugged back to the Eumont were owned  
7 by different parties than the person owning the Arrowhead  
8 Grayburg rights, we felt that it was not in -- the most fair  
9 thing to do to apply this penalty across the board. In  
10 addition, it may have resulted in an uneconomic investment  
11 in the unit if someone were to have to pay a large penalty  
12 for a very low working interest.

13 The other method was a wellbore dedication, or a  
14 wellbore inventory credit type method, where a value be  
15 placed on each wellbore and owners would pay their  
16 proportionate working interest times the value of all  
17 wellbores dedicated and receive a credit for each wellbore  
18 that they specifically dedicated. This was going to  
19 increase the investment by some parties substantially, so we  
20 obviously had a polarization on which method would be the  
21 best to use. This letter of January 5th proposed a  
22 compromise method which said we would simply impose the  
23 wellbore penalty only on wells that were not contributed,  
24 that were currently completed in the Grayburg formation. So  
25 we sent this proposal with a list of which wells would be

1 the demand wells to the working interest owners while they  
2 had this ballot for the working interest participation.  
3 Figure 18 indicates the ballot approval of the participation  
4 formula and the wellbore dedication incentive method.

5 Q. What level of commitment or percentage did the  
6 working interest owners ballot favorably for the  
7 participation formula and the wellbore incentive?

8 A. The participation formula, the number recorded is  
9 97.77 percent. I'd like to point out with some changes in  
10 ownership since that date that number would currently be  
11 98.2 percent approval of the participation formula. For the  
12 wellbore dedication incentive the approval was 93 percent.  
13 There was only one objection to the proposed method. One  
14 objection shows up as two "nos" because the one voting party  
15 represented two interests.

16 Q. Exhibit 19 is what, Mr. Cotner?

17 A. It is a plan of operations that was given to the  
18 Bureau of Land Management and the state land office and  
19 requests for preliminary approval of the proposed unit.  
20 Although the BLM or federal lands comprises less than ten  
21 percent acreage, we decided to go ahead and meet with the  
22 BLM. They were at nine percent, it's pretty close, so as a  
23 courtesy, we wanted to review our operations and make sure  
24 that they concurred. This is a plan of operation given to  
25 both the state land office and the BLM.

1 Q. Did the state land office issue preliminary  
2 approval for the unit?

3 A. Yes, sir, they did.

4 HEARING EXAMINER: BLM?

5 THE WITNESS: Yes, sir, they did.

6 HEARING EXAMINER: BLM did also?

7 THE WITNESS: Yes, sir.

8 Q. (By Mr. Kellahin) Let me direct your attention  
9 now to the display or the tabulation shown as Exhibit 20.  
10 This represents the various tracts, the application of the  
11 participation formula to each individual tract and the  
12 resulting net percentage that they would receive of unit  
13 production under this participation formula?

14 A. Yes, sir, that's correct.

15 Q. And this is the participation formula that has  
16 been approved by what percentage of the working interest  
17 owners?

18 A. Ninety-eight percent.

19 Q. And you ask the Examiner to also approve this  
20 participation formula?

21 A. Yes, sir.

22 Q. When you look through the tabulation and see  
23 various tracts, in two instances, I believe, Tract 18 and  
24 Tract 20, under the formula show a zero participation  
25 factor?

1           A.     Yes, sir.

2           Q.     Explain how that occurs.

3           A.     Since those tracts did not have cumulative oil or  
4 remaining oil reserves as indicated by the proven producing  
5 reserves calculated by the technical committee and current  
6 oil rate, they received a zero in the participation formula  
7 approved by the working interest owners. This -- the fact  
8 that they received zero remaining oil reserves is not too  
9 alarming because they -- both tracts did have a test of  
10 production and both tracts indicated that there was no  
11 commercial production from the wells in the tract. And in  
12 the case of Tract 18 it was a well drilled in the thirties  
13 or forties, I believe, by Gribble, or Bay Petroleum. And  
14 Tract 20 in 1988 Hanson McBride, who was a current working  
15 interest owner, tested the Kingwood Number 2. He was not  
16 able to have a commercial completion on that tract, so the  
17 credit of zero remaining oil reserves was appropriate.

18                     It is important to include the tracts for us to  
19 complete our proposed injection and production patterns. We  
20 contend that there will be oil pushed from offsetting leases  
21 on to that tract, and there will need to be a producing well  
22 to capture those reserves. And there will be an injection  
23 well in Tract 20 that will support offset historic  
24 production.

25           Q.     Who's the current lessee of Tract 18?

1           A.     Chevron U.S.

2           Q.     And who is the current lessee of Tract 20?

3           A.     Chevron U.S.

4           Q.     So as a working interest owner, Chevron receives  
5 no positive benefit in terms of an additional portion of oil  
6 production from the unit by the contribution of those  
7 tracts?

8           A.     That's correct.

9           Q.     But the contribution of those tracts is necessary  
10 in order to recover additional oil that might not otherwise  
11 be recovered?

12          A.     Yes, sir.

13          Q.     Describe the basis for that statement.

14          A.     If we did not include those tracts, we would not  
15 be able to have injection wells immediately offsetting them  
16 because it concerns the migration of oil that would be  
17 pushed on to the tract by offset injectors. Although there  
18 was no second reserves that could be calculated specifically  
19 for that tract, in the absence of any ultimate primary  
20 recovery in applying the .5 SP ratio, you come up with  
21 zero. The inclusion of that tract was necessary to have the  
22 offset injection wells. And if you were to eliminate that  
23 tract and accordingly not inject immediately offset to that  
24 tract, the unit would lose a significant amount of reserves.

25           HEARING EXAMINER: Are they going to have to contribute

1 a well in order to get in?

2 THE WITNESS: No, sir. There is a demand well on Tract  
3 20 because it is a current completion in the Grayburg, it  
4 was the unsuccessful test. But the wellbore contribution is  
5 not something that was part of the formula. Chevron U.S.  
6 will contribute the wellbore. We have no additional value.  
7 We do not have the dry gas rights for that tract and so we  
8 could use the well to plug back to the Eumont gas.

9 Q. (By Mr. Kellahin) Tract 18 is what typed of  
10 royalty?

11 A. It's a state royalty.

12 Q. And the state land office has approved the  
13 inclusion of this tract, notwithstanding the fact that tract  
14 standing by itself has zero participation for their royalty?

15 A. Yes, sir. When we met with the state land  
16 office, we actually presented to them this concept that we  
17 had zero participation and drew that to their attention.  
18 They reviewed their records and indicated that the --

19 Q. Beneficiary?

20 A. -- beneficiary of that tract receives benefit  
21 elsewhere in the unit, so they did not have an objection to  
22 the allocation of zero in the tract participation factor.

23 Q. Are there any overriding royalty owners for Tract  
24 18?

25 A. No.

1 Q. When we turn to Tract 20, who's the royalty owner  
2 for that tract?

3 A. There is a long list of who the royalty owners  
4 are, but they are the same as the royalty owners in the two  
5 offsetting Tracts 19 and 21, and then some of them occur  
6 again in Tract 26.

7 Q. With the exception of the group represented by  
8 Mr. Pearce and the inclusion of Ladd Petroleum, I guess, are  
9 all other royalty and overriding royalty owners  
10 participating in some other tract?

11 A. Yes, sir, they are.

12 Q. So Mr. Pearce's group and Ladd Petroleum are the  
13 only unique overriding royalty owners that don't otherwise  
14 share in unit production?

15 A. Yes, sir, that's correct.

16 Q. Let's turn now to --

17 A. There are some overriding royalty interest owners  
18 in a couple of other tracts in the southern portion of the  
19 unit, but they occur very obviously in the aquifer portion  
20 of the unit, so there is no overriding royalty -- other  
21 overriding royalty interest owner in the oil column that  
22 does not share in unit production.

23 Q. Turn now to Exhibit 21 and identify that for us.

24 A. It is a project AFE distributed to working  
25 interest owners when we mailed out the final form of the

1 unit operating and unit agreement. It indicates a new cost  
2 estimate of 29.7 million dollars compared to the 28.2  
3 million dollars previously. The cause for the increase was  
4 the resulting increase in number of wells that had to be  
5 drilled and corresponding reduction in number of workovers  
6 as a result of the wellbore dedication incentive that the  
7 approved by the working interest owners. The Technical  
8 Committee Report had assumed that a total of 77 wells would  
9 be made available to the unit as a result of the wellbore  
10 dedication incentive, and the end result, I believe, was 66  
11 wells. So the number of drill and completions went up by  
12 about 11 wells and the number of workovers dropped by a  
13 corresponding amount, which increased the unit costs  
14 slightly. And there was also a slight upper revision in the  
15 cost estimate for the surface facilities.

16 Q. Exhibit 22?

17 A. Exhibit 22 indicates the AFE approval received as  
18 of February 28th from this AFE sent to partners. And it  
19 indicates that we currently have 74.77 percent approval.  
20 I'd like to point out, though, on the AFE sent, it did say  
21 that approval is given subject to the regulatory approval by  
22 the New Mexico OCD and the Commission of Public Lands and  
23 BLM. That indicates that we are under the terms of the unit  
24 agreement or unit operating agreement. We already have  
25 sufficient approval to proceed with this project once we

1 have the OCD order.

2 Q. One of the findings the division examiner must  
3 made for the order is to find that the estimated additional  
4 costs of recovering the secondary oil potential don't exceed  
5 the value of that secondary oil and that it can be conducted  
6 so that the working interest owners receive a reasonable  
7 profit from the investment. Can you support a finding of  
8 that, Mr. Cotner?

9 A. Yes, sir. The -- even with the increased costs  
10 from 28.2 million to 29.7 million, the economies of scale  
11 are still the same within the Technical Committee Report.  
12 The working interest owners will realize a 24.2 million  
13 dollars present worth profit discounted at ten percent when  
14 they recover this 15 million barrels of oil for the slightly  
15 less than 30-million-dollar investment.

16 Q. Another finding the division examiner must make  
17 is one that the unitized operation will benefit the working  
18 interest and royalty owners of the oil and gas rights within  
19 that portion of the pool being affected and that each of the  
20 tracts had been treated fairly and equitably in terms of its  
21 relative value. Has that been accomplished?

22 A. Yes, sir, it has.

23 MR. KELLAHIN: Perhaps we might take a five-minute  
24 break at this point. We're about to finish up with the  
25 unitization aspects, and we're going to talk pool

1 nomenclature changes and then get into the C-108  
2 discussion.

3 HEARING EXAMINER: Are you through with this witness?

4 MR. KELLAHIN: No, sir, but if the court reporter or  
5 anybody needs a break, perhaps now is a convenient stopping  
6 point.

7 HEARING EXAMINER: We'll take a ten-minute break.

8 (Recess, 3:14 p.m. to 3:22 p.m.)

9 HEARING EXAMINER: Let's continue.

10 Q. (By Mr. Kellahin) Mr. Cotner, let me direct your  
11 attention to Exhibit Number 23. Would you identify that for  
12 us, please?

13 A. Yes, sir. It's a table of non-Arrowhead wells  
14 that will be affected by our pool extension and contraction  
15 application. It indicates the operator, the lease, the well  
16 number, location, current status, and the current pool. And  
17 the indicated comment is that each of those will be  
18 reclassified to Arrowhead Grayburg. Each of these wells  
19 will participate and be a part of the proposed unit.

20 Q. Let's turn now to Exhibit 24. Would you identify  
21 and describe that display?

22 A. I'd like to point out one more thing on Exhibit  
23 23 first. At the bottom of the page it indicates three  
24 non-Arrowhead wells that penetrate the unit that will not  
25 actually be affected by the pool extension and contraction

1 application. There are two Eumont gas wells that penetrate  
2 the unit, one eight-foot and one 15-foot. They are dry gas  
3 producers. We would request that the commission not require  
4 any remedial work occur on these wells to get them back out  
5 of the unit until such time they show pressure increases or  
6 begin making fluids that might be associated with the unit  
7 operations. However, since they're completed in this very  
8 high sand content area, we don't believe that the parts of  
9 the completions will -- contribute production nor will unit  
10 operations affect them, but we can monitor them and make  
11 corrections at a future date if it's deemed necessary. The  
12 reason that I propose not to plug back the wells now out of  
13 the unit is every time you work over a low pressure gas  
14 well, you do run the risk of losing the well. And if we  
15 were simply going in to set something to plug back the well  
16 eight feet and lost productivity, that could be mean that  
17 we'd made a mistake in doing so.

18 The third well is a disposal well operated by  
19 Rice Engineering, which is in Section 18 and 2237. It is  
20 disposing into the San Andres aquifer only. That would not  
21 affect at all our waterflood operations in flooding the oil  
22 column and may even help in making sure that the San Andres  
23 is an adequate water supply zone for our makeup injection  
24 water. So we propose no workover to be required on that  
25 well.

1 Q. Let's turn now to Exhibit 24?

2 A. Figure 24, or Exhibit 24, is a table of current  
3 and historic Arrowhead Grayburg and Penrose Skelly oil pool  
4 completions that overlap into the Eumont. This was part of  
5 when I testified earlier how prior to the OCD order  
6 redefining the Arrowhead and Penrose Skelly pools, Grayburg  
7 formation only. This indicates which wells were completed  
8 in both the Penrose Member of the Queen and the Grayburg.  
9 And there are four pages of wells here, so you can see that  
10 it's not just one or two isolated occurrences. This  
11 indicates that there would be a portion of a cumulative and  
12 ultimate primary production that has actually come from the  
13 Penrose Member of the Queen. If we were to draw the top of  
14 the unit, simply the top of the Grayburg, we would be  
15 carving out this part of the oil column and then would also  
16 be unfair in handling the parameters cumulative oil produced  
17 by the working interest owners in participation negotiations  
18 because we'd have to give credit for oil produced that was  
19 produced from outside the unit. So a well that just  
20 produced from the unitized interval would have its interest  
21 somewhat depleted or deluded.

22 Q. Exhibit 25?

23 A. Exhibit 25 is a list of Eumont oil pool  
24 completions overlapping into the Arrowhead Grayburg Pool.  
25 Again, both of these wells will be included into the unit.

1 It shows that there are two wells that have 28 and 12 feet  
2 completed from the Eumont, which are actually Penrose  
3 completions into the Grayburg unit.

4 Q. Exhibit 26?

5 HEARING EXAMINER: Would your nomenclature change take  
6 care of these two wells?

7 THE WITNESS: Yes, sir. These wells would be  
8 reclassified as Arrowhead Grayburg.

9 A. The Exhibit 26 is the Langlie Mattix oil pool  
10 completions that overlap the Queen and Penrose and Grayburg  
11 sections. Again, these will be taken care of in the  
12 nomenclature.

13 The next exhibit is an overlap map that just  
14 gives you a visual or map representation of the same things  
15 in the tables. The red and blue and yellow dots indicate  
16 the Penrose Eumont oil and Langlie Mattix completions. The  
17 white dots or non-colored dots are the Arrowhead Grayburg  
18 completions. Below each well is the proposed AGU well  
19 number for that proration unit. To the right of each well,  
20 or left, depending on where there was room, you will see  
21 typically two numbers. For example, if you look in Section  
22 25 of 2136 up at the northern portion of the unit, over to  
23 the western side from the W. A. Ramsey B Number 2, you see a  
24 number 26 and a number 83. The 26 indicates the feet of  
25 Penrose completion, which is really the Eumont pool now; and

1 the 83 indicates the number of feet completed in the  
2 Grayburg section.

3 HEARING EXAMINER: I didn't find those. Tell me again  
4 where they are.

5 THE WITNESS: If you'll look in the -- in section -- in  
6 the north half of Section 25, up at the northern portion of  
7 the unit, over in the southwest quarter of the northwest  
8 quarter is the Ramsey B Number 2, which will be the  
9 Arrowhead Grayburg Unit well number 104, as indicated by the  
10 number at the bottom of the location in parenthesis. To the  
11 left of the well you'll see the 26 and 83. Those two  
12 numbers represent the feet of Penrose completion and the  
13 feet of Grayburg completion respectively.

14 Q. (By Mr. Kellahin) Would you identify and describe  
15 Exhibit 28?

16 A. Exhibit 28 indicates the current Eumont gas wells  
17 and gas proration units, which include two cume units.  
18 These will be slightly affected by the nomenclature case  
19 because we'll be asking the commission to contract the  
20 vertical limits of the Eumont gas pool overlying the unit to  
21 the top of the Grayburg, or minus 150 subsea, whichever is  
22 shallower, where it's currently defined as the top of the  
23 Grayburg. Only two wells would actually be affected by this  
24 contraction, which are the two that I described earlier,  
25 which were found on a previous exhibit as the ones that

1 penetrate the top of the unit. This map represents all of  
2 the current Eumont gas wells and associated gas proration  
3 units that would be affected by the nomenclature.

4 HEARING EXAMINER: There will be some Eumont oil wells,  
5 but only two gas?

6 THE WITNESS: Yes, sir. These will not be  
7 reclassified, but the vertical limits of the Eumont pool,  
8 oil and gas, would be brought up to minus 150 subsea, or the  
9 top of the Grayburg, whichever was shallower.

10 Q. (By Mr. Kellahin) I believe we turn now to the  
11 package of documents in the black binders. It's the C-108  
12 documents.

13 A. Yes, sir, the Exhibit 29.

14 HEARING EXAMINER: Would it be more convenient to ask  
15 questions about this group or go on through the others?

16 MR. KELLAHIN: It's your pleasure, Mr. Examiner.

17 HEARING EXAMINER: Why don't we then take some time to  
18 clear up these things I had listed here and see if Mr. Carr  
19 or Mr. Pearce either have any questions at this time?

20 MR. CARR: No questions.

21 MR. KELLAHIN: We'll move introduction at this time  
22 then of Mr. Cotner's Exhibits 1 through 28.

23 HEARING EXAMINER: All right, we'll admit Exhibits 1  
24 through 28.

25 On Exhibit 3, Mr. Cotner, the east west boundary,

1 I didn't understand the west boundary, how you determined  
2 where that was, other than I think later you said it was  
3 real logical or something.

4 THE WITNESS: Yes, sir. We defined the western  
5 boundary of the unit structurally and included all proration  
6 units where the top of the Grayburg was found above minus  
7 325 subsea. West of that, if we can refer to Figure 6 in  
8 the Technical Committee Report where the geologists provide  
9 further testimony later, but on the structure map, the  
10 western boundary of the unit includes all proration units  
11 where the top of the Grayburg is found at minus 325 or  
12 above. Further west of that boundary, the Grayburg  
13 formation is wet and in the aquifer portion.

14 HEARING EXAMINER: So it's essentially the productive  
15 limit on the west side.

16 THE WITNESS: It is the productive limit, and there's  
17 actually been two tests recently in -- while we were going  
18 through the unitization process that confirmed that  
19 boundary.

20 HEARING EXAMINER: And on the east side it was -- tell  
21 me again what it was.

22 THE WITNESS: It's a stratigraphic measure of the pay  
23 quality, which what was used was a percent dolomite map, and  
24 we included pay of greater than 60 percent carbonate  
25 porosity.

1 HEARING EXAMINER: Was that also a productive limit --

2 THE WITNESS: No, sir.

3 HEARING EXAMINER: -- boundary or not?

4 THE WITNESS: As you continue east, you get into the  
5 Penrose Selly pool, and you have a greater amount of  
6 sandstone, but those sandstones are clastic intervals,  
7 become greater thickness. And where we drew the limit was  
8 kind of a low energy environment that you created kind of a  
9 low in production, and you have a low in what we believe  
10 will be a rock that we can inject into. The geologist that  
11 will testify after me will have additional comments about  
12 that.

13 MR. STOVALL: Just quickly, is Figure 8 that dolomite  
14 map that you used?

15 THE WITNESS: Yes, sir, that's correct.

16 HEARING EXAMINER: The Figures 10 and 11, I followed  
17 that those were the entire area, 10 is, and 11 is only the  
18 unit area, but there seemed to be some differences along the  
19 boundaries that I was unable to understand. Would you  
20 explain those? There's some absence of contour lines near  
21 the unit boundaries.

22 THE WITNESS: I think if you'll examine that, the  
23 actual <sup>21ms</sup> (cumes) <sup>14A</sup> indicated on each well are the same. The  
24 difference would be in the contouring program by not having  
25 the wells beyond the limits of the unit would change the

1 mathematical means that the program would draw in the  
2 contour. These were computer automated contours.

3 HEARING EXAMINER: You did use that outside data to  
4 come up with the numbers and the numbers under the wells?

5 THE WITNESS: Yes, sir.

6 HEARING EXAMINER: And on the Zia -- location of the  
7 Zia (proffer), even the initial map that you showed us  
8 appeared to me to be exactly the same as subsequent maps  
9 that were presented, so I never did know where Zia pulled  
10 out of the unit or where they used to be.

11 THE WITNESS: The Zia interest begins at what was on an  
12 assignment referred to as the top of the San Andres, which  
13 was on a Humble state well. I believe it's cited in the  
14 unit agreement as far as the definition of the unit. Where  
15 they actually occur is in the southeast quarter of Section  
16 18, Township 22 South, Range 37 East. That same assignment  
17 also conveyed the rights below the top of the San Andres, as  
18 referred to in assignment, in the north half of the north  
19 half of Section 19. This is down at the very south end of  
20 the unit. The reason the maps appear the same is the  
21 Grayburg, or majority of the Grayburg, interval will  
22 continue to be included in the unit. It's just this  
23 ownership in the deeper portions of the unit, or those 320  
24 acres will be excluded.

25 HEARING EXAMINER: So that acreage -- those tracts will

1 still be included, you just won't have ownership as deep  
2 under those tracts as you do in the remainder of the unit.

3 THE WITNESS: That's correct. American Exploration is  
4 the owner of the shallower rights, and they do want to  
5 participate in the unit. So we didn't want to carve out the  
6 whole acreage and carve out an owner that wanted to  
7 participate that on the majority of the Grayburg, and then  
8 when we carved out the owner that was in the lower part of  
9 the Grayburg and San Andres that requested to be excluded.

10 HEARING EXAMINER: Will they continue to produce those  
11 San Andres wells?

12 THE WITNESS: Yes, sir, they will.

13 HEARING EXAMINER: What pool will they be assigned to?

14 THE WITNESS: This is <sup>Eunice</sup> (unit) San Andres southwest and we  
15 will not change that.

16 HEARING EXAMINER: Currently assigned to that?

17 THE WITNESS: Yes, sir.

18 MR. STOVALL: I assume there won't be any injection  
19 down in that zone?

20 THE WITNESS: That's correct. That was one of the  
21 agreements that we reached with Zia in settling the --  
22 carving it out.

23 HEARING EXAMINER: Now, the demand wells on Exhibit 18,  
24 was that a well in each 40 acres or just a well in every 40  
25 acres where you thought it was reasonable?

1           THE WITNESS: It was one well for each 40 acres that  
2 had -- that the 40 acres had a current completion within the  
3 unitized interval. If this was the 40 acres that had  
4 previously produced but all wells on the 40 acres had been  
5 plugged or producing from another horizon, that there was no  
6 current completion in the Grayburg, it was not a demand  
7 well.

8           HEARING EXAMINER: You demanded only if it had it.

9           THE WITNESS: Only if it had a current completion on  
10 the 40 acres and only one well per 40.

11          HEARING EXAMINER: Assuming that all this is approved  
12 and the nomenclature changes are approved, will your company  
13 submit forms to the Hobbs office to follow up on changes  
14 approved by the order, or would you expect the order to take  
15 care of those changes, or do you know?

16          THE WITNESS: I'm not sure I understand.

17          MR. STOVALL: Let me help. It may take, for example, a  
18 C-104 for those wells to change the pool identification or  
19 something -- I believe it would be the 104.

20          THE WITNESS: Yes, sir. We would take care of that, as  
21 we have in this Eunice Monument south unit expansion area  
22 B. When we file the change of operator form on that form,  
23 we also indicate the change of the pool name for the ones  
24 that required a pool name change. In any other wells that  
25 we have that would be affected by the nomenclature change

1 that would have a change of operator, we would show both the  
2 new well number and the new pool designation.

3 MR. STOVALL: So actually every well will get a new 104  
4 on it because --

5 THE WITNESS: -- have a new well number.

6 MR. KELLAHIN: Talk one at a time.

7 HEARING EXAMINER: Thank you, Tom.

8 On the two Eumont wells that -- gas wells that  
9 penetrate down into the proposed Arrowhead top, have all the  
10 working interest owners -- are they all aware of that and  
11 all in approval, all approve of it?

12 THE WITNESS: It was mentioned at the technical  
13 committee meetings. Chevron is the operator of one of the  
14 wells, so they're aware of it. Amaratta Hess is the  
15 operator of the other well. I'm not sure if they're aware  
16 of it or not. I believe we would draw their attention to it  
17 and ask them to make an election on whether they wanted to  
18 plug the well back out of the unit now or monitor the well.

19 HEARING EXAMINER: I was worried about the other  
20 operators that didn't have a well sticking down into the  
21 unitized substance. Do they know about it, and would you  
22 make them aware of it?

23 THE WITNESS: I cannot testify whether or not they're  
24 aware of it now, but we could make them aware of it. We  
25 would want to avoid allowing any additional wells authority

1 to penetrate the unit now. But to grandfather, if you will,  
2 these two existing wells that do not require the plug back  
3 again, we would not want all these operators going and  
4 penetrating the unit and changing how much feet they  
5 penetrate the unit and trying to have a gas-free  
6 recompletion because that would be potentially damaging to  
7 the unit. Eventually you would get something that would  
8 communicate the unit to the Eumont gas by doing that.

9 HEARING EXAMINER: Have you got any questions at this  
10 time, Bob?

11 MR. STOVALL: I don't ask engineers questions.

12 HEARING EXAMINER: That's a switch.

13 Q. (By Mr. Kellahin) Mr. Cotner, you said earlier in  
14 the beginning of your testimony that you were the  
15 responsible engineer for compiling the data to submit with  
16 the C-108?

17 A. Yes, sir.

18 Q. So that the Examiner has an understanding of how  
19 you have compiled the C-108 booklet, it's the three-ring  
20 binder in black?

21 A. Yes, sir, that's correct.

22 Q. Describe for us how you've compiled it?

23 A. I reviewed the requirements of the form C-108 and  
24 determined within Chevron who is the appropriate party to  
25 answer the questions asked. I prepared a good portion of

1 the exhibits myself, and I had some help from the production  
2 engineer in completing the wellbore diagrams, and submitted  
3 to the geologist involved in the project the geological seal  
4 and fresh water, sand types of questions, asked each of them  
5 to answer the questions appropriately and submit the  
6 document to me for inclusion in the report.

7 Q. Is the book the Examiner has before him now a  
8 complete C-108 with all the attachments?

9 A. Yes, sir, it is.

10 Q. Describe how the book is organized.

11 A. The first page of the book is the actual form  
12 C-108 which I signed on February 7th. And then the next  
13 page has an index reference which refers to the Roman  
14 numeral reference items on the C-108 itself. For example,  
15 reference item three on the C-108 calls for well data,  
16 "Complete the data required on the reverse side of this  
17 form for each well proposed for injection. Additional  
18 sheets may be attached if necessary." So if you turn to  
19 Section III on the tabs, you will find the injection well  
20 data sheets. The same would occur for each reference  
21 section of the form C-108 that required some type of  
22 document to be attached.

23 Q. Let's turn to the tab marked with Roman numeral  
24 III. You have a number of different examples of type  
25 schematics for injection wells?

1           A.     Yes, sir.

2           Q.     Pick out for us the type example and then show us  
3 the differences.

4           A.     What I did is reviewed the -- all wellbores for  
5 wells that would be converted to injection and then added  
6 the wellbore schematic for the new injection well. So the  
7 first exhibit indicates the schematic and data for a  
8 proposed new injection well. It indicates that the pack  
9 would be set within a hundred feet above the top. It  
10 indicates the typical perforation range in the TD, the  
11 amounts of cement that will be involved in the casing  
12 programs, etcetera.

13          Q.     To understand how there's a change in the  
14 schematic, the label for the change is written on the third  
15 line down below where it says well number and footage  
16 location?

17          A.     Yes, sir.

18          Q.     And in small print it says "proposed new  
19 injection well"?

20          A.     Yes, sir.

21          Q.     As we thumb through the injection schematics  
22 then, in each instance at that position on the display it  
23 identifies the type of injection schematic?

24          A.     Yes, sir. Instead of completing a schematic for  
25 each and every well, I categorized them into the types of

1 completion, whether it's a new well, whether it's an  
2 existing two casing strings with an open hole, which would  
3 be the second one, or two casing strings perforated, or two  
4 casing strings with a perforated liner, three casing strings  
5 with a perforated liner, etcetera.

6 Q. Have you handled all the combinations that you  
7 believe possible in the unit in terms of injection well  
8 configurations?

9 A. Yes, sir, I have.

10 Q. Have you satisfied yourself as an engineer that  
11 each of those injection configurations, if applied, will  
12 give you good wellbore integrity for that injection well so  
13 that injection fluids will remain confined to the injection  
14 interval?

15 A. Yes, sir.

16 Q. Do you have a means to monitor the injection  
17 pressure at the surface between the tubing and the annulus  
18 base?

19 A. Yes, sir, we will.

20 Q. Do the methods of injection completion satisfy  
21 you as an engineer that they are in conformance with  
22 division rules and regulations for wellbore integrity?

23 A. Yes, sir, they do.

24 Q. The cement tops on the well between the surface  
25 and the bottom of the surface casing string, is that going

1 to be a continuous cement from surface to the bottom of the  
2 first casing, the surface casing string?

3 A. It should be upon completion. It's a remedial  
4 work that may be necessary on some potential problem wells.

5 Q. Where is the likeliest deepest fresh water sand  
6 available in the unit area?

7 A. I believe I'll defer that question to the  
8 geologist that testifies, if you don't mind.

9 Q. Okay. Have you, in connection with the  
10 geologist, worked out a program where, when completed, the  
11 injection wells and producing wells will be isolated from  
12 the any fresh water aquifer?

13 A. Yes.

14 Q. When we look at tab Roman numeral V, I guess it  
15 is, is the next one -- I don't have a IV.

16 A. No, there is no Roman numeral IV.

17 Q. Go to V. What's at V?

18 A. V gives you two maps; first is the proposed  
19 injection pattern, injection and producing pattern, for the  
20 flood with the proposed unit well numbers. The next is a  
21 map which is also indicated on the wall. It's indicating  
22 the one-half mile area of review from each of the injection  
23 wells. It's this one-to-1000-inch scale map here. It  
24 indicates the location of proposed injection wells, whether  
25 a proposed water injection conversion or a new drill. The

1 cloud-like appearance ring around the map is the one-half  
2 mile radius review drawn around the injection wells around  
3 the periphery of the unit, which all wells falling within  
4 that ream were documented further to C-108 for their  
5 completions, the plug wells, etcetera.

6 Q. Within the half-mile area of review, rather than  
7 provide a tabulation of the wellbore information, have you  
8 simply provided an individual well schematic with that same  
9 information shown on the schematic?

10 A. Yes, sir. I have supplied some wellbore  
11 information behind tab VIa, which is a tabular review of all  
12 wells within that area of review. And then we have wellbore  
13 schematics for -- behind tab VIb, is all wells within the  
14 unit area that have not been plugged and abandoned. VIc is  
15 all wells outside the unit area but within that half-mile  
16 radius of review that have not been plugged and abandoned.  
17 And VIId is all wells that have been plugged and abandoned,  
18 either inside or outside the unit, within a half-mile area  
19 of review.

20 Q. Let me direct your attention first to the plugged  
21 and abandoned wells. Have you found any plugged and  
22 abandoned wells that you would characterize as problem wells  
23 and otherwise wells that you suspect might be inadequately  
24 plugged so that injection fluids might have the opportunity  
25 to escape the injection formation?

1           A.     Yes, sir. I have submitted Exhibit 31, which  
2 indicates the potential problem wells of the plugged and  
3 abandoned wells within the area of review. We have supplied  
4 Mr. Jerry Sexton of the Hobbs district OCD with a copy of  
5 the C-108 and have made a personal review of the wells with  
6 him. He indicated that we would have some problem wells,  
7 although he has not gotten back in touch with us which wells  
8 he has identified. But on Exhibit 31 I indicate six wells,  
9 and in the comment column what I believe would create them  
10 to be potential problem wells. For example, the first one  
11 in the public record, I could not find indication that there  
12 was a last cement plug set near the surface or dry hole  
13 marker installed. Mr. Sexton indicated that if we went out  
14 and found the well and found the dry hole marker, then that  
15 would probably satisfy his requirements, but that each of  
16 these problem wells or any other identified by the  
17 commission, that we would meet the district director's  
18 requirements before we would initiate injection within a  
19 half-mile radius of that well.

20           Q.     In looking at the producing wells within the  
21 half-mile area of review, do you find any producing wells  
22 that you would characterize as problem wells?

23           A.     There are some wells that it is not clear where  
24 the top of cement was. For example, I believe there was a  
25 former Sohio well in Section 7 that one indication was that

1 they did not get the majority of their long string cement  
2 behind pipe, and it may not have an adequate cement top. We  
3 will review those and also take heed to any of the  
4 commission's recommendations on any wells that need remedial  
5 work.

6 Q. In terms of the program for operation, do you  
7 anticipate requiring approval to inject at surface  
8 limitation pressures that would exceed the division  
9 guideline of .2 PSI per foot of depth?

10 A. Initially, we're confident that the injection  
11 pressures would not exceed that. At such time as we begin  
12 to fill up the reservoir and repressurize, if we have step  
13 rate tests that indicate the parting pressure is greater  
14 than that .2 PSI per foot, we would ask the commission for  
15 permission to exceed that .2 limitation within the confines  
16 of the indicating parting pressure of the step rate test.

17 Q. The division examiner provides in his order an  
18 administrative process to attain increased injection  
19 pressures by the submittal of step rate test to the  
20 division, would that be a procedure that would give you  
21 operational flexibility?

22 A. Yes, it would.

23 Q. Do you have any fresh water analysis?

24 A. Yes, sir, we do.

25 Q. Where do we find that?

1           A.     If you refer behind tab XI of the C-108  
2 application, the first page is a map indicating the fresh  
3 water well sample. Actually, it indicates three different  
4 wells. It was -- the triangles are wells registered with  
5 the state engineer's office that we were able to find and  
6 sample. The circles indicate wells that were not registered  
7 at the state engineer's office that we did find and sample.  
8 And then the squares are wells that were registered at the  
9 state engineer's office that we either could not find or  
10 they were not active so we could not obtain a sample.  
11 Following that page will be the samples performed by Martin  
12 Water Labs of Midland, Texas, for each of those fresh water  
13 wells that we were able to find and sample, whether of  
14 record with the state engineer or not.

15           Q.     What will be the source of your injection water  
16 into the waterflood project?

17           A.     It will be a combination of the produced water  
18 from the Grayburg formation and San Andres makeup water.

19           Q.     Do you anticipate any incompatibility problems  
20 with the mixing of those two waters and introducing them  
21 into the waterflood?

22           A.     No, sir, we do not. In fact, behind tab VII we  
23 asked Martin Water Labs, again of Midland, to perform a  
24 compatibility test of several different mixtures of the  
25 produced water in the San Andres makeup water taken from an

1 EMS or Eunice Monument South Unit supply well to determine  
2 if there was any incompatibilities. And he indicated that  
3 there was no apparent incompatibility.

4 Q. What did you do about satisfying the division  
5 notice requirements for distributing the required notice to  
6 potentially affected parties on the C-108 application?

7 A. Behind tab XIV of the application is a letter  
8 that was mailed certified to each surface owner, offset  
9 operator and the working interest owners within the proposed  
10 unit area. The letter indicated that we have scheduled a  
11 hearing for today, and we included a copy of the C-108  
12 application, the statutory unitization application and the  
13 full extension contraction application. And then in my  
14 exhibit outside the C-108, but Exhibit Number 33, I have a  
15 list of the owners that that letter and additional data was  
16 sent to. On that list, if you see a checkmark to the right  
17 of the name, it indicates that we have received the green  
18 card, return receipt requested card, from the post office.  
19 There are a couple of instances where we do not have  
20 checkmarks, and in those cases I have included a copy of the  
21 mail log record from Chevron's mail room in Midland, Texas,  
22 indicating the proof of sending with the address label and  
23 the stamp and the return receipt requested. For the green  
24 cards that we have returned, I have xeroxed all those and  
25 included that also in this proof of notice.

1 Q. Have you received any objection for any surface  
2 owner of the location of the proposed injection well?

3 A. No, sir, we have not.

4 Q. Have you received any objection from any offset  
5 operator?

6 A. No, sir, we have not.

7 MR. KELLAHIN: That concludes my examination of Mr.  
8 Cotner. We move the introduction of Exhibits 29 through 33.

9 HEARING EXAMINER: Exhibits 29 through 33 are admitted.

10 MR. CARR: No questions.

11 HEARING EXAMINER: On the -- I had noted several wells  
12 in the PNA section there that didn't have a plug between the  
13 top of the salt and the base of the Santa Rosa. And you  
14 testified that you and Jerry had spotted several of those  
15 and that you planned to fix them. Would the remedial work  
16 be done on any well that was found in the condition which  
17 would be similar to those that are listed on your exhibit  
18 that you plan to do some work on?

19 THE WITNESS: Yes, sir.

20 HEARING EXAMINER: Exhibit Number 31.

21 THE WITNESS: Yes, sir, we do remedial work on any of  
22 the wells that the commission had indicated were problem  
23 wells and would require the work on.

24 HEARING EXAMINER: You said that you will do whatever  
25 the commission asks you to, but would you either perforate

1 the casing or pull the casing in order to get a plug across  
2 the entire wellbore in doing your remedial work on those  
3 wells?

4 THE WITNESS: If that was necessary and feasible.

5 HEARING EXAMINER: Did you -- or maybe it's planned for  
6 later testimony -- but have you -- did you include a  
7 percentage of the royalty ownership sign-up in here? If you  
8 did, I missed it.

9 THE WITNESS: No, sir, not in the C-108. Our landman  
10 will testify to that later.

11 HEARING EXAMINER: I meant on your unit agreement.

12 THE WITNESS: The landman will testify to that later.

13 HEARING EXAMINER: And the nomenclature portion of your  
14 presentation will be later too; is that correct?

15 MR. KELLAHIN: This is the best witness on the  
16 nomenclature details, Mr. Examiner.

17 HEARING EXAMINER: On the map you submitted prior to  
18 the hearing there was a quarter section in Section 14 that  
19 apparently would still be included (in the right) in the  
20 Arrowhead Grayburg. And if I understood correctly what you  
21 propose, that would be the only 40 acres that would not  
22 exactly correspond to the unit boundary; is that correct?

23 THE WITNESS: No, sir. I believe there's one other  
24 40-acre tract that is in Section 17. I believe it is the  
25 northwest quarter of the northwest quarter. There are two

1 wells that are currently classified as Arrowhead Grayburg,  
2 although they're not actually completions. But in the New  
3 Mexico Oil and Gas Engineering Committee Annual Reports, the  
4 cumulative is carried as Arrowhead Grayburg. When we met  
5 with Jerry Sexton and his staff members in the Hobbs  
6 district office, Evelyn Downs had requested that we not --  
7 when we carve down the size of the Arrowhead Pool, loping  
8 off the acreage that would probably never have a Grayburg  
9 completion, that we didn't carve it down just to the size of  
10 the unit so they could still carry the cumulative production  
11 from those two wells as Arrowhead Grayburg. There's no  
12 reason to contract the Eumont gas pool to minus 150 of the  
13 top of the Grayburg above there since they're outside the  
14 unit area, nor to include the San Andres -- expand them --  
15 pull them into the Arrowhead Grayburg, include the San  
16 Andres in those two. It would just be how the Examiner saw  
17 fit to handle that.

18 HEARING EXAMINER: Included in your proposal, was there  
19 a downward expansion proposed?

20 THE WITNESS: Yes, sir. The current pool limits of the  
21 Arrowhead Grayburg Pool are to the base of the Grayburg.  
22 And since we are proposing to include the San Andres aquifer  
23 as part of the unitized interval, we would like to expand  
24 the vertical limits to minus 1,500 subsea, which is near the  
25 base of the San Andres, save and except that portion of the

1 unit where we're excluding the unit San Andres southwest  
2 pool.

3 HEARING EXAMINER: Was that included in your request?

4 THE WITNESS: Yes, sir, that was in the application.

5 HEARING EXAMINER: Did you plan to present anything  
6 more on that here today?

7 MR. KELLAHIN: Nothing more in that it fits with the  
8 Zia solution. And what we will do, if you desire, is  
9 propose a draft order for you. Part of the solutions on  
10 nomenclature came from Mr. Sexton's office on how they wish  
11 to manage the pool changes.

12 MR. STOVALL: Are you proposing, Tom, that the  
13 nomenclature is a separate case, isn't it?

14 MR. KELLAHIN: I would think it might be easier to  
15 enter a separate order to make those adjustments.

16 HEARING EXAMINER: I believe you told me that you've  
17 said all you're going to say about it.

18 MR. KELLAHIN: Yes, sir, unless you have some  
19 additional questions of Mr. Cotner.

20 MR. STOVALL: I was thinking in terms of the context of  
21 issuing an order, I think that would be simpler to have a  
22 nomenclature order in that case.

23 HEARING EXAMINER: All right, I see the 1,500. Did all  
24 the interest owners in all the pools that will be changed  
25 receive notice of these proposals, notice of the hearing?

1 MR. KELLAHIN: Yes, sir.

2 THE WITNESS: Within the unit area. We did not notify  
3 every Langlie Mattix interest owner in the entire Langlie  
4 Mattix pool. I'm not sure I understood the question.

5 HEARING EXAMINER: Well, I think that's a better answer  
6 than it was a question. How about the Eumont interest  
7 owners above the boundary unit? Were they all notified?

8 THE WITNESS: Yes, sir, all working interest owners  
9 within the boundaries of the unit.

10 HEARING EXAMINER: From the surface to wherever (basic)  
11 production is?

12 THE WITNESS: Yes, sir. At least all operators were  
13 notified. I'm not sure if all owners were notified.

14 MR. STOVALL: Are there any undrilled tracts where  
15 there would not be an operator of record? And do you know  
16 if there are any?

17 MR. KELLAHIN: We would pick them up in the unitization  
18 case, and those parties have the same mailing as the  
19 nomenclature case. So we're going to have them either as an  
20 operator or as a working interest owner or a royalty owner  
21 in the unit mailing case, for which they also received the  
22 pool nomenclature application. So I can't imagine that  
23 there's anybody that we've missed.

24 HEARING EXAMINER: Each Grayburg well currently  
25 completed in this area will have a home after this expansion

1 and contract is completed, or a field to be in; is that  
2 correct?

3 THE WITNESS: Yes, sir.

4 MR. STOVALL: I'm going to ask him a non-engineering  
5 question.

6 EXAMINATION

7 BY MR. STOVALL:

8 Q. I'm going back to actually the earlier block of  
9 testimony when you talked about the AFE. And you've got 74  
10 percent approval of the AFE?

11 A. Yes, sir.

12 Q. Do you know in the unit operating agreement what  
13 the percentage approval for operations is required under the  
14 terms of the agreement?

15 A. I believe it's 65 percent.

16 MR. STOVALL: That's all I have.

17 HEARING EXAMINER: You may be excused.

18 DON LEE LINDSEY

19 the Witness herein, having been first duly sworn, was  
20 examined and testified as follows:

21 DIRECT EXAMINATION

22 BY MR. KELLAHIN:

23 Q. Mr. Lindsey, for the record, would you please  
24 state your name and occupation?

25 A. My name is Don Lee Lindsey. I'm a petroleum

1 geologist for Chevron U.S.A., Midland, Texas.

2 Q. Mr. Lindsey, you spell your last name  
3 L-i-n-d-s-a-y?

4 A. s-e-y.

5 Q. Have you testified on prior occasions before the  
6 division, Mr. Lindsey?

7 A. Yes, I have.

8 Q. What has been your involvement in the Arrowhead  
9 unit project?

10 A. My involvement at the onset was as a person that  
11 was familiar with the project, although I was not  
12 specifically assigned to the project, through its  
13 evolution. I've been officially assigned to the project  
14 over the last four months, and I've reviewed all the  
15 previous geological work.

16 Q. Has your study included a review of the technical  
17 committee geologic information?

18 A. Yes, it has.

19 Q. And have you satisfied yourself that that  
20 information is reliable and accurate?

21 A. I've looked at the specific geologic information,  
22 including structural, stratigraphic information, completions  
23 of the wells in the field. I'm satisfied with the validity  
24 of the work.

25 Q. In those areas where you had thought a need to

1 look for other information, have you gone out and found  
2 supplemental information to satisfy your inquire on any  
3 geologic point?

4 A. Yes, I have.

5 Q. At this point, are you able to formulate certain  
6 geologic conclusions about the proposed unit waterflood in  
7 the unit project?

8 A. Yes, I am.

9 MR. KELLAHIN: We tender Mr. Lindsey as an expert  
10 petroleum geologist.

11 HEARING EXAMINER: We'll accept his qualifications.

12 Q. (By Mr. Kellahin) Mr. Lindsey, have you formed an  
13 opinion as a geologist concerning the boundaries of the unit  
14 and whether or not it has any reasonable geologic basis?

15 A. Yes, I have. All boundaries are very reasonable  
16 geologically.

17 Q. Have you examined the proposed flood interval to  
18 satisfy yourself geologically that they were sufficiently  
19 continuous from well to well to provide the operations a  
20 realistic opportunity to inject water into an injection  
21 well, have that flood through the formation and have water  
22 and oil produced out of producing wells?

23 A. Yes, I have, and I believe the Arrowhead Grayburg  
24 reservoir has excellent secondary recovery potential.

25 Q. As part of your study, have you assisted Mr.

1 Cotner in the preparation of the C-108 to look for two  
2 items; one, to see if there was any open faulting or other  
3 geologic events that might hydrologically connect the flood  
4 formation and any fresh water zones?

5 A. Yes, I've looked at that.

6 Q. Is it a problem?

7 A. No, sir, it's not.

8 Q. Do you find any evidence of open faulting?

9 A. No, sir.

10 Q. Do you find any evidence that the formations or  
11 communicated between any aquifer and any flood zone?

12 A. No, sir.

13 Q. What is your opinion about the deepest known  
14 producing fresh water sands in this unit area?

15 A. My knowledge is the Triassic age Chinle and Santa  
16 Rosa formations are the primary fresh water aquifers in the  
17 area.

18 Q. Approximately how deep would be the deepest fresh  
19 water source that might be utilized for a beneficial use?

20 A. The deepest fresh water source would be the Santa  
21 Rosa formation, which extends from approximately 850 feet  
22 down to about 1,250 feet in this area.

23 Q. Do you see in your investigation any producing or  
24 plugged and abandoned well within the unit or within a  
25 half-mile radius of any proposed injector that poses a

1 problem whereby injection fluids might utilize that wellbore  
2 and communicate with any fresh water sands?

3 A. No, sir.

4 Q. Let's go to Exhibit Number 34-A and have you  
5 identify that for us.

6 A. Exhibit 34-A and, actually, 34-B are companion  
7 exhibits. 34-A is a type log, the type log for the  
8 Arrowhead Grayburg field. It is the Gulf Oil Corporation,  
9 now Chevron, Harry Leonard (NCT-C) Number 20. It's located  
10 in the extreme northwestern portion of Section 36 in  
11 Township 21 South, 36 East.

12 Q. This type log is used in the engineering report  
13 and perhaps is already before the Examiner in a different  
14 format?

15 A. Yes, it is. I've highgraded 34-B to include pool  
16 boundaries with the type log, which is -- by the way, it's a  
17 combination of Figure 7 and 5 in your Technical Committee  
18 Report.

19 Q. If the Examiner wants to look at the full log  
20 itself, then you have the density neutron log for the type  
21 well and he see it in full scale?

22 A. That's correct. It's the entire section starting  
23 at, I believe, 200 feet, extending down to this well's total  
24 depth of around 6850.

25 Q. And then you've taken a portion of the type log

1 put it on display 34-B and given the Examiner the  
2 nomenclature for pool and for formation?

3 A. That's correct. I'd like to add perhaps at this  
4 time that the formation tops that are represented for the  
5 Queen, Penrose, Grayburg and San Andres tops were picked  
6 from -- by Paul <sup>Kautz</sup> (Kauts) from the Hobbs OCD office. <sup>JHM</sup>

7 Q. In your examination, do you agree with Mr. <sup>Kautz's</sup> (Kauts)  
8 pick of tops?

9 A. Yes, I do.

10 Q. Is it a zone that is easily correlated from well  
11 to well so that there can be uniform agreement among  
12 geologists about how to correlate the logs?

13 A. Yes. There are good, consistent methodologies  
14 that are readily correlated, very straightforward. We'll  
15 see a little of that in subsequent exhibits.

16 Q. Let's turn now to Exhibit 35. Would you identify  
17 that?

18 A. Yes. Exhibit 35 is a structure map drawn on top  
19 of the Grayburg formation. The Examiner may have large or  
20 small scale versions.

21 Q. Your major geologic conclusions were that you had  
22 geologic explanations to the outer boundaries of the pool  
23 and had a conclusion that the flood formation was continuous  
24 and feasibly could be flooded?

25 A. Yes.

1           Q.     In what way does this display support those  
2 conclusions?

3           A.     This display supports the western boundary of our  
4 unit. We've testified prior that our western boundary was  
5 defined on a structural contour, which is the minus 325  
6 contour. It's highlighted in blue on this map.

7           Q.     Do you concur with Mr. Cotner's conclusion that  
8 the western boundary of the unit has a good rational basis?

9           A.     Yes, it does, and subsequent exhibits will bear  
10 that out.

11          Q.     Can you use the structure map to tell you  
12 anything else about your conclusions concerning the  
13 floodability of the Grayburg formation?

14          A.     There are better exhibits for that.

15          Q.     Let's turn now to the stratigraphic  
16 cross-section, Exhibit 36.

17          A.     Exhibit 36 is hanging on the wall.

18          Q.     Let me have you go to the display on the wall,  
19 Mr. Lindsey, Exhibit number 36. I'll hand you a pointer.  
20 First of all, to orient us --

21          A.     The map on the stratigraphic cross-section which  
22 is hung on top of the Grayburg, acting as the datum, runs  
23 from the currently flooded EMSU unit to the north through  
24 our proposed Arrowhead Grayburg Unit. It's an important  
25 exhibit in that it shows the similarities seen at Arrowhead

1 that we also see at EMSU. Those similarities particularly  
2 are zonation. Within the Grayburg, we have five distinct  
3 zones which are separated by dense, solisiclastic, low  
4 permeability zones. The other point to make here is the  
5 zones are easily correlatable, as previously mentioned.  
6 It's interesting to note that we have a thinning overall  
7 Grayburg section at Arrowhead, a little thinner than we have  
8 at EMSU, although very similar lithologically,  
9 stratigraphically and structurally.

10 I'd like to point out that our color scheme on  
11 the exhibit is blue for the flood target dolomites and  
12 yellow for the <sup>siliclastics</sup> (solisiclastics) that I mentioned. These  
13 solisiclastics, again, create the zonation not only within  
14 the Grayburg but also from the Penrose and the Queen section  
15 above. So we do have this zonation in the north south  
16 direction.

17 Q. Part of engineering committee's analysis of the  
18 secondary potential of the Arrowhead was to compare the  
19 reservoirs in the Arrowhead Unit with the Eunice Monument  
20 Grayburg Unit?

21 A. Yes, sir.

22 Q. And they were drawing some analogies about the  
23 secondary recovery potential to be attributed to Arrowhead.  
24 Can you concur as a geologist that the reservoirs being  
25 flooded in both Arrowhead and Eunice Monument are similar

1 enough that the engineers may rely on the fact that they are  
2 dealing with similar reservoirs and not some other kind of  
3 creature?

4 A. Yes, sir, they are very similar. Again, our  
5 flood target, the dolomites, from what few modern logs we do  
6 have within the proposed Arrowhead Unit are very similar in  
7 character with the modern logs in the EMSU existing  
8 waterflood unit.

9 Q. While I have you on your feet, let's skip 37 and  
10 go to 38. Let's go to your structural cross-section.

11 A. We have actually two structural cross-sections.  
12 One is Exhibit 38, the other is 39. I might show both.

13 Q. Let's leave that one there and put the extra one  
14 on top.

15 A. Okay. The purpose of constructing the two  
16 east-west cross-sections through the southern part of the  
17 field, which C-C' indicates, and the northern part of the  
18 field, which B-B' indicates -- by the way, these lines of  
19 cross-section are reflected also on your structure map which  
20 I submitted earlier -- is to also show that we have a  
21 zonation within the Grayburg in an east-west fashion as well  
22 as a north-south fashion, which we saw earlier. Again, the  
23 color scheme is the blue floodable dolomites and the yellow  
24 dense permeability barrier clastic sections. These, by the  
25 way, it would be important to note, are examples of log

1 quality that are the exception rather than the rule in the  
2 area. These lines of cross-section were chosen because  
3 there are a number of good, modern quality logs linearly  
4 here which, again, is not the common case throughout the  
5 field.

6 Q. Identify and describe for us Exhibit Number 37,  
7 Mr. Lindsey.

8 A. Exhibit Number 37 bears out the dense nature of  
9 the solisiclastics which I've been mentioning as barriers  
10 between not only the Grayburg and the Penrose, but also  
11 zones within the Grayburg. There are no cores within the  
12 Arrowhead Grayburg Unit area. This open hole log from the  
13 Eunice Monument South Unit Number 457 was cored, and the  
14 core analysis indicates that the permeabilities of these  
15 stringers, which I have highlighted in yellow to stay  
16 consistent with my cross-section, are quite low and, indeed,  
17 they are permeability barriers. I've attached a tabulated  
18 core analysis bracketed A, B, C and D as on the logs to help  
19 verify this low permeability lithology.

20 Q. What are the ranges of permeability within the  
21 area of the Grayburg and Penrose shown?

22 A. The -- well, productive permeabilities need to  
23 exceed .5 to .6, we estimate, millidarcies.

24 Q. So when I look on the second page of the core  
25 display, you get to the column that shows permeability

1 there.

2 A. Permeability.

3 Q. The important number is the horizontal

4 permeability?

5 A. They're all important. Vertical is the primary  
6 important one.

7 Q. So I look at the column that has the vertical  
8 permeability?

9 A. And you have permeabilities in most of the  
10 sections below .5, .6 range. Certainly on the C and D you  
11 have an indication of an extremely tight section.

12 Q. What is the minimum permeability you believe  
13 necessary?

14 A. I believe it's about .5 to .6 is our estimate.

15 Q. Can you exceed that on average in the A zone in  
16 terms of permeability?

17 A. You average it, with .35 being present, and then  
18 A and B are both solisiclastics above the Grayburg section,  
19 or actually the base of the Penrose section. So although A  
20 is borderline as far as our permeability minimums, the lower  
21 B is within it or below it. And, again, zonation within the  
22 Grayburg is identified by C and D, which are extremely  
23 tight.

24 Q. To the well that's cored in the Eunice Monument  
25 Unit, this well 457, are the permeabilities adequate enough

1 in order to allow for the introduction of water into those  
2 formations and let them move the oil?

3 A. Not within the sand formations.

4 Q. Only within the dolomite?

5 A. That's correct.

6 Q. And your analogy then in the absence of core data  
7 in the Arrowhead, you find similar log characteristics for  
8 those wells to give you confidence that you can apply this  
9 core information in Eunice Monument to the lithology and the  
10 permeabilities you anticipate in Arrowhead.

11 A. That's correct, based primarily on gamma ray of  
12 modern logs in the area. If you'll notice either on the  
13 structural cross-section or the stratigraphic  
14 cross-sections, as well as the EMSU 457 open hole log, which  
15 I have on Exhibit 37 here, the lower reading gamma rays  
16 indicate the carbonates around 10 to 20 API. What I've  
17 highlighted in yellow or sands, and they are usually 25 to  
18 40 API, and these are very good, consistent indicators of  
19 this impermeable solisiclastic section. Although  
20 solisiclastics are these sands produced in the Penrose, they  
21 are much thicker and porous and permeable. These  
22 solisiclastic barriers in the lower Penrose and throughout  
23 the Grayburg are very thin, less than five foot in  
24 thickness, and have no permeability. It's interesting to  
25 note that the porosities appear high. It's because these

1 are a solisiclastic zone, the porosities are based basically  
2 like a shale porosity in that there is porosity, but it's  
3 not ever connected, therefore it's not permeable. The  
4 porosity here in these <sup>siliclastics</sup> (solisiclastic) stringers are the  
5 result of the dissolution of fell spars within these  
6 sections.

7 Q. Does this geologic information help you form an  
8 opinion about the eastern boundary of the unit?

9 A. Yes, it does.

10 Q. Let's skip the stick diagrams for a minute and go  
11 to Exhibit 43.

12 A. Exhibit 43 will help define conclusively exactly  
13 what our intent was on the eastern boundary of the unit.  
14 Again, you may have either a large or a small version of  
15 Exhibit 43.

16 Q. What's the significance to you as a geologist of  
17 the blue lines shown on the eastern boundary of the unit?

18 A. The blue line on the eastern side of the unit  
19 indicates a 60 percent dolomite line. To the west of this  
20 line is increasing carbonate or dolomite, which, again, is  
21 our floodable target. To the east of this line we have the  
22 interbedded nature of the Grayburg, being interbedded  
23 dolomites and <sup>siliclastics</sup> (solisiclastics) or sands such -- to such effect  
24 that the sands make up more than 50 percent or 40 percent or  
25 more, and increasing to the east. These sands are not our

1 floodable target. And they've been unsuccessfully flooded  
2 in the Section 17 area by our company in the past.

3 Q. What is it that tells you as a geologist that  
4 this dolomite percentage cutoff for the eastern boundary  
5 should be at 60 percent?

6 A. The cumulative production of the unit lies -- the  
7 better cumulative production of the unit lies within the  
8 portion of the reservoir which is 60 percent carbonate, or  
9 greater.

10 Q. In conclusion then, do you find that to be a  
11 reasonable, logical limit to the eastern boundary of the  
12 unit?

13 A. Yes, sir.

14 Q. Your unit boundary closely approximates the 60  
15 percent dolomite or greater line until we get down into  
16 sections -- is that 7 and then 18, the northeast corner of  
17 18 and part of 7 there, looks to be a little saddle or a  
18 little transition zone in there?

19 A. The eastern part of Section 7, as you notice,  
20 I've also highlighted the 60 percent carbonate line to the  
21 east too. There is a little lull through there. So the  
22 portions of the southern quarter of Section 7 do belong  
23 within the unit and meet our percent carbonate criteria. As  
24 far as the east half of the northeast quarter of Section 18,  
25 which I assume you're referring to, there are two existing

1 wellbores there that have produced. The Number 8 well in  
2 the northern half has produced on the order of 80,000  
3 barrels cum. The southern wells produced on the order of  
4 about 35 to 40,000 barrels cum from the Grayburg, so we have  
5 existing wells there, low cost inclusion into the unit, and  
6 therefore we've included those wells into the unit, and we  
7 feel that although they are below the 60 percent carbonate  
8 regime, we feel they would be a profitable inclusion into  
9 the unit.

10 Q. Let me have you go back and look at the two stick  
11 diagrams. They're Exhibits 42 and 41.

12 A. Exhibits 40, 41 and 42, again, are compatible  
13 exhibits. I've taken those from the Technical Committee  
14 Report.

15 Q. 40 is the diagram index that shows the location  
16 of Exhibits 41 and 42?

17 A. Right. The stick index is Figure 19 in the  
18 technical report. 41 is Figure 21 in the report, and our  
19 Exhibit 42 is Figure 22 in the technical report. What I've  
20 done here is, first of all, with the diagram index map is  
21 I've chosen five, or two of the five east-west  
22 cross-sections in the technical report which I think best  
23 shows and supports not only our upper unitized limit of  
24 minus 150 for the gas oil contact, but it also supports our  
25 approximate oil water contact of 325 subsea. I've chosen

1 these cross-sections because the well completions include a  
2 Grayburg completion as well as a Eumont gas completion. I  
3 have annotated the cumulative recoveries from these wells in  
4 NBO and in NNCF gas and indicate by each well what the  
5 well's production is. It's interesting to note that the gas  
6 wells are virtually oil-free in their recoveries, whereas  
7 the oil completions indicated by the green are oil  
8 recoveries with reasonable gas or gas/oil ratios.

9 Q. Mr. Lindsey, based upon your study, do you find  
10 reasonable geologic basis for the proposed upper limit of  
11 the unit being minus 150 feet or the top of the Grayburg?

12 A. Yes, I do.

13 Q. Do you correspondingly find a justification on a  
14 reasonable geologic basis for the base of the unit being the  
15 minus 1,500 foot number?

16 A. Yes, I do.

17 MR. KELLAHIN: That concludes my examination of Mr.  
18 Lindsey. I move the introduction of Exhibits 34 through 43.

19 HEARING EXAMINER: 34 through 43 are admitted.

20 Is the upper limit of the Arrowhead Grayburg the  
21 same as it is in that unit to the northwest?

22 THE WITNESS: No, sir, it's not.

23 HEARING EXAMINER: Why is that?

24 THE WITNESS: The separate pools, separate structures  
25 have different gas oil contacts. At Arrowhead it's minus

1 150, at EMSU it's minus 100.

2 HEARING EXAMINER: I believe it was Exhibit 37 where  
3 you had the permeabilities in the log from the --

4 THE WITNESS: Yes, sir.

5 HEARING EXAMINER: -- EMSU. Are the zones A, B, C and  
6 D different from the zones 1, 2, 3, 4, 5? If I understood  
7 you correctly, you were showing type zones A, B, C and D.

8 THE WITNESS: That's correct.

9 HEARING EXAMINER: And the zones not A, B, C and D on  
10 those exhibits were the better zones; is that correct?

11 THE WITNESS: That's correct. The -- on the low  
12 permeability exhibit, number 37, I've highlighted the higher  
13 gamma ray in yellow to stay consistent with our structural  
14 cross-section to show that as being our <sup>solisticlastics</sup> (solisticlastic) zone, <sup>JHM</sup>  
15 which is a characteristically low permeable zone.

16 HEARING EXAMINER: There were some fairly high things  
17 in there, so I was a little bit confused.

18 That's all the questions I have.

19 MR. STOVALL: No questions.

20 HEARING EXAMINER: Anything more? Mr. Lindsey, you may  
21 be excused.

22 Let's take a five-minute break before we take the  
23 next witness.

24 (Recess, 4:42 p.m. to 4:50 p.m.)

25 DENISE K. BECKHAM

1 the Witness herein, having been first duly sworn, was  
2 examined and testified as follows:

3 DIRECT EXAMINATION

4 BY MR. KELLAHIN:

5 Q. Ms. Beckham, would you please state your name and  
6 occupation?

7 A. Yes, sir. My name is Denise K. Beckham. I'm a  
8 landman for Chevron U.S.A. Inc. in Midland.

9 Q. Ms. Beckham, on prior occasions have you  
10 testified before the division as a landman?

11 A. No, sir, I have not.

12 Q. Describe for us your educational and employment  
13 experience as a landman.

14 A. Yes, sir. I received a bachelor of arts degree  
15 in political science from Texas Tech University in 1976.  
16 1977 I went to work for Gulf Oil Corporation, worked two  
17 years in the geophysical unit. 1979 I was moved up to the  
18 land department and have worked in various phases of land  
19 work from 1979 to present.

20 Q. Have you been actively involved in all the land  
21 work required for the formation of the Arrowhead Grayburg  
22 Unit?

23 A. Sir, I was not an original part of the team. The  
24 landman that was assigned to this has since left the  
25 company. But I have been associated with the project since

1       October of '88.

2           Q.     Have you been responsible for compiling a list of  
3       the working interest owners and royalty owners for this  
4       project and determining to your own satisfaction that it is  
5       accurate?

6           A.     Yes, sir, I have.

7           Q.     And have you caused your company to prepare and  
8       circulate proposed unit agreements and operating agreements  
9       to all those parties?

10          A.     Yes, sir, I have.

11          Q.     As part of your duties have you tabulated the  
12       current status of commitment of the working interest and  
13       royalty owners to the unit?

14          A.     Yes, sir, I have.

15          MR. KELLAHIN: We tender Ms. Beckham as an expert  
16       petroleum landman.

17          HEARING EXAMINER: We accept Ms. Beckham's  
18       qualifications.

19          Q.     (By Mr. Kellahin) Let me have you go through with  
20       me and identify the documents that you have prepared and  
21       propose to introduce to the Examiner this afternoon. Let me  
22       have you first start with Exhibit 44. Would you identify  
23       and describe that?

24          A.     Yes, sir. As Mr. Cotner has testified, although  
25       there were less than ten percent federal lands in the unit,

1 as a courtesy we approached the BLM and asked for a meeting  
2 and their preliminary approval. This is the letter asking  
3 for such.

4 Q. Would you identify 45?

5 A. Yes, sir. This is the response we received from  
6 the BLM. They did give us preliminary approval and agreed  
7 that the subject lands would be arealogically suitable to  
8 secondary recovery unit.

9 Q. Having obtained the BLM preliminary approval --  
10 that's the letter of May 16th, 1990?

11 A. Yes, sir, it is.

12 Q. Let's turn now to Exhibit 46. Identify that for  
13 us.

14 A. This is the cover letter which accompanied the  
15 unit agreement and the unit operating agreement which were  
16 mailed to all the working interest parties for their  
17 comments.

18 Q. Identify and describe 47.

19 A. Yes, sir. This is our letter requesting a  
20 meeting and preliminary approval of the Commission of Public  
21 Lands for our waterflood unit.

22 Q. And Exhibit 48?

23 A. It's the reply from the State of New Mexico  
24 Commission of Public Lands giving preliminary approval.

25 Q. Exhibit 49?

1           A.     Yes, sir. This is a letter requesting the  
2     division order sections of our major companies to provide us  
3     with division order or paysheets of their royalty owners.  
4     We provided them with Exhibits B and C so they could have an  
5     appropriate view of what we considered the appropriate  
6     ownership. At that time we requested verification of the  
7     ownership and also further information so we could make a  
8     more correct exhibit.

9           Q.     Exhibit 50.

10          A.     Yes, sir. From our previous letter requesting  
11     comments from the working interest owners we received  
12     comments back from eight of the major working interest  
13     owners. We took those comments into advisement and revised  
14     the agreements. These revisions were basically grammatical  
15     and did not substantially change the content of the  
16     instruments. We sent this letter out certified mailing to  
17     those eight working interest owners for their approval of  
18     the unit agreement and unit operating agreement. Attached  
19     to this letter were, of course, the revised copies of the  
20     agreements, also an address list showing the companies which  
21     received them, a listing of the changes that were made in  
22     the agreements and also verification of our certified  
23     mailing.

24          Q.     Identify and describe Exhibit 51.

25          A.     Yes, sir. This is an example of a working

1 interest owners executed ratification and joinder to the  
2 unit agreement and unit operating agreement, ratifying their  
3 interest to such instruments.

4 Q. Exhibit 52.

5 A. This is a cover letter which sent out a revised  
6 Exhibit A correcting some company names. An example of this  
7 would be Tract 7, American Exploration was changed from KEC  
8 Corp. There was a company change, and so we updated our  
9 Exhibit A of the unit agreement.

10 Q. Identify and describe Exhibit 53.

11 A. Yes, sir. Upon negotiations and a reasonable  
12 assurance of acceptance of the eight major working interest  
13 owners companies of our agreements and revised agreements,  
14 we then sent the rest of the working interest owners these  
15 copies of the agreements for their review and approval.  
16 Again, we have an address list stating the companies that  
17 received those, a list of the changes that were made in the  
18 agreements. Basically, this is the same as was sent out  
19 under the November 28th and also verification of our  
20 certified mailings. We had a hundred percent return in the  
21 certified mailing.

22 Q. Identify and describe Exhibit 54.

23 A. This was a certified mailing to the lessee of  
24 record, the owners of royalty and overriding royalty  
25 interests. Accompanying this letter was a unit agreement,

1 their ratifications and a brochure explaining some  
2 information about secondary recovery, a background of the  
3 Arrowhead Grayburg Unit.

4 Q. Identify and describe Exhibit 55.

5 A. This is an example of an individual royalty owner  
6 joinder and ratification of the unit agreement ratifying  
7 their interest to the unit agreement.

8 Q. Exhibit 56?

9 A. Yes, sir. This is the brochure we sent to our  
10 overriding royalty owners and royalty owners lessee of  
11 records, as I said before, giving some explanation of the  
12 history of the field, secondary recovery and some  
13 questions. Just basic information about secondary recovery  
14 in our unit.

15 Q. When the royalty and overriding royalty owner  
16 receives the package, that person has the royalty brochure,  
17 but they also have the tabulation sheet, Exhibit B, if you  
18 will, out of the unit agreement so they can go through  
19 there, find their tract, find their name and find their net  
20 interest after application of the participation formula?

21 A. Yes, sir, that's correct, and we asked for  
22 verification of that.

23 Q. Identify and describe Exhibit 57.

24 A. Yes, sir. This was a certified mailing of notice  
25 of the applications of hearing that were filed on behalf of

1 Chevron. This letter went to the lessee of records, the  
2 owner of royalty and overriding royal interests. It  
3 contained a -- copies of all three of the applications that  
4 were filed. Again, we have our address list and proof of  
5 mailing with the certified cards, and we got an 89.8 percent  
6 return of our certified mailing.

7 Q. Eighty-nine point --

8 A. Point 8.

9 Q. Identify and describe 58.

10 A. Yes, sir. We recently purchased an interest from  
11 another operator of the A. L. Christmas Number 1 well. This  
12 operator had some overriding royalty parties that he had not  
13 filed of record until later on in the game and our previous  
14 record checks had not picked them up. We realized that  
15 these were lessee of records, and so we sent packages to  
16 them. These packages basically consisted of the brochure,  
17 the unit agreement, their ratifications and also the  
18 applications.

19 Q. As you, over time, continue to update and keep  
20 current your list of names and addresses of working interest  
21 royalty and overriding royalty owners, it was your plan of  
22 operation to provide the new parties with information by  
23 which they could then participate in the action required for  
24 their interests in the unit?

25 A. Yes, sir, it was.

1 Q. Identify and describe Exhibit 59.

2 A. Yes, sir. Although -- when we acquired the  
3 operator's division order files, we found that there had  
4 been several changes in the ownership of the overrides,  
5 although these changes were not reflected of record in Lea  
6 County, mainly because the wills had not been probated in  
7 Lea County, but there had been several deaths, and so  
8 subsequent heirs. We felt although these were not owners of  
9 record in Lea County, that we should give them the courtesy  
10 of giving them the information that we had given to other  
11 owners, and this is the cover letter that accompanied that.

12 Q. Have you satisfied the division notice  
13 requirements by providing notice of hearings to all parties  
14 of record known to you by sending that notice at least 20  
15 days before the hearing?

16 A. Yes, sir.

17 Q. But you have continued to supplement that notice  
18 as additional people become known to you and provided them  
19 notice of hearing?

20 A. Yes, sir, we have.

21 Q. Turn now to Exhibit 60. Would you identify that  
22 for us?

23 A. Yes, sir. This is a program, a computer program,  
24 that we have generated to keep track of the summary and  
25 analysis of the committed interests under the unit. I can

1 explain it as -- the columns, we go across here gives the  
2 tract number, percentage of participation, working interest  
3 owner and their working interest percentage. The "Y"  
4 indicates that they have ratified, indicates a "yes" to  
5 their interest being committed. We have their  
6 participation, their unit participation in this next  
7 column. We also show the royalty owner, percentage of  
8 royalty, and also if those tracts have been committed, and  
9 also a percentage of the tract of the royalty that has been  
10 committed to the unit.

11 Q. As of today -- or what is the date at which this  
12 is compiled?

13 A. March 1, sir.

14 Q. This is accurate as of March 1st of this year?

15 A. Yes, sir.

16 Q. When we look at the bottom line of the tabulation  
17 as of March 1st of this year, what percentage of the working  
18 interest ownership has ratified or committed their interest  
19 to the unit?

20 A. 87.02 percent.

21 Q. When we look at the royalty total here, it's the  
22 92.2?

23 A. Yes, sir.

24 Q. Is that just royalty, or does that include  
25 royalty and overriding royalty owners?

1           A.     No, sir, that is royalty exclusively. We did  
2 generate a number that -- inclusive of the overriding  
3 royalty, and that generates a 82.5 percent, which is in  
4 excess of the 75 percent.

5           Q.     If you add in royalty and overrides together,  
6 then it's the 82 plus percent?

7           A.     Yes, sir.

8           Q.     Let's turn now to Exhibit 61. Identify that for  
9 me.

10          A.     Yes, sir. That is the unit agreement for our  
11 Arrowhead Grayburg unit.

12          Q.     Now, this is the latest version of the unit  
13 agreement that contains all the suggested changes?

14          A.     Yes, sir, it is.

15          Q.     That Chevron as operator has agreed to and has  
16 recirculated to all the working interest owners?

17          A.     Yes, sir, it is.

18          Q.     As best you know, this represents the final,  
19 finished proposed unit agreement?

20          A.     Yes, sir, it does.

21          Q.     When we look at Exhibit Number 62, identify that  
22 for me, please.

23          A.     It's the unit operating agreement for the  
24 Arrowhead Grayburg Unit.

25          Q.     And is that also a completed document at this

1 time?

2 A. Yes, sir, it is.

3 Q. You don't anticipate any further revisions or  
4 changes to the language of the contract?

5 A. No, sir, not at this time.

6 Q. Have you made yourself familiar, Ms. Beckham,  
7 with the Statutory Unitization Act, particularly the  
8 necessary provisions set forth in Section 70-7-7?

9 A. Yes, sir.

10 Q. In which the statute identifies and specifically  
11 describes the type of provisions that need to be in your  
12 agreements in order to obtain division approval under the  
13 Statutory Unitization Act?

14 A. Yes, sir.

15 Q. Let's go through that, if you will, with me and  
16 identify for the Examiner your opinion and conclusion about  
17 whether you have each of those items in your documents.

18 A. Yes, sir.

19 Q. If you'll look at 70-7-7, the first entry is a  
20 legal description, obviously, of the unit area. And you  
21 have that contained in your documents?

22 A. Yes, sir, it is.

23 Q. Have you satisfied yourself that it's accurate  
24 and correct?

25 A. Yes, sir.

1 Q. There is a statement of the plan of operation or  
2 the concept for operation contained in the documents, and it  
3 sets forth the type of authority that they're giving the  
4 operator?

5 A. Yes, sir.

6 Q. Subsection C is an allocation on a tract by tract  
7 basis of the anticipated production. Where do we find that  
8 in your documents?

9 A. Yes, sir. That is covered -- let's see, I  
10 believe it's under Section 11, Plan of Operations.

11 Q. You also have a tabulation showing a breakout on  
12 the unit agreement of the interest owners in terms of who  
13 they are and what percentage they receive?

14 A. Yes, sir.

15 Q. When we look at subsection D, are there  
16 provisions in your operating agreement for credits and  
17 charges to make adjustments in the unit area for equipment  
18 and other operational items?

19 A. Yes, sir. It's under Article 10 of the operating  
20 agreement.

21 Q. Is that found also in your copus attachments in  
22 your operating agreement?

23 A. Yes, sir.

24 Q. Do you keep your copus instructions current in  
25 terms of your accounting procedures?

1           A.     Yes, sir.

2           Q.     It's the same kind of accounting procedures  
3 typically utilized for all your unit operations?

4           A.     Yes, sir, it's a standard form.

5           Q.     Subsection E also talks about additional  
6 provisions for cost of operations, including capital  
7 investments. Where might we find that provision in your  
8 documents?

9           A.     Article 12 of the operating agreement.

10          Q.     Subsection F talks about provisions for carrying  
11 working interest owners either on a limited or a carried  
12 basis. Do you have that kind of language in your documents?

13          A.     Yes, sir. Although per se we do not have a  
14 non-consent provision, we have instituted in our agreements  
15 a provision for a lien that would provide for getting unit  
16 expense back. It consists of a lien of a prime interest  
17 rate plus a one percent per annum, plus any costs that are  
18 incurred.

19          Q.     You're not seeking then from the division  
20 examiner a non-consent penalty factor up to the maximum of  
21 -- I believe it's 200 percent against any non-consenting  
22 working interest owners?

23          A.     No, sir, we are not.

24          Q.     Do you have a provision under subsection G  
25 designating Chevron as the operator and providing for

1 supervision and conduct of unit operations?

2 A. Yes, sir, we do. That's found in our unit  
3 agreement section 6.

4 Q. Subsection 8 talks about a voting procedure.  
5 Where will we find that?

6 A. That's in the operating agreement, Article 43.

7 Q. I believe in response to an earlier question from  
8 Mr. Stovall, Mr. Cotner said it was a 65 percent or greater  
9 percentage of working interest owners to approve an AFE; is  
10 that correct?

11 A. That's correct. That's the percentage for a  
12 voting procedure for an affirmative vote, 65 percent.

13 Q. Do you have procedures in there for substituting  
14 an operator or selection of a subsequent operator?

15 A. Yes, sir, Section 7 of the unit agreement.

16 Q. What is the timing of the proposed unit? Do you  
17 have an anticipated time in which you will actually start  
18 the unit?

19 A. Yes, sir. The effective date is dependent on the  
20 date that the order is issued, plus, of course, our 75  
21 percent of ratification for working interest and royalty,  
22 and also it is a date that will be mutually agreed upon by  
23 the commissioner, the AO division and the operator.

24 Q. In supervising the preparation of all these  
25 documents, have you satisfied yourself that they are in

1 compliance with division rules and the requirements of  
2 Statutory Unitization Act?

3 A. Yes, sir.

4 MR. KELLAHIN: That concludes my examination of Ms.  
5 Beckham. We move the introduction of her exhibits  
6 commencing with Exhibit 44 through 61.

7 THE WITNESS: If I could add that our unit agreement is  
8 the sample form that is found in the state form book for a  
9 unit agreement for the secondary recovery projects.

10 Q. (By Mr. Kellahin) And you meet the requirements  
11 of both the BLM and the Commissioner of Public Lands as to  
12 form and content of your agreement?

13 A. Yes, sir.

14 HEARING EXAMINER: Exhibits 41 through 62 are accepted  
15 into evidence.

16 How do the proposed overhead costs in this unit  
17 compare to, say, the one to the northwest there?

18 THE WITNESS: Yes, sir. They are less than the -- our  
19 Eunice Monument. These rates have been agreed upon by seven  
20 of the major working interest owners. They're also  
21 approximately the same as the Shell's northeast Drinkard  
22 unit, which is about five miles to the northeast of our  
23 unit.

24 HEARING EXAMINER: That's deeper production too.

25 THE WITNESS: Yes, sir.

1 Q. (By Mr. Kellahin) What are your rates?

2 A. Our rates are 507 and 5,070.

3 HEARING EXAMINER: That's all I have.

4 EXAMINATION

5 BY MR. STOVALL:

6 Q. Are there any unleased tracts in this unit?

7 A. No, sir.

8 Q. What effort are you making to find -- I notice  
9 there are several returned envelopes, undeliverable. Are  
10 you continuing to attempt to locate those people?

11 A. Yes, sir, we are. One of the things that we have  
12 done is if there any names, family members that we have  
13 found in our searches, we have contacted these people and  
14 have tried to search through and find relatives or people  
15 that we think they may know, if they live in the same town,  
16 that sort of thing. To my knowledge, right now I think  
17 we've only had nine that have come back with addresses  
18 unknown and undeliverable.

19 Q. That's rather amazing, considering all the fee  
20 land you've got out there?

21 A. We did quite an extensive search before we did  
22 our mail-outs. We did a lot of calling and verifying as to  
23 where these parties were located, and I think it expedited  
24 matters.

25 Q. Looking at Exhibit 60, I notice -- and it's

1 probably just my not being able to tie things together, but  
2 there are a number of tracts; say, Tract 1-B shows zero  
3 percent participation?

4 A. Yes, sir.

5 Q. It's my understanding that actually that only 18  
6 and 20 were zero.

7 A. Well, sir, these tracts, most of these fall into  
8 the aquifer zone, and that's why they generate a zero.

9 HEARING EXAMINER: Most of them what?

10 THE WITNESS: Most of them fall into the aquifer zone.  
11 18 and 20 were zero generated in the oil column, but those  
12 that have a zero are, for the most part, ones that fall into  
13 the aquifer.

14 HEARING EXAMINER: So there's some other zero tracts  
15 besides?

16 THE WITNESS: Yes, sir.

17 HEARING EXAMINER: I didn't know that either.

18 Q. (By Mr. Stovall) But all those people have  
19 agreed, either working interest have agreed, or there are no  
20 royalty problems similar to what you have --

21 A. No, sir.

22 MR. STOVALL: Mr. Kellahin, is this a record number of  
23 the exhibits for a case?

24 MR. KELLAHIN: No, sir. I think Mr. Carr has  
25 outperformed me on at least one occasion.

1 HEARING EXAMINER: Anything further?

2 MR. STOVALL: No.

3 HEARING EXAMINER: You may be excused, Ms. Beckham.

4 Thank you.

5 THE WITNESS: Thank you, sir.

6 HEARING EXAMINER: I did have one more question of Mr.  
7 Cotner. The only question I have, you'd already answered it  
8 once before, but I wanted to be sure that I understood that  
9 on the injection wells, where you're going back into old  
10 wells and the cement is not circulated to the surface behind  
11 the long string, that you would plan to do that. Was that  
12 your testimony?

13 MR. COTNER: I may have misunderstood the question. It  
14 is not currently our plan to circulate the cement on a long  
15 string, but if the commission were to make it a requirement,  
16 we certainly would. We would insure that there was adequate  
17 cement above the injection interval as to protect the fresh  
18 water sands and shallower intervals from the injection. But  
19 without being ordered to circulate cement on those wells, we  
20 would not.

21 HEARING EXAMINER: That's all I had.

22 MR. COTNER: Thank you.

23 HEARING EXAMINER: Let's see --

24 MR. KELLAHIN: Mr. Examiner, as a last Exhibit 63, and  
25 I've misplaced the stamp for the moment, is proposed

1 language to specifically address Mr. Pearce's clients'  
2 situation in Tract 20 with the overriding royalty on zero  
3 tracts. I've shared the draft language with Mr. Pearce  
4 earlier, and what I propose to do is provide it now and then  
5 include it in our draft order, with Mr. Pearce's concurrence  
6 on the exact language. But this is at least a first effort  
7 to deal with that issue.

8 HEARING EXAMINER: And you do plan to submit a draft  
9 order?

10 MR. KELLAHIN: Yes, sir. I think it might be helpful  
11 in this case to go ahead and do that.

12 MR. STOVALL: Order or orders. How many orders do you  
13 anticipate?

14 MR. KELLAHIN: You'll need three.

15 HEARING EXAMINER: Anything further, Mr. Kellahin?

16 MR. KELLAHIN: No, sir.

17 HEARING EXAMINER: Cases numbers 101259 and 10260 and  
18 10261 will be taken under advisement.

19 We'll recess until 8:15 tomorrow morning.

20 (The foregoing hearing was adjourned at the  
21 approximate hour of 5:10 p.m.)  
22  
23  
24  
25

1 STATE OF NEW MEXICO )

2 :

3 COUNTY OF SANTA FE )

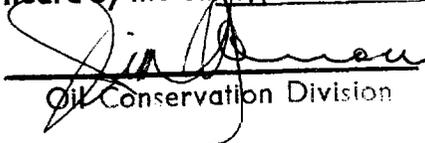
4 I, FREDA DONICA, RPR, a Certified Court Reporter, DO  
 5 HEREBY CERTIFY that I stenographically reported these  
 6 proceedings before the Oil Conservation Division; and that  
 7 the foregoing is a true, complete and accurate transcript of  
 8 the proceedings of said hearing as appears from my  
 9 stenographic notes so taken and transcribed under my  
 10 personal supervision.

11 I FURTHER CERTIFY that I am not related to nor employed  
 12 by any of the parties hereto, and have no interest in the  
 13 outcome hereof.

14 DATED at Santa Fe, New Mexico, this 5th day of  
 15 April, 1991.

16   
 17 Freda Donica  
 18 Certified Court Reporter  
 19 CCR No. 417

20 I do hereby certify that the foregoing is  
 21 a complete record of the proceedings in  
 22 the Examiner hearing of Cases Nos. 10258, 10260, + 10261  
 23 heard by me on March 7 1991.

24   
 25 Examiner  
 Oil Conservation Division