

KELLAHIN, KELLAHIN AND AUBREY

ATTORNEYS AT LAW

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SANTA FE, NEW MEXICO 87504-2265

W. THOMAS KELLAHIN  
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JASON KELLAHIN  
OF COUNSEL

TELEPHONE (505) 982-4285  
TELEFAX (505) 982-2047

July 31, 1990

HAND DELIVERED

RECEIVED

JUL 31 1990

OIL CONSERVATION DIV.  
SANTA FE

Mr. William J. LeMay  
Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87501

- Re: (1) Application of OXY USA Inc. for  
Statutory Unitization for the Central  
Corbin Queen Unit, Lea County,  
New Mexico
- (2) Application of OXY USA for Authority  
to Institute a waterflood project for  
the Central Corbin Queen Unit, Lea County,  
New Mexico.

10663

Dear Mr. LeMay:

On behalf of OXY USA Inc, we would appreciate your setting the enclosed two Applications for a public hearing on the Division's Examiner docket now scheduled for August 22, 1990.

By copy of this letter to all parties to be subject to any orders issued in these cases, we are notifying them by certified mail-return receipt, that they have the right to appear at the hearing, to make a statement to the Division, to present evidence and cross-examine witnesses either in support of or in opposition to the Application. Those parties are directed to contact the Division or the Applicant's attorney to determine what additional rights they may have. In addition, they are advised that the entry of a statutory unitization order will affect their rights to share in the production from the subject unit.

Any party desiring to participate in the hearing should file a prehearing statement with the Division and the applicant's attorney by 4:00 P.M. on August 17, 1990.

Sincerely,

W. Thomas Kellahin

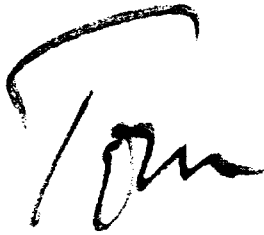
WTK/tic  
Encl.

Florene:

The Oxy statutory unit case and the waterflood case applications are attached with an original and three copies but each only has one set of the exhibits.

we will file the ~~x~~ exhibits for the copies when I can make them we simply ran out of time.

Thanks

A handwritten signature in black ink, appearing to read "Tom". The signature is stylized with a large, sweeping initial "T" and a cursive "om".

STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY AND MINERALS  
OIL CONSERVATION DIVISION

RECEIVED

JUL 31 1990  
OIL CONSERVATION DIV.  
SANTA FE

APPLICATION OF OXY USA, INC. FOR  
AUTHORITY TO INSTITUTE A WATERFLOOD  
PROJECT FOR THE CENTRAL CORBIN QUEEN  
UNIT, LEA COUNTY, NEW MEXICO

NO. 10063

A P P L I C A T I O N

OXY USA INC. ("OXY") hereby applies to the New Mexico Oil Conservation Commission for an order authorizing OXY to institute a waterflood project for the Central Corbin Queen Unit, Lea County, New Mexico, and in support of its application states:

1. OXY USA Inc. ("OXY") 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.

2. The proposed area (the "Project Area") for which application is made is known as the Central Corbin Queen Unit and consists of 1560 acres, more or less, in Lea County, New Mexico, and is more particularly shown in Exhibit No. 1 attached hereto and incorporated herein by reference. OXY proposes to seek an order pursuant to the New Mexico Statutory Unitization Act providing for the unitized management, operation and further development of the Project Area.

3. By converting certain presently producing wells to water injection wells and by drilling new water injection wells, OXY proposes to inject fluids into the producing interval which shall include the formations which extend from an upper limit described as 215 feet below mean sea level or at the top of the Queen formation, whichever is higher, to a lower limit at the base of the Queen formation. The geologic markers have been previously found by the Oil Conservation Division to occur at 4200 feet and 4246 feet, respectively, in OXY USA Inc.'s Federal "AA" No. 1 Well (located at 990 feet from the North line and 1980 feet from the East line of Section 9, Township 18 South, Range 33 East, Lea County, New Mexico) and as recorded on the Schlumberger CNL-LDT Log taken on November 10, 1984, said Log being measured from a kelly drive bushing elevation of 3985 feet above sea level. A copy of the Welex Log for said well on said date is attached hereto and incorporated herein by reference as Exhibit No. 2. Also attached hereto and incorporated herein by reference as Exhibit No. 3 is a Well Status Map of the Central Corbin Queen Unit Area showing the location and current status of all wells and leases located within the project area as well as those that are located within a two mile radius of the proposed injection wells. Also attached hereto and incorporated herein by reference is Exhibit No. 4 which is a Well Status Map of the Central Corbin Queen Unit which also shows the proposed Unit

injection wells. Exhibit No. 5, in conjunction with Exhibit No. 1, is the proposed well numbering system within the unit. Regarding both Exhibit No. 4 and Exhibit No. 5 and attached hereto and incorporated herein by reference as Exhibit No. 6 are well data sheets relating current and proposed well data on each proposed injection well within the Unit Area. Diagrammatic sketches illustrating the wellbore configurations typical of the majority of the proposed injection wells and showing the manner in which the wells will be equipped for injection are attached hereto and incorporated herein by reference as Exhibit No. 7.

Schematic diagrams for other wells in the units are attached and incorporated herein by reference as Exhibit No. 8. All the available well logs of the proposed injection wells are currently on file with the Oil Conservation Division.

Attached hereto and incorporated herein by reference as Exhibit No. 9 is a list of those injection wells for which well logs are not available.

4. Schematic diagrams on all other wells located within one-half mile radius of the proposed injection wells showing all casing strings, setting depths, sacks of cement used, cement tops, total depth, producing intervals, well identification, and location are attached hereto and incorporated herein by reference as Exhibit No. 10.

Included in this attachment are schematics of all plugged and abandoned wells located within a one-half mile radius of the proposed injection wells.

5. Initially, water to be used for injection for the waterflood project will come from the Ogallala and the Bone Spring formations. As production increases, and the number of injection wells increase, it is expected that produced water will become the primary source of injected water supplemented by water from the Ogallala formation.

6. Water is to be injected at a surface pressure not to exceed 0.2 psi per foot of depth to the top of the injection zone provided that surface pressure in excess of 0.2 psi per foot of depth to injection zone may be applied upon administrative approval of the Director of the Oil Conservation Division after showing that such higher pressure will not result in fracturing of the confining strata.

7. Furthermore, filed with this application is Division Form C-108 with remaining attachments, which is incorporated herein by reference as Exhibit No. 11.

8. Approval of this application for the Central Corbin Queen Unit waterflood project will substantially increase recoverable reserves thereby preventing waste.

9. In accordance with Division Notice Rules, a copy of this application has been sent certified mail return receipt to those offset operators and surface owners as set forth on Exhibit 12 and they are hereby notified of the hearing set for August 22, 1990.

WHEREFORE, OXY respectfully requests that this application be set for hearing before the Oil Conservation Division on August 22, 1990 and that the Division enter its order approving the waterflood project for the Central Corbin Queen Unit.

KELLAHIN, KELLAHIN & AUBREY

By: 

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

ATTORNEYS FOR OXY USA, INC.

STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY AND MINERALS  
OIL CONSERVATION DIVISION

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SANTA FE

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By: 

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

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STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY AND MINERALS  
OIL CONSERVATION DIVISION

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JUL 31 1990

OIL CONSERVATION DIV.  
SANTA FE

NO. 16063

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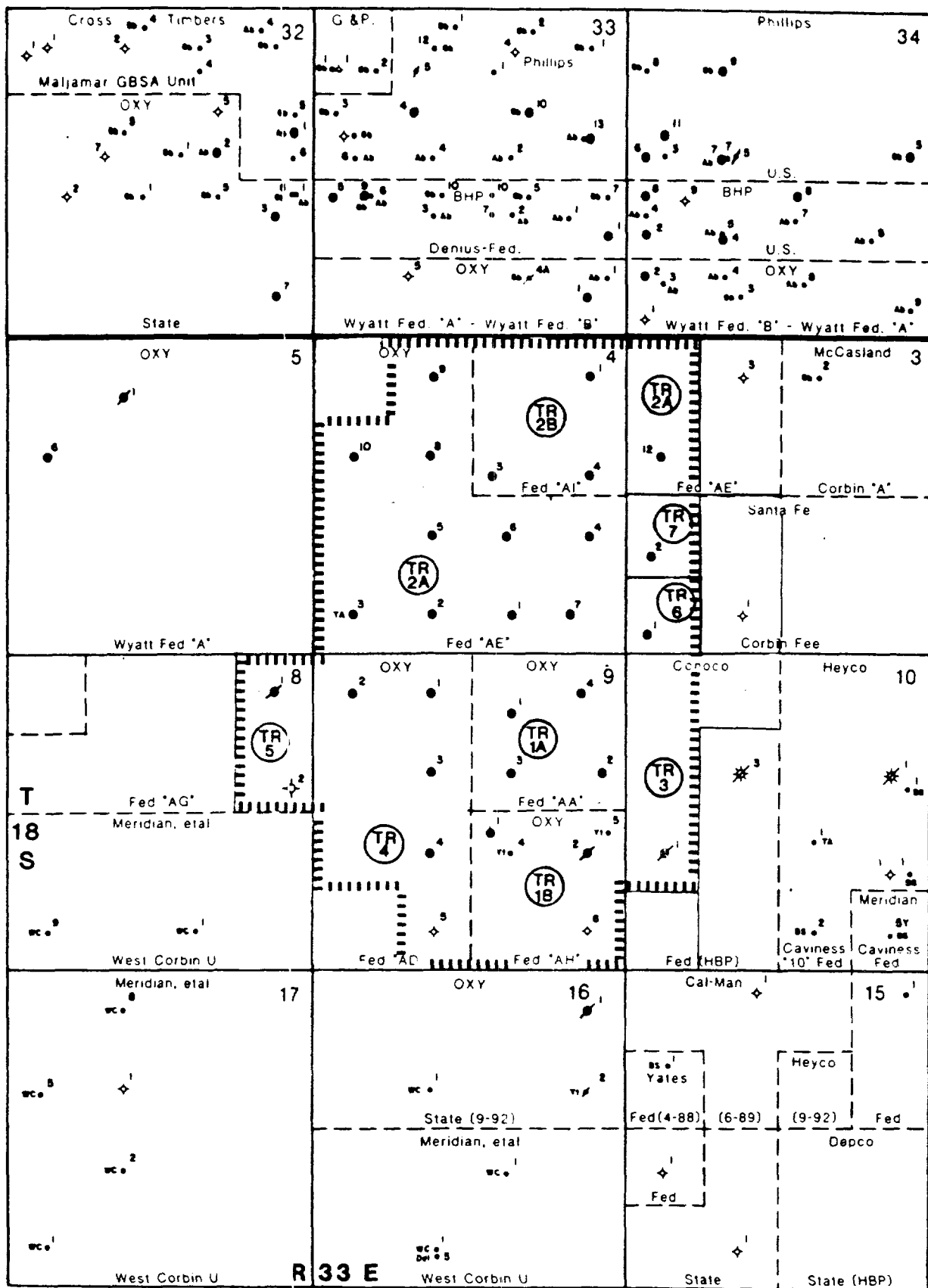
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ATTORNEYS FOR OXY USA, INC.



• QUEEN PRODUCER

• OTHER ZONES

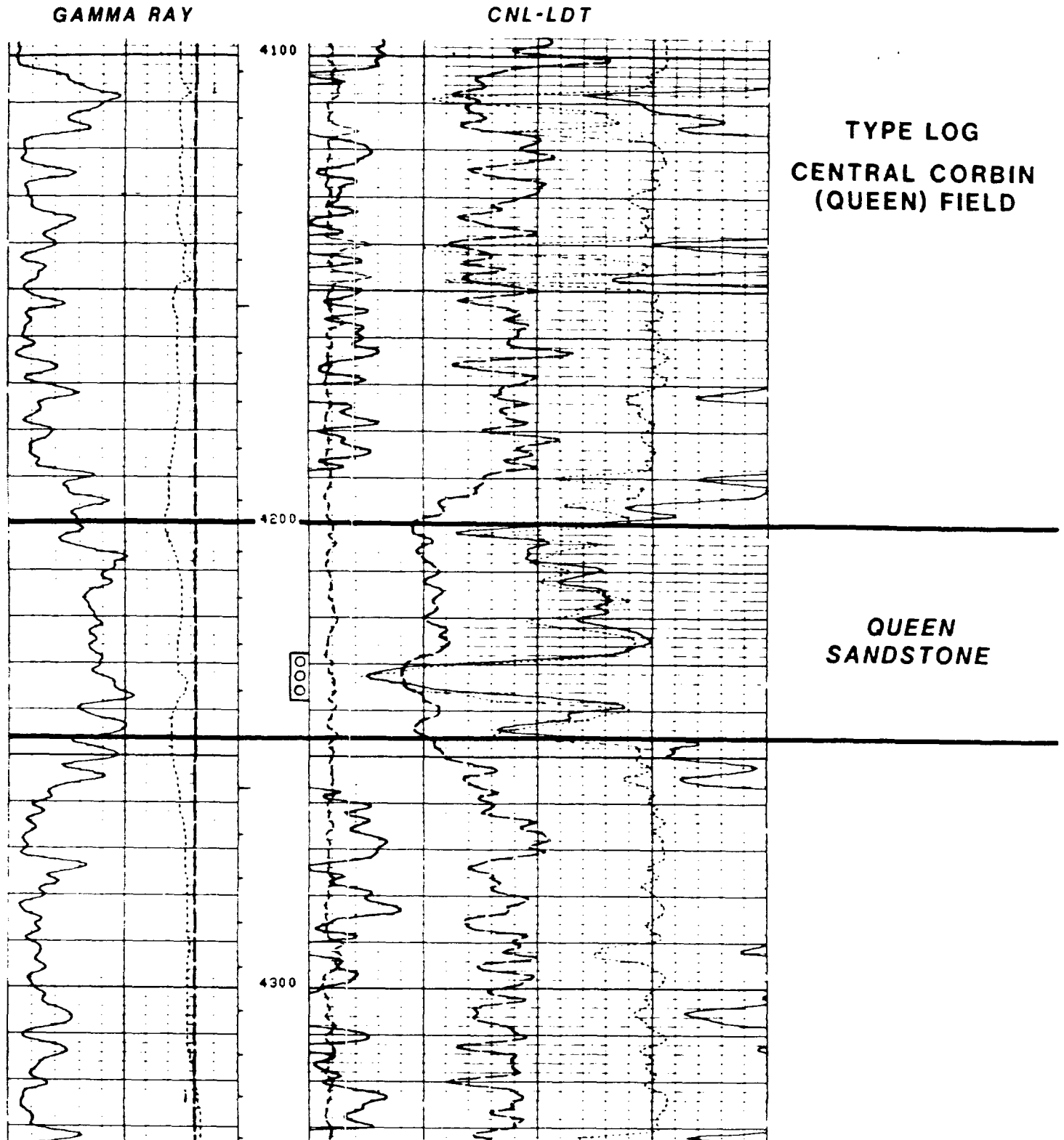
Yates  
Grayberg  
Delaware  
Abe  
Bone Spring  
Wolfcamp

# CENTRAL CORBIN (QUEEN) FIELD LEA COUNTY, NEW MEXICO

PROPOSED UNIT

0 1/2  
MILE

**OXY USA INC.**  
**FEDERAL "AA" #1**  
990' FNL & 1980' FEL  
Sec. 9, T-18-S, R-33-E  
Lea County, New Mexico  
KE 3985'



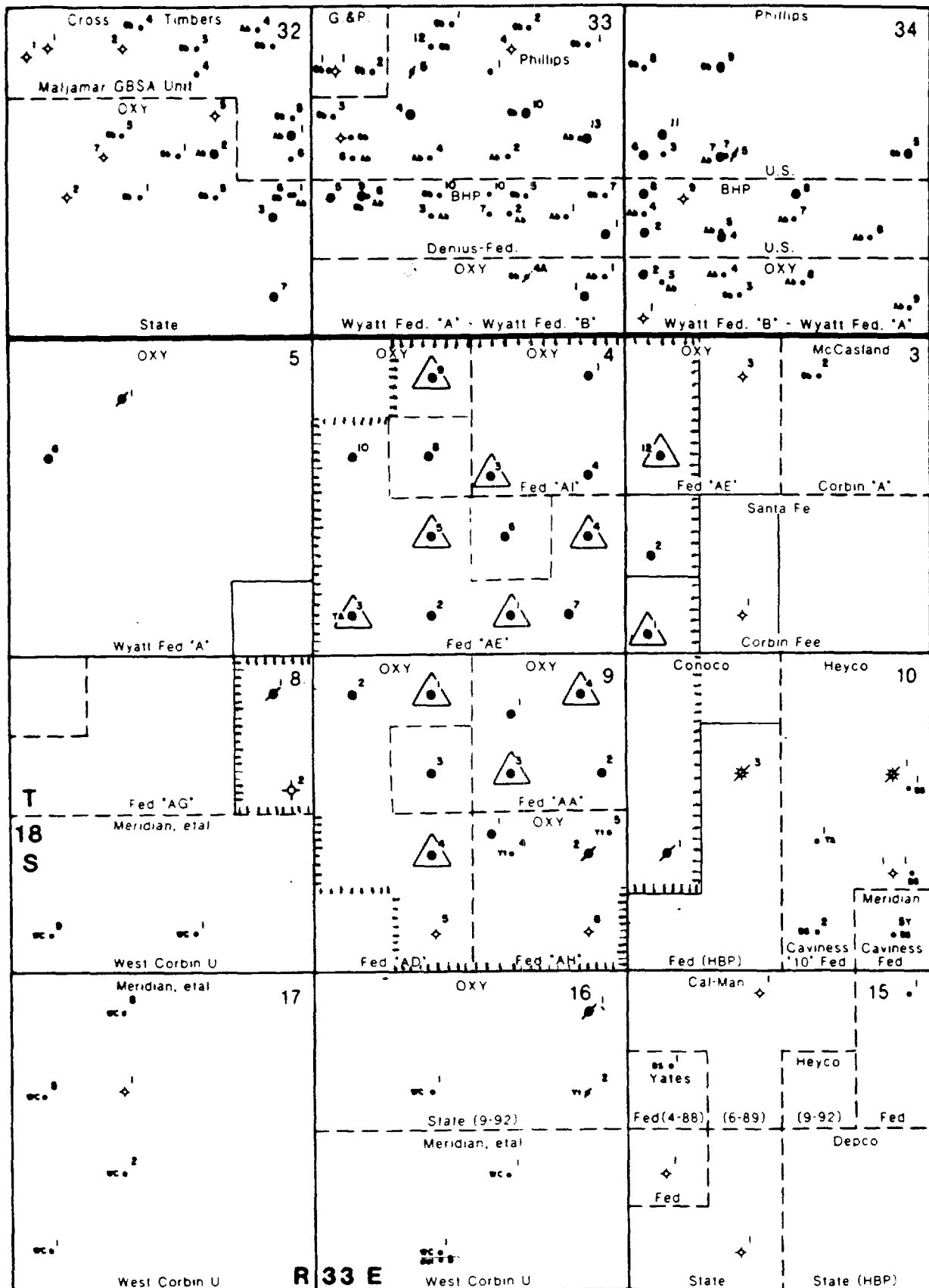
**PF 4228-38' IPF 482 BOPD**

**EXHIBIT 2**









• QUEEN PRODUCER

• OTHER ZONES

Yates  
Grayburg  
Delaware  
Abu  
Bone Spring  
Wolfcamp



PROPOSED INJECTOR

# CENTRAL CORBIN (QUEEN) FIELD LEA COUNTY, NEW MEXICO

PROPOSED CONVERSION TO INJECTOR

0 1/2  
MILE

MARCH, 1990

# CENTRAL CORBIN QUEEN UNIT

## WELL CROSS REFERENCE

<u>TRACT</u>	<u>PREVIOUS OPERATOR</u>	<u>LEASE NAME AND WELL NUMBER</u>	<u>UNIT DESIGNATION</u>
5	SANTE FE	FEDERAL AG #1	NOT USED
5	SANTE FE	FEDERAL AG #2	NOT USED
4	OXY	FEDERAL AD #1	401W
4	OXY	FEDERAL AD #2	402
4	OXY	FEDERAL AD #3	403
4	OXY	FEDERAL AD #4	404W
4	OXY	FEDERAL AD #5	405
1A	OXY	FEDERAL AA #1	101
1A	OXY	FEDERAL AA #2	102
1A	OXY	FEDERAL AA #3	103W
1A	OXY	FEDERAL AA #4	104W
1B	OXY	FEDERAL AH #1	105
1B	OXY	FEDERAL AH #2	NOT USED
2A	OXY	FEDERAL AE #1	201W
2A	OXY	FEDERAL AE #2	202
2A	OXY	FEDERAL AE #3	203W
2A	OXY	FEDERAL AE #4	204W
2A	OXY	FEDERAL AE #5	205W
2A	OXY	FEDERAL AE #6	206
2A	OXY	FEDERAL AE #7	207
2A	OXY	FEDERAL AE #8	208
2A	OXY	FEDERAL AE #9	209W
2A	OXY	FEDERAL AE #10	210
2A	OXY	FEDERAL AE #12	212W
2B	OXY	FEDERAL AI #1	215
2B	OXY	FEDERAL AI #3	214
2B	OXY	FEDERAL AI #4	213W
3	CONOCO	FEDERAL (BHP) #1	NOT USED
6	SANTA FE	CORBIN FEE #1	601W
7	SANTA FE	CORBIN FEE #2	602

NOTE: FEDERAL AG #1 and #2 will be #501 and #502 if used.

## EXHIBIT 5

Proposed well  
numbering system

WELL Federal AA # 3

LOCATION 1980' FNL & FEL, Sec. 9, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4236' - 4262' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3024'

## EXHIBIT 6

Well data sheets

WELL Federal AA # 4

LOCATION 660' FNL & 790' FEL, Sec. 9, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4213' - 4242' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3020'



WELL Federal AD # 1

LOCATION 660' FNL & 1980' FWL, Sec. 9, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4206' - 4232' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 2992'

WELL Federal AD # 4

LOCATION 1980' FSL & FWL, Sec. 9, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4258' - 4271' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3016'

WELL Federal AE # 1

LOCATION 660' FSL & 1980' FEL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4221' - 4241' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3005'

WELL Federal AE # 3

LOCATION 660' FSL & FWL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4243' - 4247' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? Yes

List all such perforated intervals and give plugging detail. Yates (3029' - 4120')

Squeezed with 500 sacks cement

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3014'

WELL Federal AE # 4

LOCATION 1980' FSL & 660' FEL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4200' - 4217' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3013'

WELL Federal AE # 5

LOCATION 1980' FSL & FWL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4174' - 4180' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3012'

WELL Federal AE # 9

LOCATION 660' FNL & 1980' FWL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4152' - 4166' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 2963'

WELL Federal AE # 12

LOCATION 1980' FNL & 560' FWL, Sec. 3, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4211' - 4215' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 3022'



WELL Federal AI # 3

LOCATION 2310' FNL & 2310' FEL, Sec. 4, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR OXY USA Inc.

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4163' - 4440' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - 2975'

WELL Corbin Fee # 1

LOCATION 330' FSL & 330' FWL, Sec. 3, T-18-S, R-33-E, Lea County, NM

CURRENT OPERATOR Santa Fe

1. Name of the Injection formation Queen

2. Name of Field or Pool Central Corbin Queen

3. Injection Interval 4219' - 4266' Open Hole Perforated X

4. Was this well drilled for injection No

If not, for what purpose was the well originally drilled? Producer

5. Has the well ever been perforated in any other zones? No

List all such perforated intervals and give plugging detail. \_\_\_\_\_

6. Give the depth to and name of any overlying and/or underlying oil or gas zones in this area?

Yates - N.A.

# PROPOSED TYPICAL WATER INJECTION WELL

FEDERAL AE #1  
660' FSL & 1980' FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4003'  
GL: 3992'

TYPICAL PROPOSED WATER INJECTION WELL  
IN THE CENTRAL CORBIN QUEEN FIELD  
OTHER PROPOSED CONVERSIONS INCLUDE:

FEDERAL AA # 3  
FEDERAL AA # 4  
FEDERAL AD # 1  
FEDERAL AD # 4  
FEDERAL AE # 3  
FEDERAL AE # 4  
FEDERAL AE # 5  
FEDERAL AE # 9  
FEDERAL AE # 12  
FEDERAL AI # 3

8 5/8" SURFACE CASING @ 388'  
CMTD W/ 350 SX CMT CIRC  
12 1/4" HOLE SIZE

2 3/8" 4.7# J-55 PLASTIC COATED TBG

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	388'	4300'	4170'

BAKER MODEL AD-1 PKR @ 4170'

QUEEN PERFS (4221' - 4241')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PBTD @ 4256'  
5 1/2" CSG @ 4300' CMTD W/ 1250 SX  
CMT CIRC 7 7/8" HOLE SIZE  
TD @ 4300'

# PROPOSED TYPICAL WATER INJECTION WELL

SANTA FE - CORBIN FEE #1  
330' FSL & 330' FWL SEC 3 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4009'  
GL: 4001'

8 5/8" SURFACE CASING @ 1528'  
CMTD W/ 710 SX CMT CIRC  
12 1/4" HOLE SIZE

2 3/8" 4.7# J-55 PLASTIC COATED TBG

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	17 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	1528'	5052'	4170'

BAKER MODEL AD-1 PKR @ 4170'

QUEEN PERFS (4219' - 4266')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 13, 1990

5 1/2" CSG @ 5052' CMTD W/ 800 SX  
7 7/8" HOLE SIZE TOC - N.A.  
TD @ 5052'

CHEVRON - COCKBURN FEDERAL G #1  
1650' FSL & 940' FNL SEC 10 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 3957'

DATE DRILLED : 1/90

TOP OF QUEEN : 4244'

13 3/8" SURFACE CASING @ 465'  
CMTD W/ 500 SX CMT CIRC

8 5/8" INTERMEDIATE CASING @ 3189'  
CMTD W/ 1100 SX

2 7/8" 6.5# J-55 TUB @ 9070'

	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	8 5/8"	5 1/2"
WEIGHT	48#	32 #	15.5 & 17#
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	465'	3189'	9070'

TUBING	
SIZE	2 7/8"
WEIGHT	6.5#
GRADE	J-55
THREAD	8RD EUE
DEPTH	9070'

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 26, 1990

BONE SPRINGS PERFS (9069' - 9336')

PBTD @ 9491'  
5 1/2" CASING @ 9599' CMTD W/ 1850 SX  
TD @ 9599'

SANTA FE - CORBIN FEE #1  
330' FSL & 330' FWL SEC 3 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4009'  
GL: 4001'

DATE DRILLED : 2/85

TOP OF QUEEN : 4219'

8 5/8" SURFACE CASING @ 1528'  
CMTD W/ 710 SX CNT CIRC

NO TUBING DATA AVAILABLE

	SURFACE	PRODUCTION	
SIZE	8 5/8"	5 1/2"	
WEIGHT	24 #	17 #	
GRADE	K-55	K-55	
THREAD	ST&C	ST&C	
DEPTH	1528'	5052'	

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 13, 1990

QUEEN PERFS (4219' - 4266')

5 1/2" CS6 @ 5052' CMTD W/ 800 SX  
TD @ 5052'

SANTA FE - CORBIN FEE #2  
 1650' FSL & 330' FWL SEC 3 T18S R33E  
 LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4021'  
 GL: 4012'

DATE DRILLED : 11/85

TOP OF QUEEN : 4194'

8 5/8" SURFACE CASING @ 1554'  
 CMTD W/ 710 SX CMT CIRC

2 3/8" 4.7# J-55 TBS @ 4240'

	SURFACE	PRODUCTION	
SIZE	8 5/8"	5 1/2"	
WEIGHT	N.A.	N.A.	
GRADE	N.A.	N.A.	
THREAD	N.A.	N.A.	
DEPTH	1528'	5200'	

QUEEN PERFS (4224' - 4234')

PREPARED BY: SCOTT E. GENGLER  
 DATE : JULY 13, 1990

5 1/2" CS6 @ 5200' CMTD W/ 350 SX  
 TD @ 5200'

FEDERAL AE #12  
1980' FNL & 560' FNL SEC 3 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4036'  
GL: 4025'

DATE DRILLED : 1/87

TOP OF YATES : 3022'

TOP OF QUEEN : 4180'

8 5/8" SURFACE CASING @ 372'  
CMTD W/ 300 SX CMT CIRC

1 JT 2 3/8" TBG W/ NOTCHED COLLAR	31.60
1 - 2 3/8" SN	1.10
135 JTS 2 3/8" 4.7# J55 TBG	4174.92
<b>TOTAL</b>	<b>4207.82</b>
<b>KB</b>	<b>11.00</b>
<b>SET AT</b>	<b>4218.82</b>

RODS : 164 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	372'	4300'	4219'

2 3/8" SN @ 4156'

2 3/8" TBG W/ NOTCHED COLLAR @ 4219'

QUEEN PERFS (4211' - 4215')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PBTD @ 4260'  
5 1/2" CSG @ 4300' CMTD W/ 1500 SX  
TD @ 4300' CMT CIRC



FEDERAL AE #1  
660' FSL & 1980' FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4003'  
GL: 3992'

DATE DRILLED : 11/85

TOP OF YATES : 3005'

TOP OF QUEEN : 4193'

8 5/8" SURFACE CASING @ 388'  
CMTD W/ 350 SX CMT CIRC

1 - 2 3/8" MUD ANCHOR W/ BP	30.83
1 - 2 3/8" PERF SUB	4.12
1 - 2 3/8" SN	1.10
4 JTS 2 3/8" 4.7# J-55 TBG	124.48
1 - 5 1/2" TRICO TAC	3.60
130 JTS 2 3/8" 4.7# J55 TBG	4036.87
<b>TOTAL</b>	<b>4201.00</b>
<b>KB</b>	<b>11.00</b>
<b>SET AT</b>	<b>4212.00</b>

RODS : 166 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20"

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	388'	4300'	4212'

TAC @ 4045'

2 3/8" SN @ 4176'

2 3/8" MUD ANCHOR @ 4212'

QUEEN PERFS (4221' - 4241')

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PBTD @ 4256'  
5 1/2" CSG @ 4300' CMTD W/ 1250 SX  
TD @ 4300' CMT CIRC

FEDERAL AE #2  
660' FSL & 1980' FWL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3991'  
GL: 3979'

DATE DRILLED : 10/85

TOP OF YATES : 2982'

TOP OF QUEEN : 4178'

8 5/8" SURFACE CASING @ 394'  
CMTD W/ 350 SX CMT CIRC

1 JT 2 3/8" TBG W/NOTCHED COLLAR	31.11
1 - 2 3/8" SN	1.10
135 JTS 2 3/8" 4.7# J55 TBG	4160.42
<b>TOTAL</b>	<b>4192.63</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4102.63</b>

RODS : 166 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	394'	4300'	4212'

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

2 3/8" SN @ 4171'

2 3/8" TBG W/ NOTCHED COLLAR @ 4103'

QUEEN PERFS (4207' - 4226')

PBTD @ 4256'  
5 1/2" CS6 @ 4300' CMTD W/ 1250 SX  
TD @ 4300' CMT CIRC

FEDERAL AE #3  
660' FSL & 660' FWL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4006'  
GL: 3994'

DATE DRILLED : 11/85

TOP OF YATES : 3014'

TOP OF QUEEN : 4216'

8 5/8" SURFACE CASING @ 378'  
CMTD W/ 250 SX CMT CIRC

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	
WEIGHT	24 #	14 #	
GRADE	K-55	K-55	
THREAD	ST&C	ST&C	
DEPTH	378'	4325'	

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

YATES PERFS (3029' - 4120') SQZD

CIBP & PBTD @ 4200'

QUEEN PERFS (4243' - 4247')

ORIGINAL PBTD @ 4279'  
5 1/2" CS6 @ 4325' CMTD W/ 1300 SX  
TD @ 4325' CMT CIRC

FEDERAL AE #4  
1980' FSL & 660' FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4022'  
GL: 4010'

DATE DRILLED : 9/86

TOP OF YATES : 3013'

TOP OF QUEEN : 4178'

8 5/8" SURFACE CASING @ 350'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR 0.43  
1 JT 2 3/8" 4.7# J-55 TBG 31.10  
1 - 2 3/8" SN 1.10  
2 JTS 2 3/8" 4.7# J-55 TBG 61.56  
1 - 5 1/2" TRICO TAC 2.90  
131 JTS 2 3/8" 4.7# J55 TBG 4083.92

TOTAL 4180.51  
KB 10.00

SET AT 4190.51

RODS : 163 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	350'	4350'	4191'

TAC @ 4093'

2 3/8" SN @ 4158'

2 3/8" MUD ANCHOR @ 4191'

QUEEN PERFS (4200" - 4217')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PBTD @ 4314'  
5 1/2" CSG @ 4350' CMTD W/ 1400 SX  
TD @ 4350' CMT CIRC

FEDERAL AE #5  
1980' FSL & FNL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4012'  
GL: 4000'

DATE DRILLED : 11/85  
TOP OF YATES : 3012'  
TOP OF QUEEN : 4218'

8 5/8" SURFACE CASING @ 383'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" MUD ANCHOR W/ BP	31.93
1 - 2 3/8" PERF SUB	3.80
1 - 2 3/8" SN	1.10
2 JTS 2 3/8" 4.7# J-55 TBG	58.18
1 - 5 1/2" GUIS TAC	3.60
130 JTS 2 3/8" 4.7# J55 TBG	4101.42
<b>TOTAL</b>	<b>4200.03</b>
<b>KB</b>	<b>11.00</b>
<b>SET AT</b>	<b>4211.03</b>

RODS : 165 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	Br'd EUE
DEPTH	383'	4280'	4211'

TAC @ 4112'

2 3/8" SN @ 4174'

2 3/8" MUD ANCHOR @ 4211'

QUEEN PERFS (4174' - 4180')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PSTD @ 4240'  
5 1/2" CSG @ 4280' CMTD W/ 1150 SX  
TD @ 4280' CMT CIRC

FEDERAL AE #6  
1980' FSL & 2067' FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4014'  
GL: 4002'

DATE DRILLED : 1/86

TOP OF YATES : 2992'

TOP OF QUEEN : 4170'

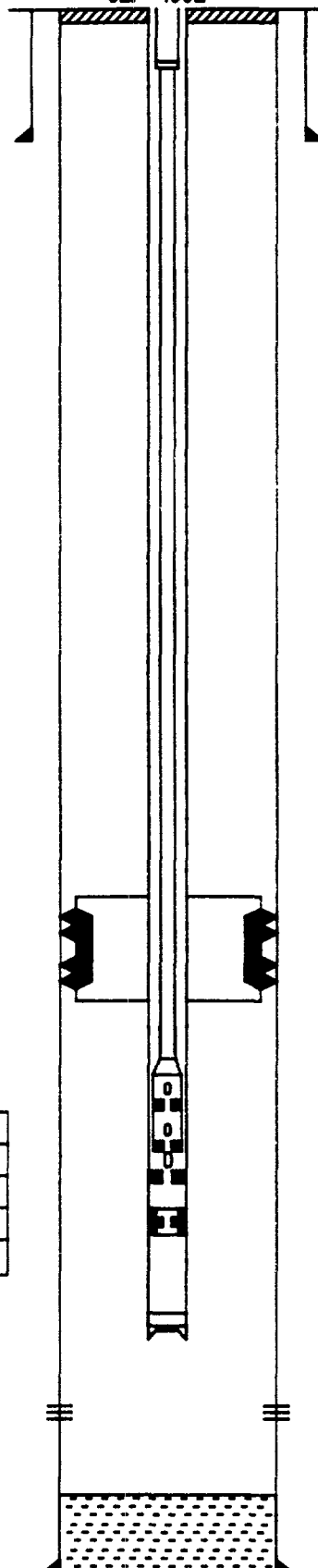
8 5/8" SURFACE CASING @ 350'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR	0.40
1 JT 2 3/8" 4.7# J-55 TBG	30.42
1 - 2 3/8" SN	1.10
2 JTS 2 3/8" 4.7# J-55 TBG	65.73
1 - 5 1/2" GJIB TAC	2.80
131 JTS 2 3/8" 4.7# J55 TBG	4119.84
<b>TOTAL</b>	<b>4220.29</b>
<b>KB</b>	<b>12.00</b>
<b>SET AT</b>	<b>4232.29</b>

RODS : 165 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	350'	4300'	4232'



TAC @ 4128'

2 3/8" SN @ 4197'

2 3/8" MUD ANCHOR @ 4232'

QUEEN PERFS (4184' - 4215')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PBTD @ 4252'  
5 1/2" CSG @ 4300' CMTD W/ 1650 SX  
TD @ 4300' CMT CIRC

FEDERAL AE #7  
660' FSL & 990' FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4014'  
GL: 4003'

DATE DRILLED : 12/86  
TOP OF YATES : 3016'  
TOP OF QUEEN : 4192'

8 5/8" SURFACE CASING @ 396'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR	0.30
1 JT 2 3/8" 4.7# J-55 TBG	31.54
1 - 2 3/8" SN	1.10
135 JTS 2 3/8" 4.7# J55 TBG	4276.73
TOTAL	4309.67
KB	11.00
SET AT	4320.67

RODS : 170 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	396'	4523'	4321'

2 3/8" SN @ 4277'

2 3/8" TBG W/ NOTCHED COLLAR @ 4321'

QUEEN PERFS (4203' - 4227')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 12, 1990

PSTD @ 4478'  
5 1/2" CS6 @ 4523' CMTD W/ 1400 SX  
TD @ 4530' CMT CIRC

FEDERAL AE #8  
1980' FNL & FNL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4025'  
GL: 4013'

DATE DRILLED : 1/86

TOP OF YATES : 2966'

TOP OF QUEEN : 4140'

8 5/8" SURFACE CASING @ 350'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" MUD ANCHOR W/ BP	32.90
1 - 2 3/8" PERF SUB	4.10
1 - 2 3/8" SN	1.10
3 JTS 2 3/8" 4.7# J-55 TBG	93.92
1 - 5 1/2" GUITB TAC	2.84
129 JTS 2 3/8" 4.7# J55 TBG	4015.62
<b>TOTAL</b>	<b>4150.48</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4160.48</b>

RODS : 163 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd ELJ
DEPTH	350'	4266'	4160'

TAC @ 4026'

2 3/8" SN @ 4122'

2 3/8" MUD ANCHOR @ 4160'

QUEEN PERFS (4151' - 4177')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4222'  
5 1/2" CS6 @ 4266' CMTD W/ 1350 SX  
TD @ 4275' CMT CIRC



FEDERAL AE #9  
660' FNL & 1980' FNL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4040'  
GL: 4029'

DATE DRILLED : 11/86  
TOP OF YATES : 2963'  
TOP OF QUEEN : 4120'

8 5/8" SURFACE CASING @ 391'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR	0.43
1 JT 2 3/8" 4.7# J-55 TBG	31.15
1 - 2 3/8" SN	1.10
135 JTS 2 3/8" 4.7# J55 TBG	4188.55
<b>TOTAL</b>	<b>4221.23</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4231.23</b>

RODS : 166 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	391'	4452'	4231'

2 3/8" SN @ 4198'

2 3/8" TBG W/ NOTCHED COLLAR @ 4231'

QUEEN PERFS (4152' - 4166')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4398'  
5 1/2" CS6 @ 4452' CMTD W/ 1400 SX  
TD @ 4452' CMT CIRC

FEDERAL AE #10  
1980' FNL & 660' FNL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4024'  
GL: 4013'

DATE DRILLED : 12/86  
TOP OF YATES : 2952'  
TOP OF QUEEN : 4122'

8 5/8" SURFACE CASING @ 394'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR	0.43
1 JT 2 3/8" 4.7# J-55 TBG	31.17
1 - 2 3/8" SN	1.10
132 JTS 2 3/8" 4.7# J55 TBG	4070.35
<b>TOTAL</b>	<b>4103.05</b>
<b>KB</b>	<b>11.00</b>
<b>SET AT</b>	<b>4114.05</b>

RODS : 162 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	394'	4275'	4114'

2 3/8" SN @ 4081'

2 3/8" TBG W/ NOTCHED COLLAR @ 4114'

QUEEN PERFS (4134' - 4138')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4173'  
5 1/2" CS6 @ 4273' CMTD W/ 1400 SX  
TD @ 4275' CMT CIRC

FEDERAL AI #1  
660' FNL & FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 4046'

DATE DRILLED : 12/46

10 3/4" SURFACE CASING @ 346'  
CMTD W/ 150 SX CMT CIRC

8 5/8" INTERMEDIATE CASING @ 1587'  
CMTD W/ 50 SX

NO TUBING DATA AVAILABLE

	SURFACE	INTERMED	PRODUCTION
SIZE	10 3/4"	8 5/8"	7 "
WEIGHT	34 #	28 #	20 #
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	346'	1587'	3921'

7 " CASING @ 3921' CMTD W/ 100 SX

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

P8TD @ 4927'

TD @ 5257'

FEDERAL AI #3  
2310' FNL & FEL SEC 4 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4025'  
GL: 4014'

DATE DRILLED : 7/86

TOP OF YATES : 2975'

TOP OF QUEEN : 4154'

8 5/8" SURFACE CASING @ 352'  
CMTD W/ 350 SX CMT CIRC

RODS : 177 3/4" CLASS D STEEL

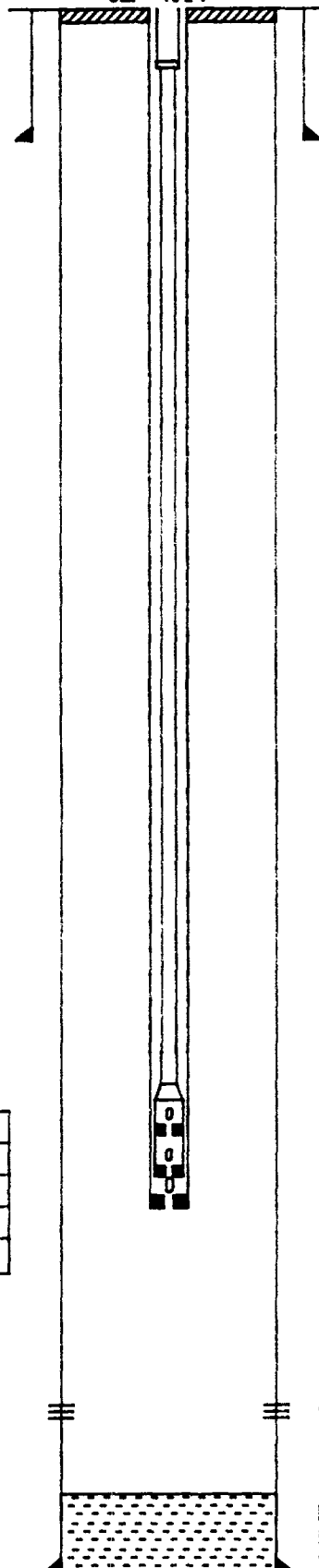
PUMP : 2" X 1 1/4" X 18" X 20'

2 3/8" 4.7# J-55 TB6 @ 4412'

	SURFACE	PRODUCTION	
SIZE	8 5/8"	5 1/2"	
WEIGHT	24 #	17 #	
GRADE	J-55	K-55	
THREAD	ST&C	ST&C	
DEPTH	352'	4983'	

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

PBTD @ 4928'  
5 1/2" CS6 @ 4983' CMTD W/ 1500 SX  
TD @ 5000' CMT CIRC



FEDERAL AI #4  
 2310' FNL & 660' FEL SEC 4 T18S R33E  
 LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4036'  
 GL: 4025'

DATE DRILLED : 11/86

TOP OF YATES : 2980'

TOP OF QUEEN : 4180'

8 5/8" SURFACE CASING @ 1511'  
 CNTD W/ 700 SX CNT CIRC

2 3/8" 4.7# J-55 TBG @ 4460'

	SURFACE	PRODUCTION	
SIZE	8 5/8"	5 1/2"	
WEIGHT	24 #	17 #	
GRADE	N.A.	N.A.	
THREAD	9T&C	5T&C	
DEPTH	1511'	4994'	

QUEEN PERFS (4180' - 4442')

PREP'D BY: SCOTT E. GENGLER  
 DATE : JULY 25, 1990

PBTD @ 4864'  
 5 1/2" CSG @ 4994' CNTD W/ 1625 SX  
 TD @ 5000' CNT CIRC

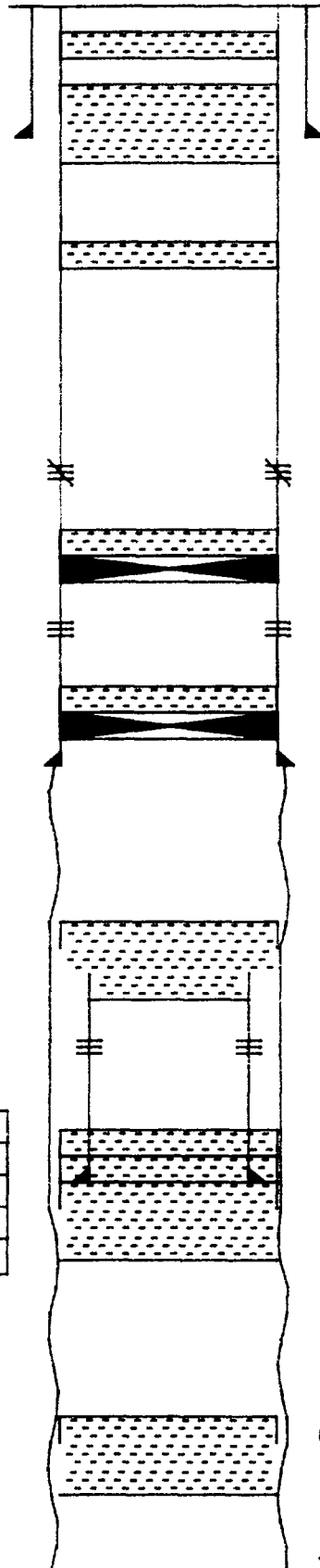
FEDERAL AG #1  
660' FNL & FEL SEC 8 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3959'  
GL: 3948'

DATE DRILLED : 11/87

TOP OF YATES : 2964'

TOP OF QUEEN : 4213'



14 SX PLUG (52' - 0')

30 SX PLUG (495' - 385')

13 3/8" SURFACE CASING @ 433'  
CMTD W/ 400 SX CNT CIRC

30 SX PLUG (1609' - 1499')

YATES PERFS (3394' - 3405') SQZD

6 SX PLUG (4180' - 4158')  
CIBP @ 4180'

QUEEN PERFS (4218' - 4248')

PBTD @ 4277'  
CIBP @ 4297'  
8 5/8" INTERMEDIATE CASING @ 4330'  
CMTD W/ 1400 SX CNT CNT CIRC

150' PLUG (6175' - 6025')  
5 1/2" CASING STUB @ 6100'

DELAWARE PERFS (6570' - 6590')

PBTD @ 6690'  
5 1/2" CASING @ 6750' CMTD W/ 250 SX

70 SX PLUG (6750' - 6900')

60 SX CNT PLUG (8550' - 8700')

TD @ 9000'

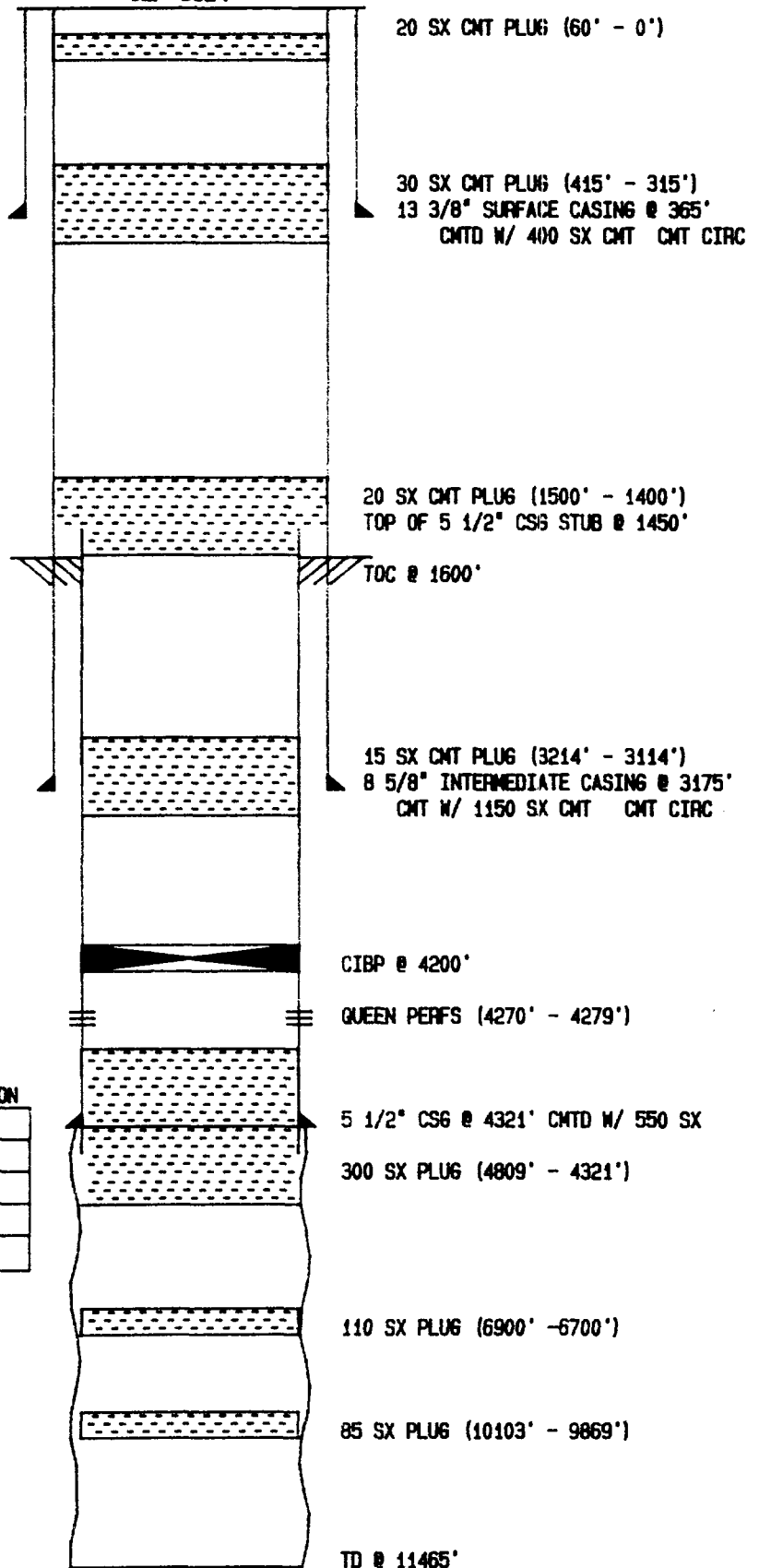
	SURFACE	INTERMED	
SIZE	13 3/8"	8 5/8"	
WEIGHT	54.5#	24 & 32#	
GRADE	K-55	K-55	
THREAD	ST&C	ST&C	
DEPTH	433'	4330'	

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

FEDERAL AG #2  
2310' FNL & 330' FEL SEC 8 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3942'  
GL: 3924'

DATE DRILLED : 10/88  
TOP OF YATES : 2982'  
TOP OF QUEEN : 4139'



	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	8 5/8"	5 1/2"
WEIGHT	48 #	24 & 32#	15.5 #
GRADE	H-40	K-55	K-55
THREAD	ST&C	ST&C	LT&C
DEPTH	365'	3175'	4321'

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 24, 1990

FEDERAL AA #1  
990' FNL & 1980' FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3984'  
GL: 3966'

DATE DRILLED : 3/85

TOP OF YATES : 2960'

TOP OF QUEEN : 4189'

1 - 2 7/8" MUD ANCHOR W/ BP	30.75
1 - 2 7/8" PERF SUB	4.10
1 - 2 7/8" SN	1.10
2 JTS 2 7/8" 6.5# N-80 TBG	60.23
1 - 5 1/2" TAC	3.54
136 JTS 2 7/8" 6.5# N80 TBG	4185.87
<b>TOTAL</b>	<b>4285.59</b>
<b>KB</b>	<b>18.50</b>
<b>SET AT</b>	<b>4304.05</b>

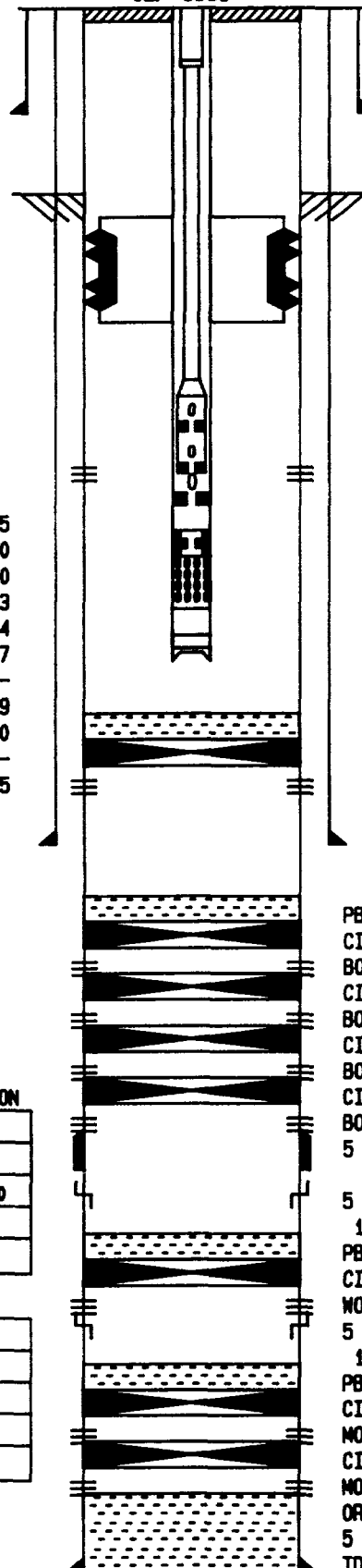
RODS : 165 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	9 5/8"	5 1/2"
WEIGHT	48 #	36 #	17.20#
GRADE	H-40	S-80	S-95BP-110
THREAD	ST&C	ST&C	LT&C
DEPTH	430'	5100'	13825'

TUBING	
SIZE	2 7/8"
WEIGHT	6.5#
GRADE	N-80
THREAD	8RD EUE
DEPTH	4304'

PREPRED BY: SCOTT E. GENGLER  
DATE : JULY 20, 1990



13 3/8" SURFACE CASING @ 430'  
CMTD W/ 420 SX CMT CIRC

TOC @ 3600'

TAC @ 4204'

QUEEN PERFS (4228' - 4238')

2 7/8" SN @ 4268'

2 7/8" MUD ANCHOR @ 4304'

PBTD @ 4850'

CIBP @ 4900'

PERMIER PERFS (4961' - 4968')

9 5/8" INTERMEDIATE CASING @ 5100'  
CMT W/ 3300 SX CMT CMT CIRC

PBTD @ 6500'

CIBP @ 6600'

BONE SPRINGS PERFS (6667' - 6724')

CIBP @ 8100'

BONE SPRINGS PERFS (8140' - 8176')

CIBP @ 8470'

BONE SPRINGS PERFS (8510' - 8528')

CIBP @ 8700'

BONE SPRINGS PERFS (8760' - 8798')

5 1/2" DVTOOL @ 9204' CMTD W/ 1800 SX

5 1/2" CSG XOVER @ 9596'

17# S-95 ABOVE & 17# P-110 BELOW

PBTD @ 11272'

CIBP @ 11300'

WOLFCAMP PERFS (11334' - 11348')

5 1/2" CSG XOVER @ 12604'

17# P-110 ABOVE & 20# S-95 BELOW

PBTD @ 13422'

CIBP @ 13437'

MORROW PERFS (13478' - 13544')

CIBP @ 13650'

MORROW PERFS (13669' - 13672')

ORIGINAL PBTD @ 11780'

5 1/2" CASING @ 13825' CMTD W/1300 SX

TD @ 13825'



FEDERAL AA #2  
1980' FNL & 430' FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3992'  
GL: 3979'

DATE DRILLED : 7/85

TOP OF YATES : 3050'  
TOP OF QUEEN : 4242'

8 5/8" SURFACE CASING @ 380'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" MUD ANCHOR W/ BP	30.16
1 - 2 3/8" PERF SUB	3.87
1 - 2 3/8" SN	1.10
3 JTS 2 3/8" 4.7# J-55 TB6	91.09
1 - 5 1/2" TAC	3.60
133 JTS 2 3/8" 4.7# J55 TB6	4112.78
<b>TOTAL</b>	<b>4242.60</b>
<b>KB</b>	<b>13.00</b>
<b>SET AT</b>	<b>4255.60</b>

RODS : 166 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	Ord EUE
DEPTH	380'	4366'	4256'

TAC @ 4126'

2 3/8" SN @ 4220'

2 3/8" MUD ANCHOR @ 4256'

QUEEN PERFS (4270' - 4282')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 20, 1990

PBTD @ 4339'  
5 1/2" CS6 @ 4366' CMTD W/ 1550 SX  
TD @ 4375' CMT CIRC

FEDERAL AA #3  
1980' FNL & FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3976'  
GL: 3966'

DATE DRILLED : 9/86

TOP OF YATES : 3024'

TOP OF QUEEN : 4222'

8 5/8" SURFACE CASING @ 360'  
CMTD W/ 400 SX CNT CIRC

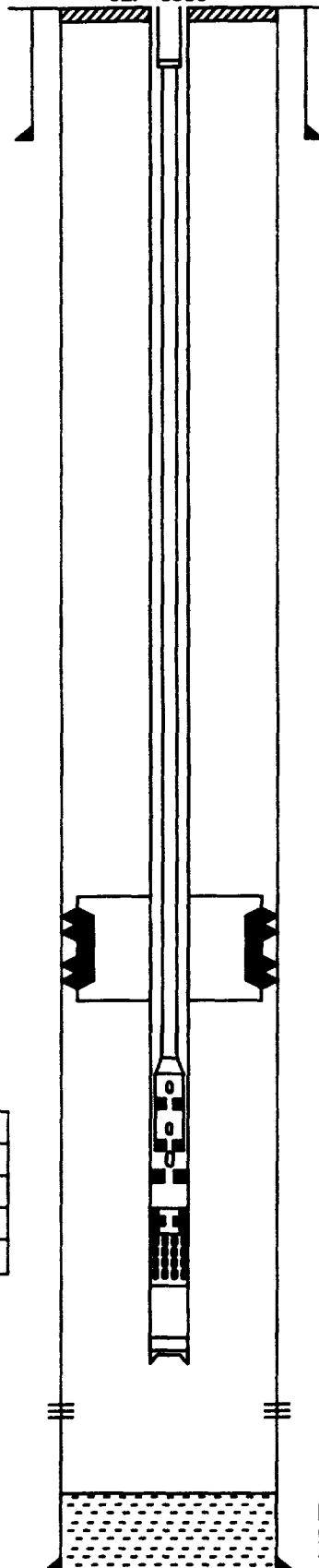
1 - 2 3/8" MUD ANCHOR W/ BP	31.30
1 - 2 3/8" PERF SUB	3.80
1 - 2 3/8" SN	1.10
1 JTS 2 3/8" 4.7# J-55 TB6	30.86
1 - 5 1/2" BAKER TAC	2.75
135 JTS 2 3/8" 4.7# J55 TB6	4160.34
<b>TOTAL</b>	<b>4230.15</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4240.15</b>

RODS : 168 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20"

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	360'	4350'	4240'

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 20, 1990



TAC @ 4170'

2 3/8" SN @ 4204'

2 3/8" MUD ANCHOR @ 4240'

QUEEN PERFS (4236' - 4262')

PBTD @ 4314'  
5 1/2" CS6 @ 4350' CMTD W/ 1400 SX  
TD @ 4350' CNT CIRC

FEDERAL AA #4  
660' FNL & 790' FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3997'  
GL: 3985'

DATE DRILLED : 10/86

TOP OF YATES : 3020'

TOP OF QUEEN : 4204'

8 5/8" SURFACE CASING @ 375'  
CMTD W/ 300 SX CMT CIRC

1 JT 2 3/8" TBG W/NOTCHED COLLAR	30.50
1 - 2 3/8" SN	1.10
137 JTS 2 3/8" 4.7# J55 TBG	4211.57
<b>TOTAL</b>	<b>4243.17</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4253.17</b>

RODS : 167 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	375'	4325'	4253'

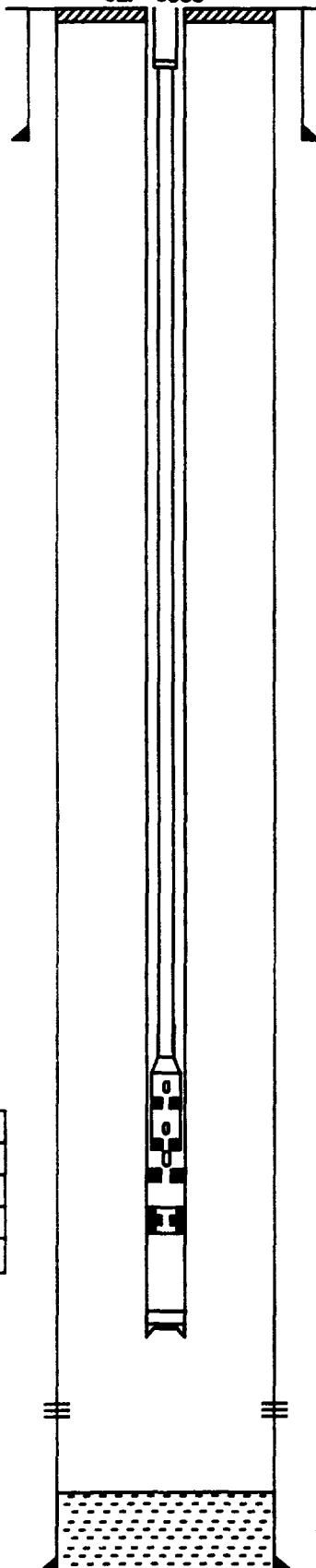
2 3/8" SN @ 4221'

2 3/8" TBG W/ NOTCHED COLLAR @ 4253'

QUEEN PERFS (4213' - 4242')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 20, 1990

PBTD @ 4312'  
5 1/2" CS6 @ 4325' CMTD W/ 1400 SX  
TD @ 4325' CMT CIRC



FEDERAL AD #1  
660' FNL & 1980' FNL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3977'  
GL: 3965'

DATE DRILLED : 7/85

TOP OF YATES : 2992'

TOP OF QUEEN : 4198'

8 5/8" SURFACE CASING @ 369'  
CMTD W/ 350 SX CMT CIRC

1 JT 2 3/8" TBG W/NOTCHED COLLAR	31.73
1 - 2 3/8" SN	1.10
136 JTS 2 3/8" 4.7# J55 TBG	4178.70
<b>TOTAL</b>	<b>4211.53</b>
<b>KB</b>	<b>12.00</b>
<b>SET AT</b>	<b>4223.53</b>

RODS : 165 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	369'	4310'	4223'

2 3/8" SN @ 4191'

2 3/8" TBG W/ NOTCHED COLLAR @ 4223'

QUEEN PERFS (4206' - 4232')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

P8TD @ 4256'  
5 1/2" CSG @ 4310' CMTD W/ 1350 SX  
TD @ 4310' CMT CIRC

FEDERAL AD #2  
660' FNL & FWL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3970'  
GL: 3958'

DATE DRILLED : 11/85

TOP OF YATES : 2982'

TOP OF QUEEN : 4165'

8 5/8" SURFACE CASING @ 363'  
CMTD W/ 350 SX CMT CIRC

1 - 2 3/8" MUD ANCHOR W/ BP	32.09
1 - 2 3/8" PERF SUB	3.90
1 - 2 3/8" SN	1.10
2 JTS 2 3/8" 4.7# J-55 TBG	64.51
1 - 5 1/2" GUIS TAC	3.60
131 JTS 2 3/8" 4.7# J55 TBG	4139.75
<b>TOTAL</b>	<b>4244.95</b>
<b>KB</b>	<b>11.00</b>
<b>SET AT</b>	<b>4255.95</b>

RODS : 167 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20"

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	363'	4320'	4256'

TAC @ 4151'

2 3/8" SN @ 4219'

2 3/8" MUD ANCHOR @ 4256'

QUEEN PERFS (4220' - 4255')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4264'  
5 1/2" CS6 @ 4320' CMTD W/ 1250 SX  
TD @ 4320' CMT CIRC

FEDERAL AD #3  
1980' FNL & FNL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3957'  
GL: 3947'

DATE DRILLED : 1/86

TOP OF YATES : 3002'

TOP OF QUEEN : 4222'

8 5/8" SURFACE CASING @ 362'  
CMTD W/ 300 SX CMT CIRC

1 - 2 3/8" NOTCHED & PINNED COLLAR	0.53
1 JT 2 3/8" 4.7# J-55 TBG	31.10
1 - 2 3/8" SN	1.10
3 JTS 2 3/8" 4.7# J-55 TBG	94.92
1 - 5 1/2" GUB TAC	2.75
132 JTS 2 3/8" 4.7# J55 TBG	4087.32

TOTAL	4217.72
KB	11.00

SET AT	4227.72
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RODS : 166 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16" X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	362'	4319'	4228'

TAC @ 4097'

2 3/8" SN @ 4195'

2 3/8" MUD ANCHOR @ 4228'

QUEEN PERFS (4245' - 4253')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4277'  
5 1/2" CS6 @ 4319' CMTD W/ 1450 SX  
TD @ 4320' CMT CIRC

FEDERAL AD #4  
1980' FSL & FWL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3950'  
GL: 3938'

DATE DRILLED : 10/86

TOP OF YATES : 3016'

TOP OF QUEEN : 4236'

8 5/8" SURFACE CASING @ 351'  
CMTD W/ 300 SX CMT CIRC

1 JT 2 3/8" TBG W/NOTCHED COLLAR	31.75
1 - 2 3/8" SN	1.10
134 JTS 2 3/8" 4.7# J55 TBG	4200.44
<b>TOTAL</b>	<b>4233.29</b>
<b>KB</b>	<b>10.00</b>
<b>SET AT</b>	<b>4243.29</b>

RODS : 167 3/4" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	351'	4350'	4243'

2 3/8" SN @ 4210'

2 3/8" TBG W/ NOTCHED COLLAR @ 4243'

QUEEN PERFS (4258' - 4271')

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 16, 1990

PBTD @ 4288'  
5 1/2" CS6 @ 4350' CMTD W/ 1400 SX  
TD @ 4350' CMT CIRC

FEDERAL AD #5  
660' FSL & 2055' FWL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3951'  
GL: 3940'

DATE DRILLED : 12/87

TOP OF YATES : 3026'  
TOP OF QUEEN : 4252'

8 5/8" SURFACE CASING @ 373'  
CMTD W/ 300 SX CMT CIRC

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	
WEIGHT	24 #	14 #	
GRADE	K-55	K-55	
THREAD	ST&C	ST&C	
DEPTH	373'	4352'	

CIBP & PBTD @ 4200'

QUEEN PERFS (4275' - 4291')

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 23, 1990

ORIGINAL PBTD @ 4307'  
5 1/2" CSG @ 4352' CMTD W/ 1525 SX  
TD @ 4352' CMT CIRC



FEDERAL AH #1  
2310' FSL & FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 3983'  
GL: 3967'

DATE DRILLED : 6/87

TOP OF YATES : 3000'

TOP OF QUEEN : 4160'

8 5/8" SURFACE CASING @ 380'  
CMTD W/ 250 SX CMT CIRC

1 - 3 1/2" MUD ANCHOR W/ BP  
1 - 2 7/8" SN  
2 JTS 2 7/8" 6.5# J-55 TBG  
1 - 5 1/2" WATSON TAC  
134 JTS 2 7/8" 6.5# J55 TBG

TOTAL 4177.00  
KB 16.00

SET AT 4193.00

RODS : 100 3/4" CLASS D STEEL  
68 7/8" CLASS D STEEL

PUMP : 2" X 1 1/4" X 16' X 20'

5 1/2" CS6 XOVER @ 3640'  
14# J55 ABOVE & 15.5# K55 BELOW

5 1/2" CS6 XOVER @ 3961'  
15.5# K55 ABOVE & 17# K55 BELOW

TAC @ 4111'

	SURFACE	PRODUCTION	TUBING
SIZE	8 5/8"	5 1/2"	2 3/8"
WEIGHT	24 #	14 #	4.7 #
GRADE	K-55	K-55	J-55
THREAD	ST&C	ST&C	8rd EUE
DEPTH	363'	4320'	4256'

2 3/8" SN @ 4172'

3 1/2" MUD ANCHOR @ 4193'

QUEEN PERFS (4274' - 4294')

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

PBTD @ 4352'  
5 1/2" CS6 @ 4400' CMTD W/ 850 SX  
TD @ 4400' TOC - N.A.

FEDERAL AH #5  
 2310' FSL & 330' FEL SEC 9 T18S R33E  
 LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
 GL: 3997'

DATE DRILLED : 4/52

TOP OF YATES : 3443'

TOP OF QUEEN : 4271'

7" SURFACE CASING @ 1530'  
 CMTD W/ 50 SX CMT CIRC

RODS : 47 3/4" CLASS D STEEL  
 73 5/8" CLASS D STEEL

2 3/8" 4.7# J-55 TB6 @ 3000'

	SURFACE	PRODUCTION	
SIZE	7 "	5 1/2"	
WEIGHT	17 #	14 #	
GRADE	N.A.	N.A.	
THREAD	N.A.	N.A.	
DEPTH	1530'	3417'	

PREPARED BY: SCOTT E. GENGLER  
 DATE : JULY 25, 1990

QUEEN PERFS (4219' - 4266')

5 1/2" CS6 @ 3417' CMTD W/ 50 SX  
 TD @ 4305'

FEDERAL AH #4  
1980' FSL & FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 3982'

DATE DRILLED : 11/53

1 - 2 3/8" MUD ANCHOR  
1 - 2 3/8" PERF SUB  
1 - 2 3/8" SN  
2 3/8" 4.7# J55 TB6

SET AT

3400.00

12 3/4" SURFACE CASING @ 275'  
CMTD W/ 150 SX CMT CIRC

8 5/8" INTERMEDIATE CASING @ 1539'  
CMTD W/ 625 SX

RODS : 133 5/8" CLASS D STEEL

PUMP : 2" X 1 1/2" X 12'

	SURFACE	INTERMED	PRODUCTION
SIZE	12 3/4"	8 5/8"	5 1/2"
WEIGHT	N.A.	N.A.	N.A.
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	275'	1539'	4324'

	TUBING
SIZE	2 3/8"
WEIGHT	4.7#
GRADE	J-55
THREAD	8610 RD
DEPTH	3400'

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

2 3/8" SN @ 3365'

2 3/8" MUD ANCHOR @ 3400'

YATES PERFS (3435' - 3488')

CIBP @ 3520'

QUEEN PERFS

P8TD @ 4927'  
5 1/2" CASING @ 4324' CMTD W/ 215 SX  
TD @ 5257'

H&P - CORBIN FEDERAL #2  
1980' FSL & 660' FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 3982'

DATE DRILLED : 10/40

10 3/4" SURFACE CASING @ 264'  
CMTD W/ 150 SX CMT CIRC

500 SX PLUG (825' - 0')

200 SX PLUG (4228' - 2278')

5 1/2" CS6 @ 4228' CMTD W/ 528 SX

	SURFACE	PRODUCTION	
SIZE	10 3/4"	5 1/2"	
WEIGHT	N.A.	N.A.	
GRADE	N.A.	N.A.	
THREAD	N.A.	N.A.	
DEPTH	264'	4228'	

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 24, 1990

TD @ 4350'

EXHIBIT 9

Status of Logs for Injection Wells

List of logs for injections wells pending search of Oil  
Conservation Division records for availability.

WYATT FEDERAL A #4  
 990' FSL & 1650' FEL SEC 33 T17S R33E  
 LEA COUNTY, NEW MEXICO

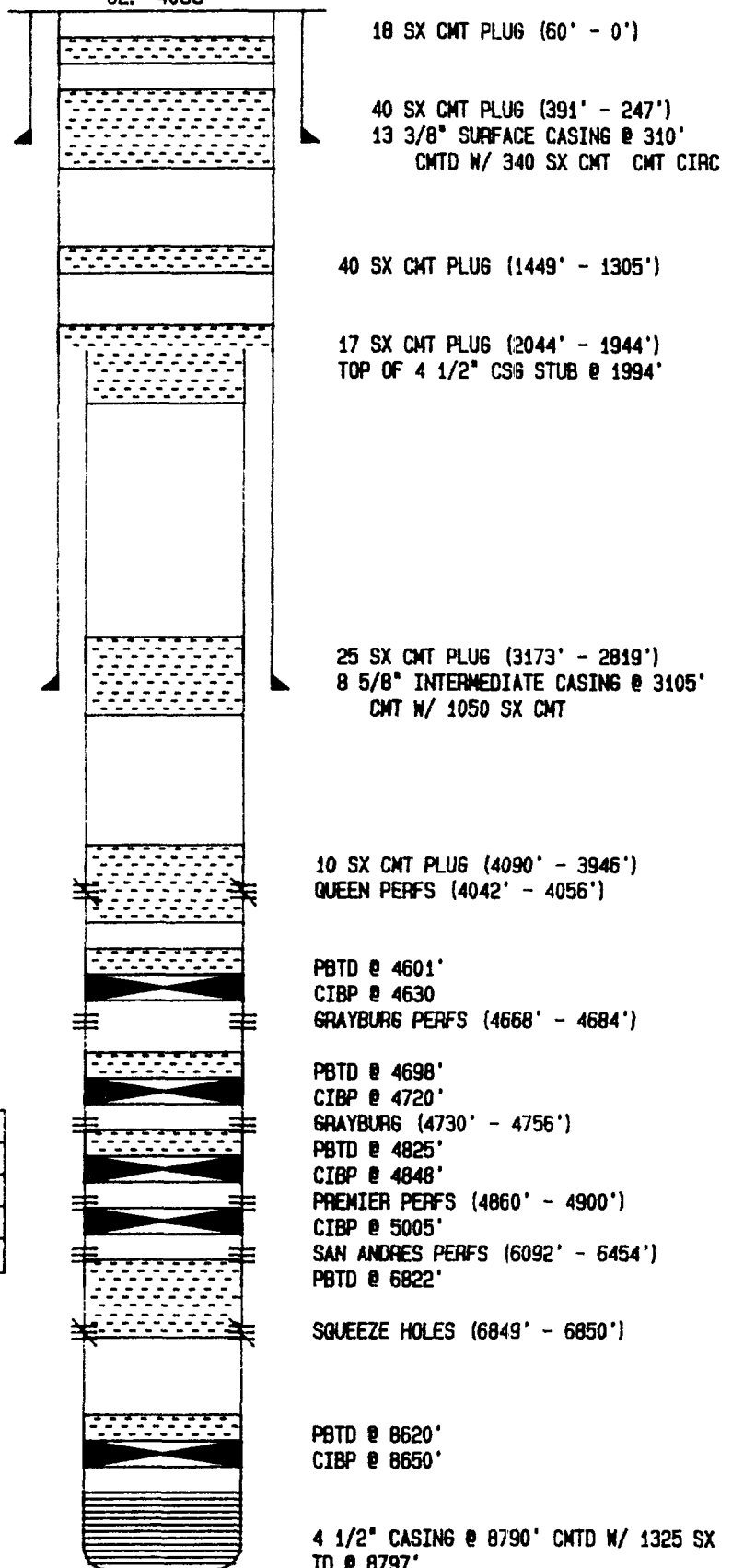
ELEVATION: KB: 4065'  
 GL: 4053'

DATE DRILLED : 2/62

TOP OF YATES : 2895'  
 TOP OF QUEEN : 4039'  
 TOP OF GLORIETA : 6660'  
 TOP OF ABO : 8792'

	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	8 5/8"	4 1/2"
WEIGHT	40 #	24 & 32#	9.5&11.68#
GRADE	NA	NA	NA
THREAD	NA	NA	NA
DEPTH	310'	3105'	8790'

PREPRD BY: SCOTT E. GENGLER  
 DATE : JULY 23, 1990



WYATT FEDERAL B #1  
990' FSL & 330' FEL SEC 33 T17S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4071'  
GL: 4060'

DATE DRILLED : 1/61

TOP OF YATES : 2876'

TOP OF QUEEN : 4008'

1 - SEAL ASSY W/O SEALS	0.40
1 - 2 3/8" PERF SUB	4.10
1 - 2 3/8" SN	1.10
211 JTS 2 3/8" 4.7# J-55 TBG	6429.57
68 JTS 2 7/8" 6.5# J-55 TBG	2107.93
4 JTS 2 7/8" 6.5# J-55 TBG SUBS	27.90

TOTAL	8571.00
KB	11.00

SET AT	8582.00
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RODS : 176 3/4" CLASS D STEEL  
84 7/8" CLASS D STEEL  
80 1" CLASS D STEEL

PUMP : 2" X 1 1/4" X 20' X 24'

	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	8 5/8"	4 1/2"
WEIGHT	40#	24, 28, 32#	9.5611.6#
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	309'	4213'	8850'

13 3/8" SURFACE CASING @ 309'  
CMTD W/ 340 SX CMT CIRC

8 5/8" INTERMEDIATE CASING @ 4213'  
CMTD W/ 1900 SX TOC @ 250'

2 3/8" SN @ 8578'

BAKER MODEL D PKR @ 8582'

ABO PERFS (8617' - 8764')

PSTD @ 8810'  
4 1/2" CASING @ 8850' CMTD W/ 200 SX  
TD @ 8850'

PREPRD BY: SCOTT E. GENGLER  
DATE : JULY 25, 1990

BHP - DENIUS FEDERAL #3  
 1980' FSL & FML SEC 33 T17S R33E  
 LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
 GL: 4111'

DATE DRILLED : 9/60

TOP OF YATES : 2800'

TOP OF QUEEN : 3910'

13 3/8" SURFACE CASING @ 309'  
 CMTD W/ 340 SX CMT CIRC

8 5/8" INTERMEDIATE CASING @ 2920'  
 CMTD W/ 850 SX

NO TUBING DATA AVAILABLE

	SURFACE	INTERMED	PRODUCTION
SIZE	13 3/8"	8 5/8"	4 1/2"
WEIGHT	48#	24 & 32#	11.6 #
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	309'	2920'	9068'

PREPARED BY: SCOTT E. GENGLER  
 DATE : JULY 26, 1990

ABO PERFS (8576' - 8740')

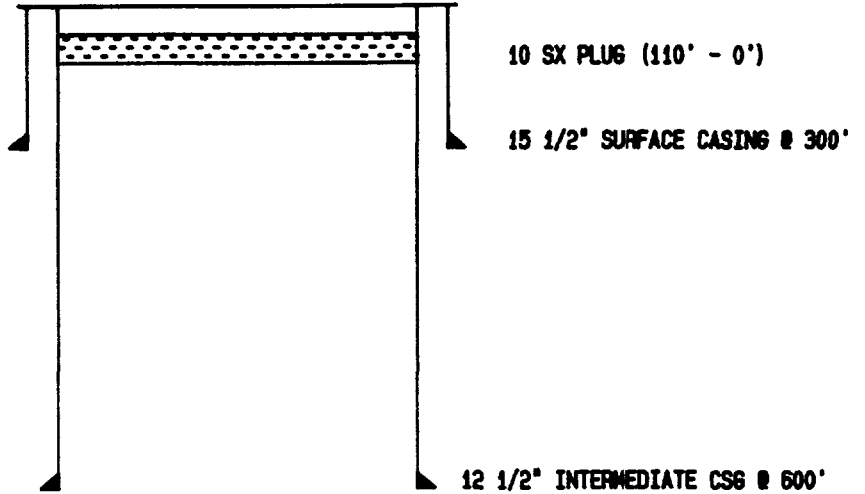
5 1/2" CASING @ 9068' CMTD W/ 250 SX  
 TO @ 9071'



HENDERSON, DEXTER, BLACK - WYATT #1  
330' FSL & FML SEC 34 T17S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: N.A.

DATE DRILLED : 8/20



TOP OF 10" CASING STUB @ 926'

10" INTERMEDIATE CASING @ 1500'

TOP OF 6 5/8" CASING STUB @ 1647'

	SURFACE	INTERMED	INTERMED
SIZE	15 1/2"	12 1/2"	10 "
WEIGHT	N.A.	N.A.	N.A.
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	300'	600'	1500'

6 5/8" CASING @ 4508'

23 SX PLUG (4775' - 4750')

PRODUCTION	
SIZE	6 5/8"
WEIGHT	N.A.
GRADE	N.A.
THREAD	N.A.
DEPTH	4508'

PREP'D BY: SCOTT E. GENGLER  
DATE : JULY 26, 1990

TD @ 5370'

CARPER - CORBIN #3 B  
660' FNL & 1980' FNL SEC 3 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 4041'

DATE DRILLED : 10/57

TOP OF QUEEN : 4119'

8 5/8" SURFACE CASING @ 1567'  
CMTD W/ 50 SX

10 SX PLUG (1675' - 1635')

10 SX PLUG (2775' - 2735')

SURFACE			
SIZE	8 5/8"		
WEIGHT	24 #		
GRADE	N.A.		
THREAD	N.A.		
DEPTH	1567'		

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 24, 1990

TD @ 5424'

STOLTZ, WAGNER & BROWN #1  
 660' FSL & 1980' FWL SEC 3 T18S R33E  
 LEA COUNTY, NEW MEXICO

ELEVATION: KB: 4035'  
 GL: 4018'

DATE DRILLED : 11/74

TOP OF YATES : 2994'

TOP OF QUEEN : 4215'

15 SX PLUG (40' - 0')

13 3/8" SURFACE CASING @ 300'  
 CMTD W/ 300 SX CMT CIRC

40 SX CMT PLUG (3450' - 3350')  
 9 5/8" INTERMEDIATE CASING @ 3402'  
 CMT W/ 300 SX CMT

40 SX CMT PLUG (5250' - 5150')

40 SX CMT PLUG (6900' - 6800')

40 SX CMT PLUG (8200' - 8100')

40 SX CMT PLUG (9500' - 9400')

40 SX CMT PLUG (9700' - 9600')

40 SX CMT PLUG (10520' - 10420')

40 SX CMT PLUG (11000' - 10900')

40 SX CMT PLUG (12900' - 12800')

40 SX CMT PLUG (13700' - 13600')  
 TD @ 13700'

	SURFACE	INTERMED	
SIZE	13 3/8"	9 5/8"	
WEIGHT	NA	NA	
GRADE	NA	NA	
THREAD	NA	NA	
DEPTH	300'	3402'	

PREP'D BY: SCOTT E. GENGLER  
 DATE : JULY 24, 1990

B. COCKBURN - CORBIN #6  
660' FSL & FEL SEC 9 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: N.A.

DATE DRILLED : 5/55

8 5/8" SURFACE CASING @ 1525'  
CMTD W/ 100 SX

PLUGGING DATA NOT AVAILABLE AT  
THIS TIME

	SURFACE	PRODUCTION	
SIZE	8 5/8"		
WEIGHT	N.A.		
GRADE	N.A.		
THREAD	N.A.		
DEPTH	1525'		

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 26, 1990

TD @ 4927'

HSP - CORBIN FEDERAL #1  
1980' FSL & 660' FML SEC 10 T18S R33E  
LEA COUNTY, NEW MEXICO

ELEVATION: KB: N.A.  
GL: 3984'

DATE DRILLED : 8/38

13" SURFACE CASING @ 303'  
CMTD W/ 275 SX CNT CIRC

PLUGGING DATA NOT AVAILABLE AT  
AT THIS TIME

9 5/8" INTERMEDIATE CASING @ 1618'  
CMTD W/ 350 SX

	SURFACE	INTERMED	PRODUCTION
SIZE	13 "	9 5/8"	7 "
WEIGHT	N.A.	N.A.	N.A.
GRADE	N.A.	N.A.	N.A.
THREAD	N.A.	N.A.	N.A.
DEPTH	303'	1618'	4021'

7 " CASING @ 4021' CMTD W/ 100 SX

PREPARED BY: SCOTT E. GENGLER  
DATE : JULY 26, 1990

PBTD @ 4320'

TD @ 5118'

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☐ yes ☐ no
- II. Operator: OXY USA INC.  
Address: P.O. BOX 50250, Midland, Texas 79710  
Contact party: Richard E. Foppiano Phone: 915/685-5913
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no  
If yes, give the Division order number authorizing the project \_\_\_\_\_.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Richard E. Foppiano Title: Regulatory Affairs Engr.

Signature: Richard E. Foppiano Date: 7-25-90

- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.



## III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

## XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50																																																		



## ITEM VII

Proposed Average Injection Rate (per well, per day): 200 BPD

Proposed Maximum Injection Rate (per well, per day): 1000 BPD

Proposed Average Injection Pressure: 1500 PSI

Proposed Maximum Injection Pressure: 2000 PSI

Type of System: Open, make-up water will come from Ogallala formation, and off-lease wells producing from the Bone Spring formation.

## CENTRAL CORBIN QUEEN FIELD

### RESERVOIR DESCRIPTION

The Central Corbin (Queen) Field is located on the north basin platform structural province, near the northern edge of the Delaware Basin. The Queen Formation is part of the Guadalupian age Artesia Group, which includes the Goat Seep and Capitan carbonate reef systems. Central Corbin, along with several other Queen fields in the area (Corbin, E-K, and North E-K) produces from the upper part of the Queen, locally referred to as the Shattuck member, or Queen sandstone. The Central Corbin Field is primarily a stratigraphic trap, with a structural influence at its southern edge.

Queen core is available on three wells in Central Corbin: the Federal "AA" No. 2 (4236-4291), Federal "AD" No. 1 (4198-4245) and the Federal "AE" No. 1 (4194-4242). Open hole logs are available on most of the wells. The gamma ray-neutron/density log has proven to be the most useful correlation tool. Regional subsurface mapping has provided valuable analogies from more mature Queen fields.

In Central Corbin, the Queen sandstone is 48-60 feet thick, with gradational contacts with the underlying and overlying anhydrite. The reservoir consists of very fine grained (62.5-125 microns) well sorted, sub-angular quartzarenite. Corrensite clay (a mixed layer chlorite-smectite clay) lines the pore throats. X-ray analysis indicates clay volumes ranging from 4.2-8.6% ( $\pm 2\%$ ).

Authigenic potassium feldspar, dolomite and gilsonite occur in small quantities. The better reservoir rocks exhibit low-angle planar cross-bedding, and the grain size is on the coarse end of the range (88-125 microns). Oil-bearing rocks are buff-gray, whereas non-oil-bearing rocks are red. Visible oil within red sandstones are surrounded by buff-gray rings, indicating that the color change is due to reduction of iron oxides in the rock by the presence of hydrocarbons.

Porosity is interparticle, ranging up to 14%, and averaging 10.4%. Pay thickness (porosity  $\geq$  8%) ranges up to 34 feet, and averages 21 feet. Anhydrite is the dominant cement type in the reservoir. The degree of anhydrite plugging is a function of grain size. Sandstone on the coarse end of the range is less affected by anhydrite cementation. Permeability ranges up to 207 md, and averages 3.8 md. Porosity-permeability plots derived from core data cluster along a fairly linear trend. Oriented core, recovered from the Federal "AD" No. 1 indicates no preferred permeability direction. Oil staining and reduction spots on core surfaces show preferred fluid flow parallel to the low-angle cross-bedding, which probably dips to the south. Anhydrite cement distribution in the cross-bedded sandstones suggest tortuous permeability paths. Natural fractures probably influence permeability paths, however, the core does not reveal an extensive fracture system. Random distribution of anhydrite cement appears to have the greatest impact on permeability paths, therefore, near-wellbore permeability paths should be radial.

Non-reservoir rock within the Queen sandstone consists of coarse-grained (31.2-62.5 microns), sub-angular, well-sorted quartz siltstone. It is mostly red, with some red-buff wavy laminae, and wisps, or nodules of anhydrite. Porosity is completely plugged with anhydrite.

Structural strike at Central Corbin is east-west, dipping southerly 100-150 feet/mile. An east-west trending monoclinial fold occurs north of Central Corbin, in the Corbin (Queen) Field. The monoclinial fold appears to have influenced pay development in Corbin. An oil-water contact occurs at -300 feet based on the recovery of the Federal AD #5 and the Federal AG wells.

The most significant porosity zone in the Queen occurs in the lower half of the section with three other thin zones correlatable throughout the field.

The net pay isopach of the Queen sandstone, using an 8% porosity cut-off helps define the limits of the reservoir. The reservoir is bounded on the north, east and west by a pinchout of the porosity, and to the south by the oil-water contact.

The Queen sandstone is a widespread deposit of probable eolian origin. A trend of Queen sandstone production occurs along the northern edge of the underlying Goat Seep Reef lagoon. The digitate lagoon-sabkha boundary is defined by lithologic logs; dolomite underlies the Queen sandstone in the lagoon, and anhydrite underlies the Queen in the sabkha. Along this boundary, the eolian transported sands were re-worked by marginal marine processes, creating the reservoir. Central Corbin Field is located within a narrow embayment in the lagoon, where tidal

currents re-worked the sands. Depositional strike is north-south, perpendicular to the shoreline. The Corbin Field, to the north, is located along the shoreline, where shoreline currents re-worked the sands. Depositional strike is therefore east-west, parallel to the shoreline.

Dry holes separate the north-south trending Central Corbin (Queen) Field from the east-west trending Corbin (Queen) Field. The proposed unit area includes all the active wells in the Central Corbin (Queen) Field, as well as the Oxy Federal "AI" No. 1, an old completion in the Corbin (Queen) Field (NE/4 NE/4, section 4). Current mapping indicates that this well is in communication with Central Corbin, and separate from Corbin.

EXHIBIT 12

List of Offset Operators  
and Surface Owners

BHP Petroleum Inc.  
5847 San Felipe St. 3600  
Houston, Texas 77057

Meridian Oil Inc.  
21 Desta Drive  
Midland, Texas 79705  
Attn: Tom Ollie

Conoco Inc.  
10 Desta Drive West  
Midland, Texas 79705  
Attn: Jerry Hoover

Harvey E. Yates Company (Heyco)  
P. O. Box 1933  
Roswell, New Mexico 08202  
Attn: Rosemary Avery

Santa Fe Energy Operating Partners  
500 W. Illinois  
Midland, Texas 79701

Santa Fe Exploration Company  
P. O. Box 1136  
Roswell, New Mexico 88201

Surface Owner

Bureau of Land Management  
P. O. Box 17789  
Carlsbad, New Mexico 88220