MERIDIAN OIL

'90 JUN 4 AM 9 51

May 31, 1990

Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, NM 87501

Re: **Southland Royalty Company**
West Corbin Federal No. 16
Sec. 7, T18S, R33E
Lea County, NM
LC-069420

Gentlemen:

Southland Royalty Company proposes to convert the referenced well to a salt water disposal well for Southland leases. A notice is being published in the local newspaper in Hobbs. When proof of publication is received, it will be sent to you. If other information is needed, please call me at (915) 686-5678 or Mr. Jim Kramer at (915) 686-5626.

Sincerely,

Robert L. Bradshaw

Robert L. Bradshaw
Sr. Staff Env./Reg. Specialist

RLB:dst

Attachments

cc: Well File
J. E. Kramer
OCD-Hobbs
BLM-Carlsbad

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: Southland Royalty Company

Address: 21 Desta Drive, Midland, Texas 79705

Contact party: Robert L. Bradshaw Phone: (915) 686-5678

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: Robert L. Bradshaw Title Sr. Staff Env./Reg. Spec.

Signature: Robert L. Bradshaw Date: 5/31/90

* 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.

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.

Addendum to Form C-108
West Corbin Federal No. 16

VII. Data on Proposed Operation

1. a) Proposed average rate - 5 bbl/min
   Proposed maximum rate - 5 bbl/min

   b) Proposed average volume - 1250 bbl/day
   Proposed maximum volume - 3500 bbl/day

2. This system is closed

3. Proposed average and maximum injection pressure - 1500 psia

4. Sources of water and analysis results - attached

5. Chemical analysis of disposal zone formation water - attached

VIII. Geological Data on Injection Zone - Attached

IX. Proposed Stimulation Program - Attached

X. Logs were submitted with the completion report.

XI. There are no known water wells within one (1) mile of this site.

XII. Affirmative Statement - Attached

XIII. Proof of Notice

a) A copy of this application has been furnished to the surface owner - Bureau of Land Management, Carlsbad, New Mexico

b) All leases with one-half (1/2) mile are Southland Royalty Company leases.

c) A notice of this proposal will be published in the Hobbs newspaper. Certification will be provided as soon as feasible.

INJECTION WELL DATA SHEET
Side 1

INJECTION WELL DATA SHEET — SIDE 1

OPERATOR	LEASE			
Southland Royalty Company		West Corbin Federal		
WELL NO.	**FOOTAGE LOCATION**	**SECTION**	**TOWNSHIP**	**RANGE**
16	800'FSL & 1980'FEL	7	18-South	33-East

Schematic

Attached

Tabular Data

Surface Casing

Size 13-3/8" Cemented with 370 sx.

TOC Surface feet determined by Circulating

Hole size 17-1/2"

Intermediate Casing

Size 8-5/8" Cemented with 1500 sx.

TOC Surface feet determined by Circulating

Hole size 12-1/4"

Long string

Size 5-1/2" Cemented with 2825 sx.

TOC 4840 feet determined by CBL

Hole size 7-7/8"

Total depth 11,700'

Injection interval -Perforations

8666 feet to 8982 feet

(perforated ~~XX~~ ~~XXXXXXXX~~, indicate which)

INJECTION WELL DATA SHEET
Side 2

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2-7/8" lined with Plastic (material) set in a

5-1/2" Baker Model AL-2 Lok-Set (brand and model) packer at 8600 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Bone Spring (2nd Carbonate)

2. Name of Field or Pool (if applicable) South Corbin

3. Is this a new well drilled for injection? [ ] Yes [X] No

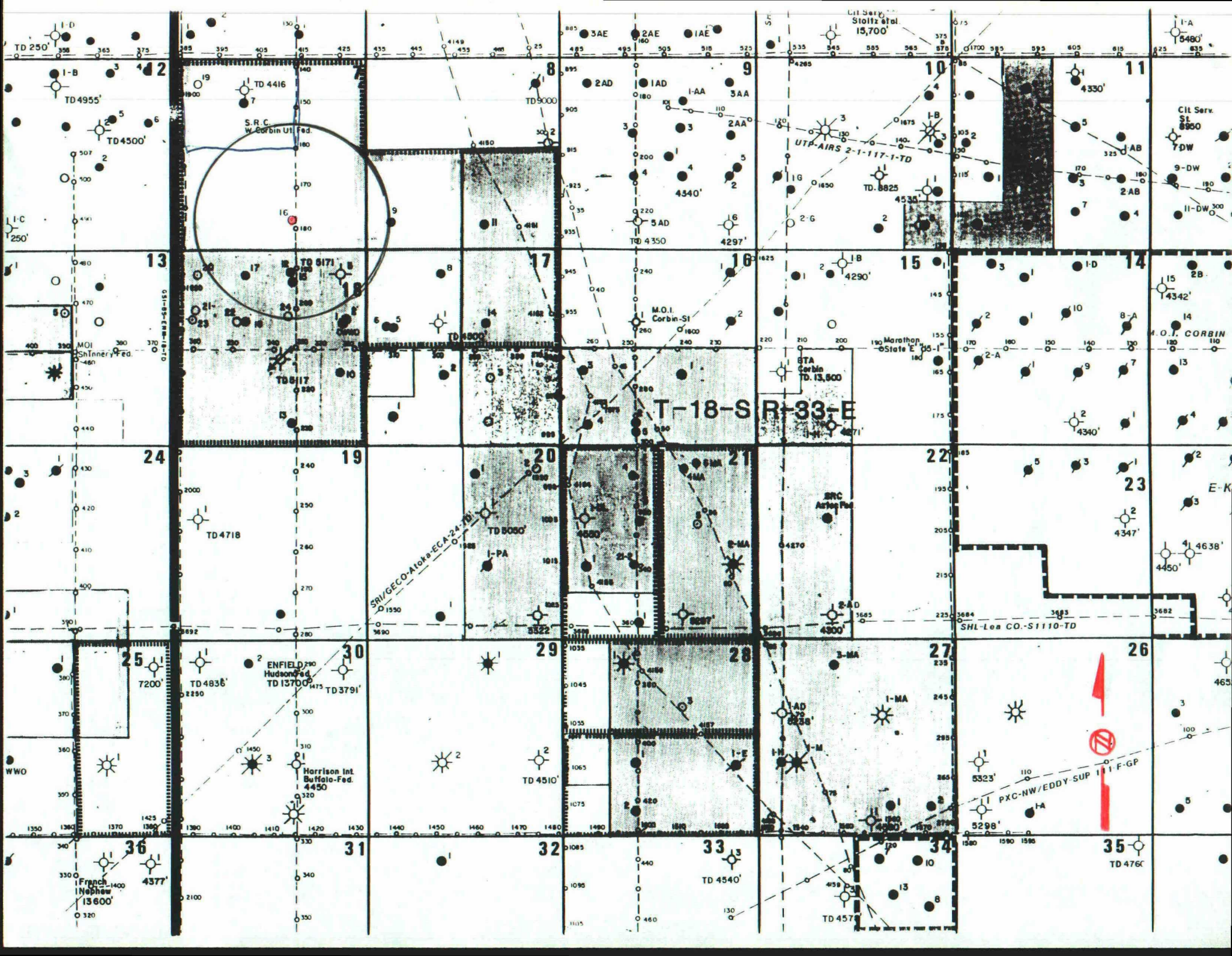
   If no, for what purpose was the well originally drilled? Oil

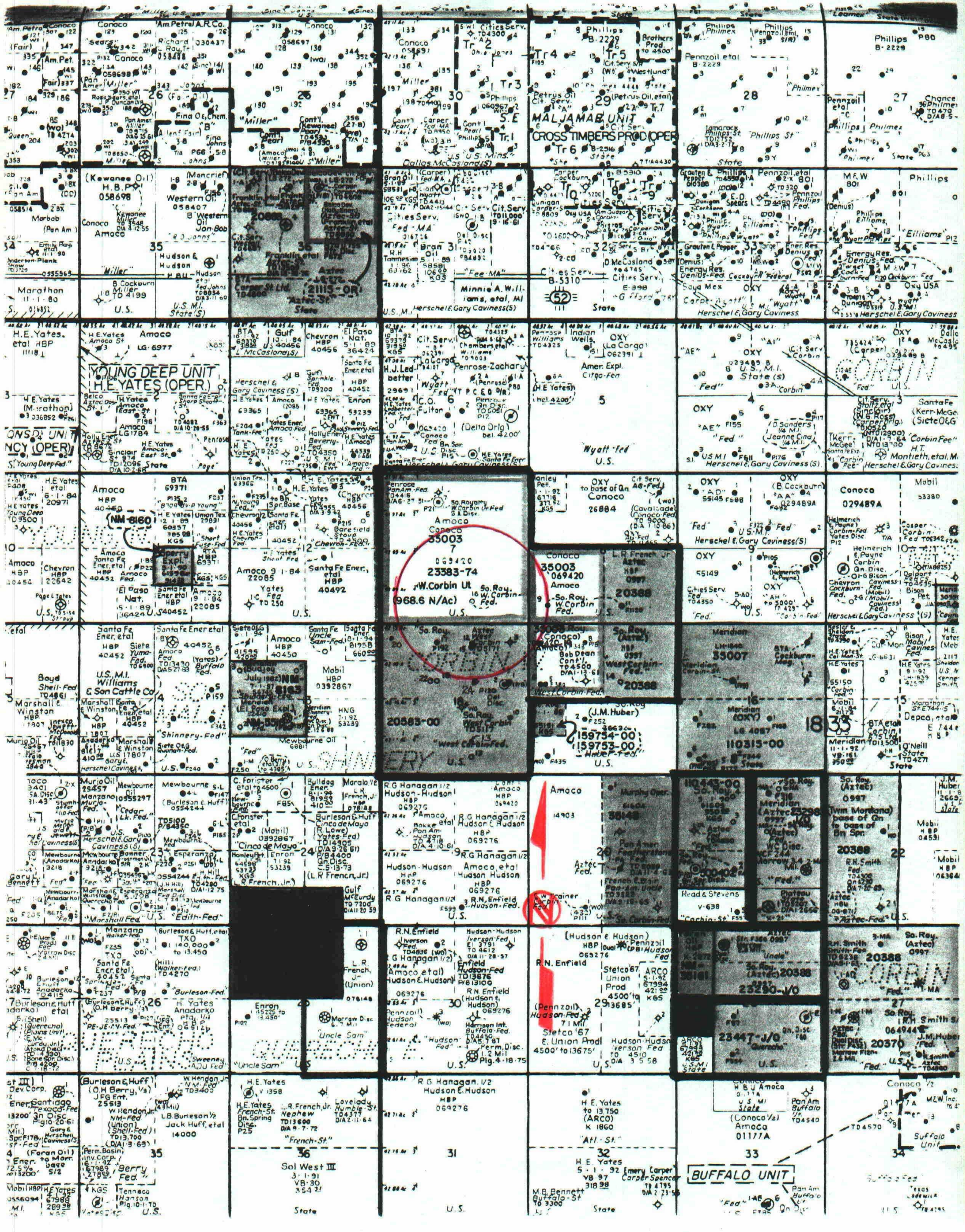
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) Yes

   Wolfcamp - 10,820' - 11,316'; Bone Spring - 8666' - 8982'

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

   Delaware - 4880'; Wolfcamp - 10,750'


T-18-S R-33-E
TD 4955'
TD 4500'
TD 4416
S.R.C. W. Corbin Ut. Fed.
TD 9000
2AD
1AD
1-AA
3AA
2AA
4340'
5 AD
TD 4350
4297'
UTP-AIRS 2-1-117-1-TD
TD. 6825
4538'
2-G
4330'
Cit Serv. St. 6950
7DW
9-DW
2 AB
11-DW
TD 5171
MOI Shinnery Fed.
TD 5117
M.O.I. Corbin-St
TD 4900'
4290'
Marathon State E 35-I"
BTA Corbin TD. 13,500
4342'
M.O.I. CORBIN
2-A
4340'
TD 4718
SRI/GECO-Aloka-ECA-24-TD
TD 5050'
1-PA
4550'
2-MA
SRC Artesia Fed
4270
2-AD
4900'
4347'
4638'
4450'
SHL-Lea CO.-S1110-TD
7200'
TD 4836'
ENFIELD Hudson Fed. TD 13700'
TD 3791'
Harrison Int. Buffalo-Fed. 4450
TD 4510'
3-MA
1-MA
1-AD
1-E
1-M
5323'
5298'
PXC-NW/EDDY-SUP 1 1 F-GP
French Nephew 13600'
4377'
TD 4540'
TD 4576'
TD 476



YOUNG DEEP UNIT
H.E. YATES (OPER.)
MALJAMAR UNIT
CROSS TIMBERS PROD (OPER)
BUFFALO UNIT
Amoco
Conoco
35003
7
069420
23383-74
W. Corbin Ut
(968.6 N/Ac)
U.S.
So. Roy. W. Corbin Fed.
35003
069420
Amoco
L.R. French, Jr.
Aztec
20388
West Corbin Fed.
20583-00
"West Corbin Fed."
NM-8160
Sperry Expl.
NM-8163
NM-5516
Meridian
35007
Cockburn-Mag.
Meridian (OXY)
LG 4087
110315-00
(J.M. Huber)
159754-00
159753-00
"Huber-Fed."
110443-00
Murphy Oper.
35148
Pan Amer. Featherstone Fed.
Meridian (Aztec) 23298
So. Roy. (Aztec) 0997
(Twin Montana) base of Qn to base of Bn Spr.
20388
R.H. Smith Fed.
Read & Stevens
V-638
"Corbin-St"
So. Roy. (Aztec) 20388
23290-J/O
23447-J/O
"Querecho"
20370
So. Roy. R.H. Smith
J.M. Huber Fed.
R.N. Enfield
(Hudson & Hudson) HBP 069276
Stetco '67 E. Union Prod 4500' to 13675'
Hudson-Hudson Iverson Fed
R.G. Hanagan 1/2 Hudson & Hudson HBP 069276
H.E. Yates to 13,750 (ARCO) K 1860
"Atl. St."
H.E. Yates 5-1-92 VB 97 318 98
Emery Carper Carper Spencer
M.B. Bennett Buffalo-St TD 3300
(Conoco 1/2) Amoco 01177A
Pan Am Buffalo Ur. TD4540
Sol West III 3-1-91 VB-30 354 31
"Uncle Sam"
Enron
L.R. French, Jr. (Union) 078148
Burleson & Huff Cinco de Mayo
"Cinco de Mayo"
"Edith-Fed."
"Marshall Fed."
"Shinnery-Fed"
U.S., M.I. Williams & Son Cattle Co
Boyd Shell-Fed TD4861
Marshall & Winston HBP 17807
Herschel & Gary Caviness (S)
OXY
Phillips B-2229
Pennzoil etal B-2229
"Philmex"
"Phillips St"
Cities Serv. B-5310
Minnie A. Williams, etal, MI
Kewanee Oil H.B.P. 058698
Western Oil 058407
Franklin etal Aztec-St
Aztec LG-272
21115-OR
"Aztec-St" State
Miller
Marathon 11-1-80
Sears
Fina Oil Chem.
Conoco 029489A
Mobil 53380
CORBIN
SHINNERY
QUERECHO

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERIDIAN OIL & GAS
Date : 02-14-1989
Location: West Corbin - SWD Well #4 (on 2-3-89)

	Sample 1
Specific Gravity:	1.108
Total Dissolved Solids:	151616
pH:	6.26
IONIC STRENGTH:	3.127

		me/liter	mg/liter
CATIONS:			
Calcium	(Ca^{+2})	440	8800
Magnesium	(Mg^{+2})	420	5100
Sodium	(Na^{+1})	1830	42100
Iron (total)	(Fe^{+2})	4.37	122
Barium	(Ba^{+2})	0.022	1.50
ANIONS:			
Bicarbonate	(HCO_3^{-1})	0.800	48.8
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	11.5	550
Chloride	(Cl^{-1})	2680	95000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	-0.40	-16

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERIDIAN OIL COMPANY
Date : 02-08-1989
Location: West Corbin - Well #1 (on 2-2-89)

	Sample 1
Specific Gravity:	1.092
Total Dissolved Solids:	129452
pH:	6.80
IONIC STRENGTH:	2.551

		me/liter	mg/liter
CATIONS:			
Calcium	(Ca^{+2})	364	7280
Magnesium	(Mg^{+2})	196	2380
Sodium	(Na^{+1})	1710	39200
Iron (total)	(Fe^{+2})	3.12	87.0
Barium	(Ba^{+2})	0.017	1.20
ANIONS:			
Bicarbonate	(HCO_3^{-1})	3.40	207
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	7.08	340
Chloride	(Cl^{-1})	2260	80000
DISSOLVED GASES			
Carbon Dioxide	(CO_2)		130
Hydrogen Sulfide	(H_2S)		0

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	0.27	-23

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERIDIAN OIL COMPANY
Date : 02-08-1989
Location: West Corbin - Well #2 (on 2-2-89)

	Sample 1
Specific Gravity:	1.167
Total Dissolved Solids:	234166
pH:	6.60
IONIC STRENGTH:	4.918

CATIONS:		me/liter	mg/liter
Calcium	(Ca^{+2})	880	17600
Magnesium	(Mg^{+2})	620	7530
Sodium	(Na^{+1})	2660	61200
Iron (total)	(Fe^{+2})	1.99	55.7
Barium	(Ba^{+2})	0.010	0.700
ANIONS:			
Bicarbonate	(HCO_3^{-1})	2.00	122
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	14.4	694
Chloride	(Cl^{-1})	4150	147000
DISSOLVED GASES			
Carbon Dioxide	(CO_2)		230
Hydrogen Sulfide	(H_2S)		0

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	1.6	3.3

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERIDIAN OIL & GAS
Date : 10-20-1989
Location: DELAWARE FORMATION - STATE 16 #4 (on 10-16-1989)

	Sample 1
Specific Gravity:	1.130
Total Dissolved Solids:	182494
pH:	6.00
IONIC STRENGTH:	3.802

CATIONS:		me/liter	mg/liter
Calcium	(Ca^{+2})	672	13400
Magnesium	(Mg^{+2})	448	5440
Sodium	(Na^{+1})	2120	48600
Iron (total)	(Fe^{+2})	1.04	29.0
Barium	(Ba^{+2})	0.003	0.200
ANIONS:			
Bicarbonate	(HCO_3^{-1})	3.00	183
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	16.7	800
Chloride	(Cl^{-1})	3220	114000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	0.39	-0.90

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : Meridian Oil & Gas
Date : 09-25-1987
Location: Warlamp - State 16 #1: Treater (on 09-22-1987)

	Sample 1
Specific Gravity:	1.121
Total Dissolved Solids:	169500
pH:	4.44
IONIC STRENGTH:	3.484

CATIONS:		me/liter	mg/liter
Calcium	(Ca^{+2})	580	11600
Magnesium	(Mg^{+2})	380	4620
Sodium	(Na^{+1})	2040	46900
Iron (total)	(Fe^{+2})	20.9	584
Barium	(Ba^{+2})	0.072	4.91
Manganese	(Mn^{+2})	0.221	6.06
ANIONS:			
Bicarbonate	(HCO_3^{-1})	0.200	12.2
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	9.37	450
Chloride	(Cl^{-1})	2990	106000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	-2.6	-11

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : Meridian Oil & Gas
Date : 10-27-1988
Location: Cavness - Well #3 (on 10-17-1988)

	Sample 1
Specific Gravity:	1.178
Total Dissolved Solids:	249093
pH:	5.84
IONIC STRENGTH:	4.519

CATIONS:		me/liter	mg/liter
Calcium	(Ca^{+2})	168	3360
Magnesium	(Mg^{+2})	204	2480
Sodium	(Na^{+1})	3920	90200
Iron (total)	(Fe^{+2})	2.39	66.8
Barium	(Ba^{+2})	0.015	1.00
ANIONS:			
Bicarbonate	(HCO_3^{-1})	1.20	73.3
Carbonate	(CO_3^{-2})	0	0
Hydroxide	(OH^{-1})	0	0
Sulfate	(SO_4^{-2})	62.5	3000
Chloride	(Cl^{-1})	4230	150000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86°F	30°C	-0.38	-0.47

ILLEGIBLE

November 24, 1976

Mr. Arthur R. Brown, District Engineer
United States Geological Survey
P.O. Box 1157
Hobbs, New Mexico 88240

Dear Mr. Brown:

Recently our office received a letter from you requesting water disposal procedures and data on our Mark Corbin #1, J Range, 11-33. At the present, water produced is being contracted for transport and disposal. Other pertinent information regarding this matter is listed as follows:

1. Location: 2030' FNL & 860' FEL, Sec 13-18s-33e, Lea County, New Mexico.

2. Formation Producing Water: Delaware Sand (Cherry Canyon).

3. Average Barrels of Water Per Day: ~~110~~ 150 bbls.

4. Water Quality Data: A. Resistivity - .042 @ 74°F
   B. Specific Gravity - 1.182
   C. pH - 6.1
   D. Calcium (Ca) - 7,000
   E. Magnesium (Mg) - 6,600
   F. Chlorides (Cl) - 173,000
   G. Sulfates (SO_4) - 1,600
   H. Bicarbonates (HCO_3) - 730
   I. Soluble Iron (Fe) - Nil

5. Contractor: Steve Carter & Son

6. SWD Disposal Location: Laguna Disposal.

Respectfully submitted,

Gary D. Wilson
District Clerk

West Corbin Federal #16
South Corbin Field
Lea County, New Mexico

SWD Conversion Procedure

1. Order, inspect and deliver 9000' of 2 7/8" 6.5# N-80 IPC tubing to location.

2. MIRU pulling unit. NU BOP. Release packer and POOH with production tubing.

3. TIH with 4 3/4" bit and 2 7/8" 6.5# N-80 tubing. Drill out CIBP's at 8800' and 8887'. Circulate 2% KCl water. POOH.

4. TIH with 5 1/2" treating packer, 2.25" SN, and 2 7/8" 6.5# N-80 tubing. Set packer at 8600'.

5. MIRU pump truck. RU surface lines. Perform step rate injection test as follows:

Rate (bpm)	Time (min)	Volume (bbls)	Injection Pressure
.5	10	5	
1.0	10	10	
2.0	10	20	
3.0	10	30	
4.0	10	40	
5.0	10	50	
6.0	10	60	
7.0	10	70	

   Contact production engineer with results. If injectivity is not sufficient, continue with acid procedure.

6. MIRU stimulation company. NU stimulation valve. RU surface lines and test to 5000 psi. Place 1000 psi on 2 7/8" x 5 1/2" annulus. Monitor throughout the job. Pump 6000 gallons 15% NEFe HCl acid as per attached Petroplex recommendation. Space out 300 RCNBS throughout the job. Displace acid to bottom perforation with treated 2% KCl water.

   Treating Rate = 4-6 bpm
   Anticipated Treating Pressure = 3000 psi
   Maximum Treating Pressure = 4200 psi

   RDMO stimulation company.

7. Swab well to unload treatment fluids.

8. ND stimulation valve. Release packer and POOH laying down 2 7/8" 6.5# N-80 tubing.

9. PU and RIH with following tubing assembly: (as per attached Baker proposal)

    - 2 7/8" Pump-out plug
    - 5 1/2" Baker Model AL-2 Lok-set packer
    - 2.25" ID SN
    - ON/OFF tool
    - ±8600' of 2 7/8" 6.5# N-80 IPC tubing.

    Set packer at 8600'. Release from ON/OFF tool and PU ±10'. Circulate 2% KCl water + 2% TECHNAHIB 606 corrosion inhibitor (or equivalent as per field instructions). Set down and latch ON/OFF tool. Test to 500 psi. Continue pressure up to shear plug. ND BOP. NU tree as per attached schematic.

10. Repeat step rate injection test. Contact production engineer with results.

11. Initiate disposal pending construction of surface facilities. Record daily volumes and pressure. Send injection data to Midland office.

Approved_____ Date_____
J. E. Bobo

RPA

WELL DATA SHEET

OPERATOR Southland Royalty Company
LEASE AND WELL NO. West Corbin Federal No. 3
LOCATION 660'FNL & 660' FEL, Sec. 18, T18S, R33E
TYPE WELL P & A DATE DRILLED _____ DEPTH 5170'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
8-5/8"	24	332	12-1/4"	Circulated
			7-7/8"	

RECORD OF COMPLETION

PRODUCING INTERVAL Dry Hole
FORMATION NAME

WELL DATA SHEET

OPERATOR Southland Royalty Company
LEASE AND WELL NO. West Corbin Federal No. 9
LOCATION 660'FSL & 660' FWL, Sec 8, T18S, R33E
TYPE WELL Oil DATE DRILLED 1988 DEPTH 11,457'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
13-3/8"	61 & 54.5	348'	17-1/2"	350SX-Circ.
8-5/8"	28 & 24	2905'	12-/14"	550SX-Circ
5-1/2"	17	11,449'	7-7/8"	3130SX-Circ

RECORD OF COMPLETION

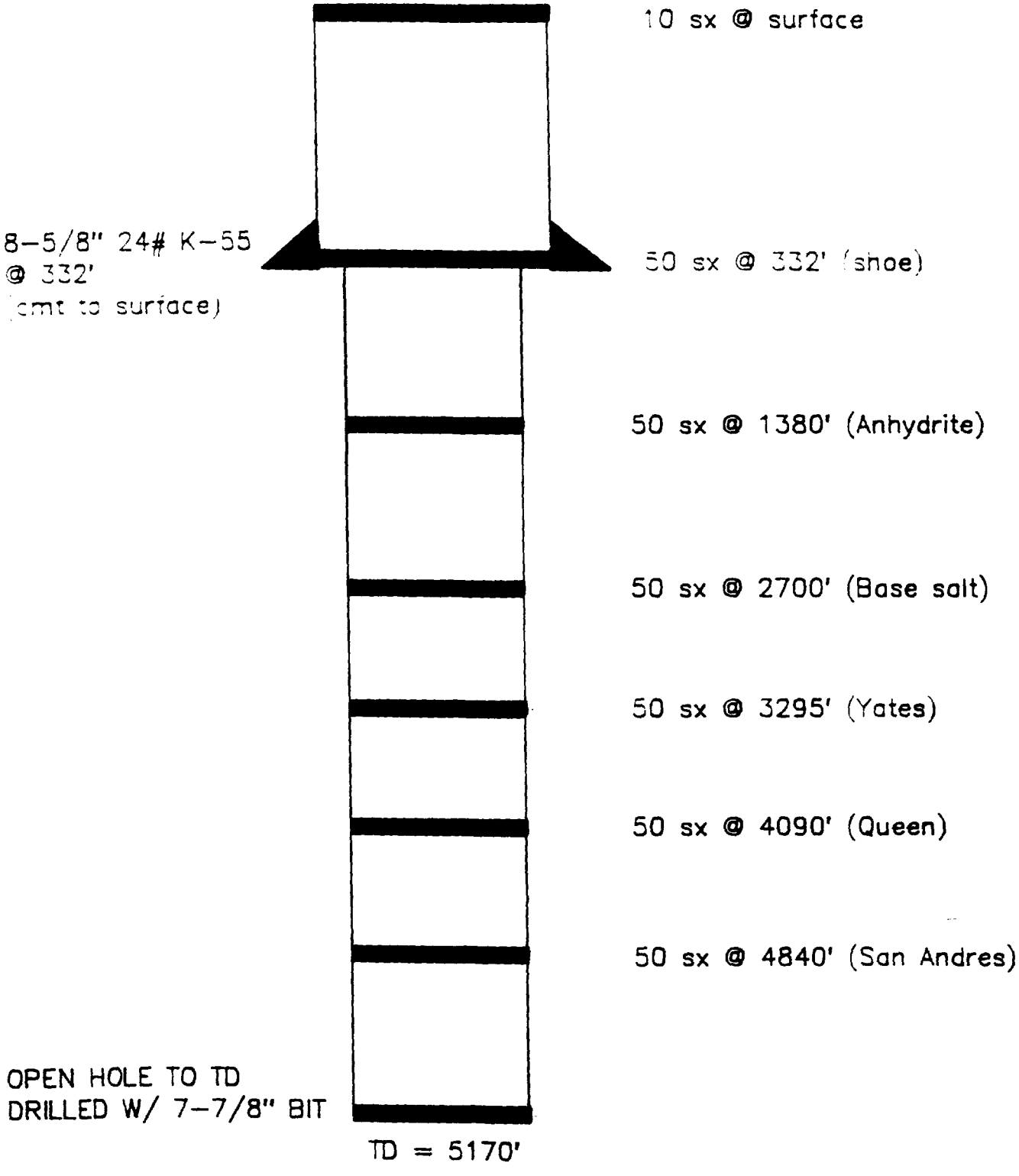
PRODUCING INTERVAL 11,164' - 11,270'
FORMATION NAME South Corbin (Wolfcamp)

WEST CORBIN FEDERAL #3

WEST CORBIN FIELD

LEA COUNTY, NEW MEXICO

CURRENT SCHEMATIC (2/77)



WELL DATA SHEET

OPERATOR Southland Royalty Company

LEASE AND WELL NO. West Corbin Federal No. 12

LOCATION 660' FNL & 1980' FEL, Sec. 18, T18S, R33E

TYPE WELL Oil DATE DRILLED 1989 DEPTH 11,450'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
13 3/8"	48	347'	17 1/2"	375 sx - Circ.
8 5/8"	28 & 24	2900'	12 1/4"	1850 sx - Circ.
5 1/2"	15.5 & 17	11,450'	7 7/8"	1755 sx

RECORD OF COMPLETION

PRODUCING INTERVAL 10,880' - 11,318'

FORMATION NAME South Corbin (Wolfcamp)

WELL DATA SHEET

OPERATOR Southland Royalty Company

LEASE AND WELL NO. West Corbin Federal No. 15

LOCATION 810' FNL & 1980' FEL, Sec. 18, T18S, R33E

TYPE WELL Oil DATE DRILLED 1989 DEPTH 5500'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
8 7/8"	24	380'	12 1/4"	220 sx - Circ.
5 1/2"	15.5	5472'	7 7/8"	1650 sx - Circ.

RECORD OF COMPLETION

PRODUCING INTERVAL 4950' - 4961'

FORMATION NAME West Corbin (Delaware)

WELL DATA SHEET

OPERATOR Southland Royalty Company
LEASE AND WELL NO. West Corbin Federal No. 17
LOCATION 660' FNL & 1980' FWL, Sec. 18, T18S, R33E
TYPE WELL OIL DATE DRILLED 1989 DEPTH 5520'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
8 5/8"	24	368'	12 1/4"	310 sx - Circ.
5 1/2"	15.5	5520'	7 7/8"	1280 sx - Circ.

RECORD OF COMPLETION

PRODUCING INTERVAL 4902' - 5006'
FORMATION NAME West Corbin (Delaware)

WELL DATA SHEET

OPERATOR Southland Royalty Company
LEASE AND WELL NO. West Corbin Federal No. 24
LOCATION 1800' FNL & 2150' FEL, Sec. 18, T18S, R33E
TYPE WELL OIL DATE DRILLED 1990 DEPTH 5550'

WELL CONSTRUCTION

CASING SIZE	WEIGHT,LB/FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD
8 5/8"	24	430'	12 1/4"	260 sx - Circ.
5 1/2"	15.5	5550'	7 7/8"	950 sx - Circ.

RECORD OF COMPLETION

PRODUCING INTERVAL 4962' - 5014'
FORMATION NAME West Corbin (Delaware)

MERIDIAN OIL

Memorandum

To: R. L. Bradshaw/Sr. Staff Env./Reg. Spec **Date:** May 30, 1990

From: D. J. Maiorino/Sr. Staff Geologist **Location:** Midland

RE: Water Injection Application
MOI West Corbin Federal No. 16
1980' FEL & 800' FSL, Section 7, T18S, R33E
Lea County, New Mexico

Reservoir Description

The potential injection zones within the subject well are located in the 2nd Bone Spring Carbonate. The 2nd Bone Spring Carbonate is represented by a series of debris flows deposited basinward relative to the north bounding shelf margin. These re-deposited cherty limestones have been later dolomitized producing reservoirs with cross-plotted porosities of between 4 and 8%. Matrix porosities are commonly enhanced through fracturing. Secondary infilling of the fracture system with anhydrite makes this stratigraphic reservoir even more erratic. Productive zones commonly exhibit resistivities of over 100 ohms with calculated water saturations of between 35 and 50%.

The potential injection zones in the West Corbin Federal No. 16 will consist of three previously perforated intervals located between 8,666-712', 8,832-62', and 8,900-82'. All three intervals have been acidized with swabbing operations recovering only formation and no shows.

Freshwater Sources

To the best of my knowledge, there are no freshwater zones in this wellbore. A subsequent check with the surface tenant indicated no existing or previously existing freshwater wells within the outline of the West Corbin Unit. Seismic indicates there is no evidence of shallow faulting within the unit outline that would affect the disposal zone and any possible source of drinking water.

D J Maiorino

Dennis J. Maiorino
Sr. Staff Geologist

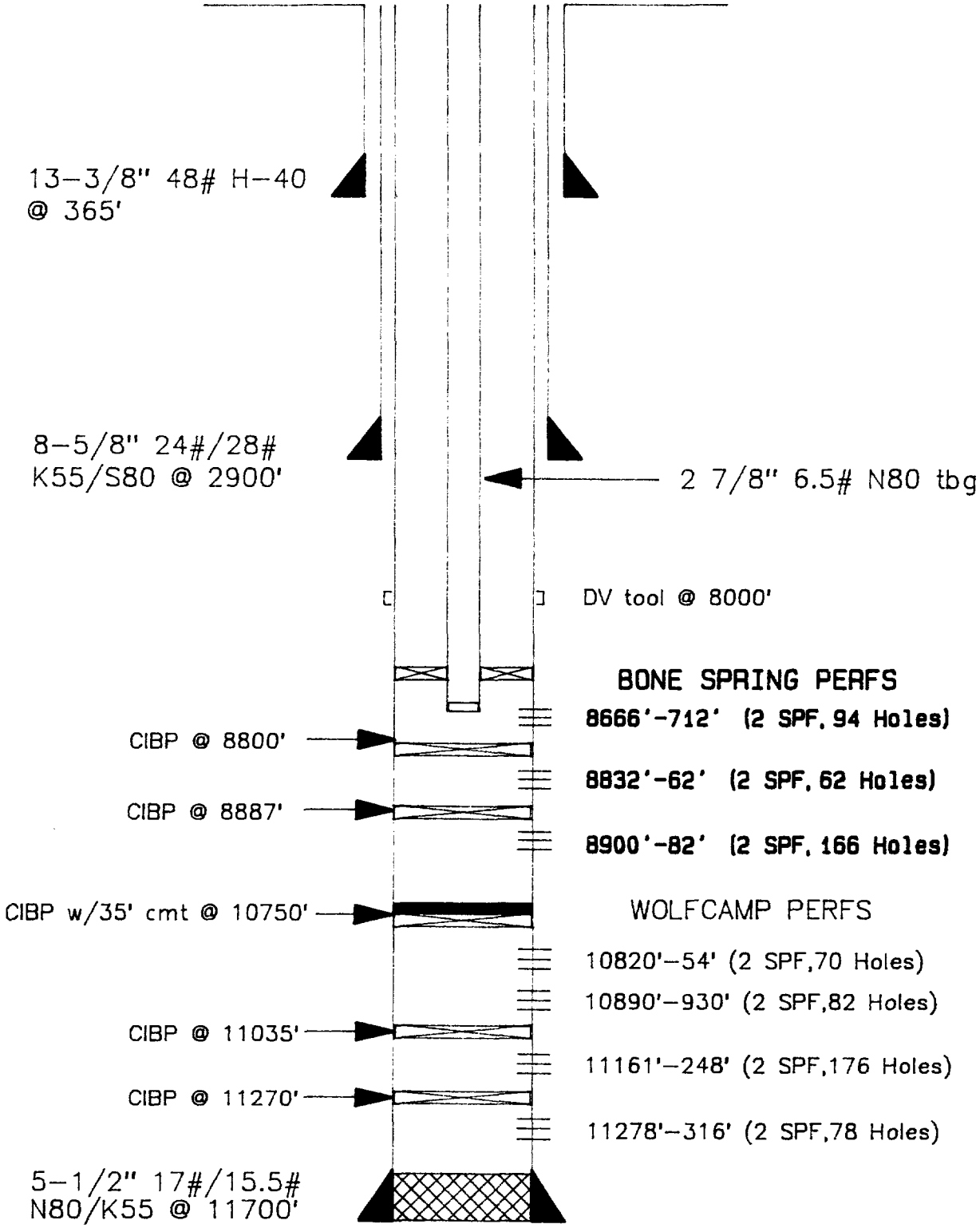
DJM/pwh
WP+:274-053090

WEST CORBIN FEDERAL #16

SOUTH CORBIN (BONE SPRING) FIELD

LEA COUNTY, NEW MEXICO

CURRENT SCHEMATIC



TD:11700'/PBTD:11646'(est)

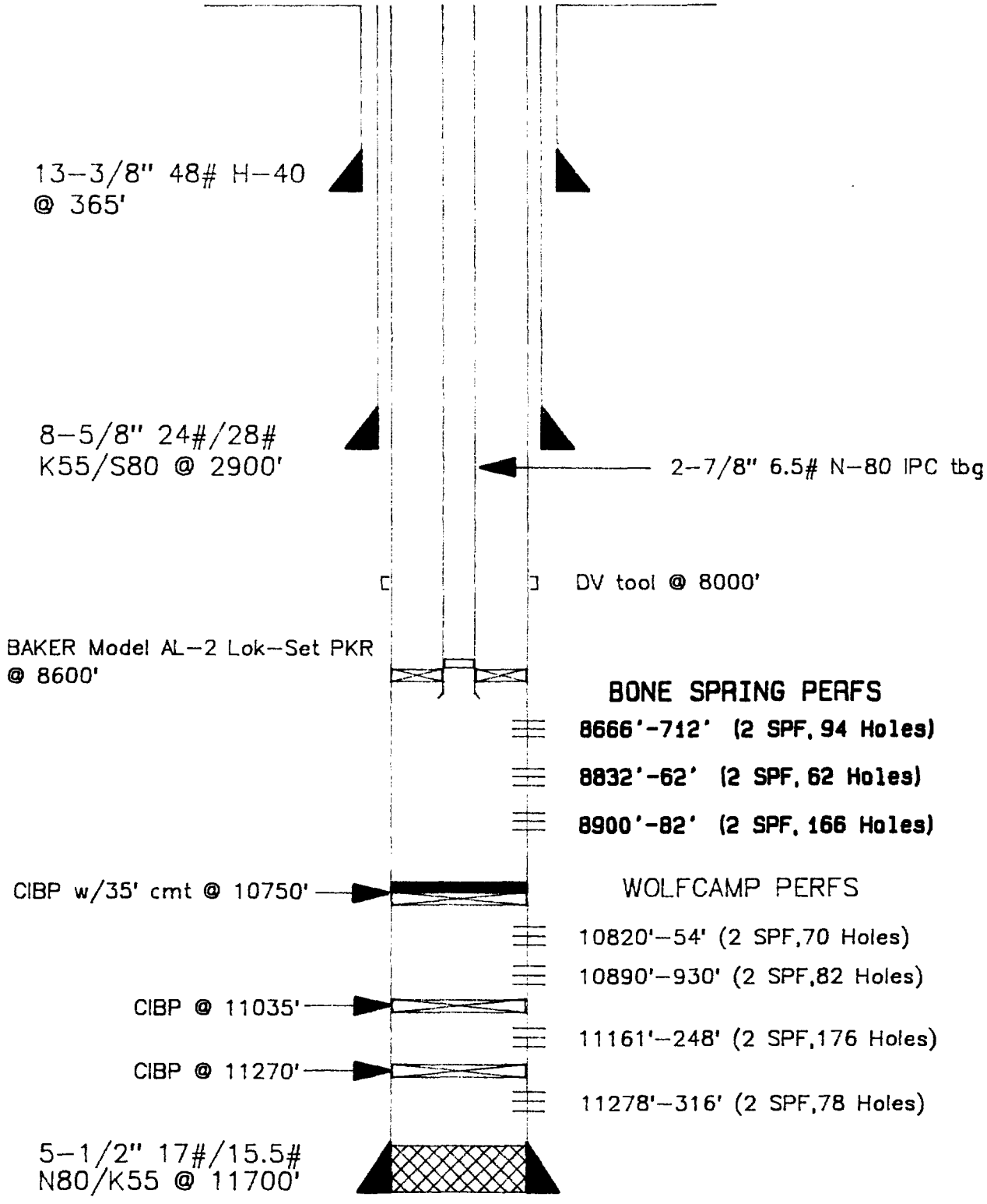
2/21/90 JEK

WEST CORBIN FEDERAL #16 SWD

SOUTH CORBIN (BONE SPRING) FIELD

LEA COUNTY, NEW MEXICO

PROPOSED SCHEMATIC



TD:11700'/PBTD:11646'(est)

4/23/90 JEK

West Corbin Federal #16
South Corbin Field
Lea County, New Mexico

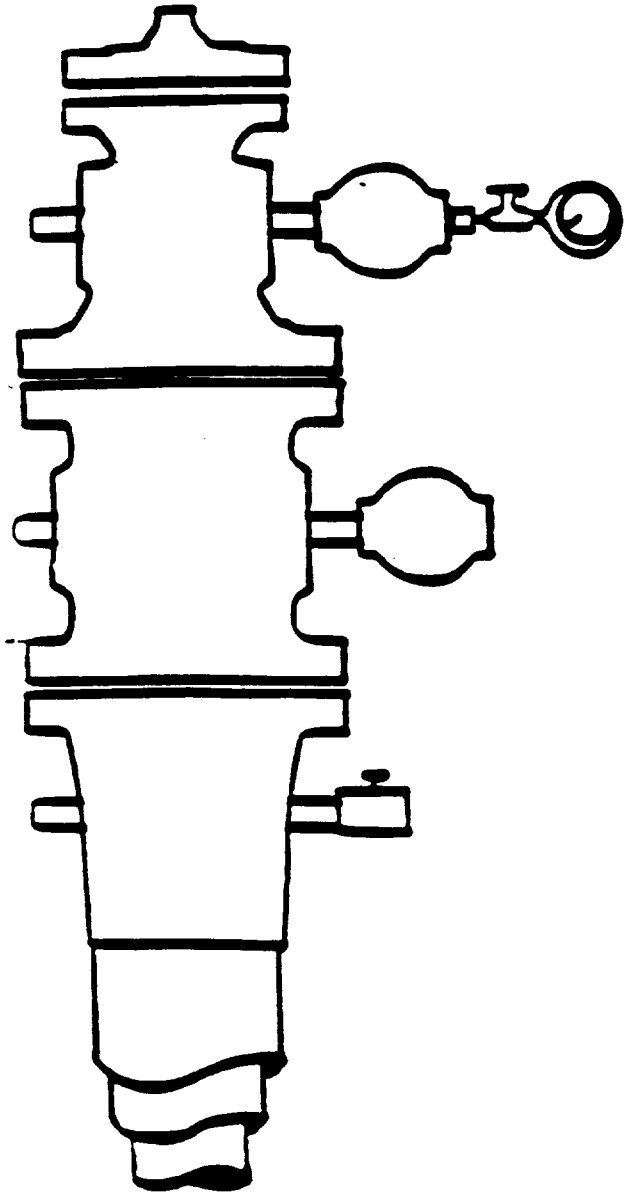
MECHANICAL DATA

Type Tubular:	OD (in)	ID (in)	Weight (#/ft)	Grade	Conn.	Depth (ft)	Collapse (psi)	Burst (psi)	Tensile (BPF)
Surface Casing	13 3/8	12.715	48.0	H-40	STC	365	770	1730	322
Intermediate Casing	8 5/8	8.097	24.0	K-55	STC	0-2400	1370	2950	263
	8 5/8	8.017	28.0	S-80	STC	2400-2900	2680	3390	414
Production Casing	5 1/2	4.892	17.0	L-80	LTC	0-715	6280	7740	348
	5 1/2	4.892	17.0	K-55	LTC	715-2730	4910	5310	272
	5 1/2	4.950	15.5	K-55	STC	2730-8230	4040	4810	222
	5 1/2	4.892	17.0	K-55	STC	8230-10230	4910	5320	252
	5 1/2	4.892	17.0	N-80	LTC	10230-11700	6280	7740	348
Proposed Production Tubing (IPC)	2 7/8	2.441	6.5	N-80	EUE	8600	11160	10570	145

KB = 17'
DV Tool @ 8002' PM
PBTD @ ±11035' (CIBP)

WEST CORBIN FEDERAL WELL NO. 16
SOUTH CORBIN (WOLFCAMP) FIELD
LEA COUNTY, NEW MEXICO

PROPOSED WELLHEAD



TUBING HEAD

11" 3M PSI WP F/E by 7-1/16" 3M PSI WP F/E;
- 2 - 2" LPO;
- 1 - 2" x 6" XXH Nipple;
- 1 - 2" XXH Solid Bull Plug;
- 1 - 2" XXH Bull Plug Tapped w/1/2" NPT;
- 1 - 2-1/16" 3M PSI WP Gate Valve with 2" LP S/E;
- 1 - 7-1/16" 3M PSI WP F/E x 2-7/8" EUE 8rd Tubing;
- Head Adapter w/2-7/8" EUE 8rd Internal Lift Threads;
- 1 - 10M PSI WP Needle Valve w/1/2" NPT;
- 1 - 4-1/2" Face, 3M PSI Pressure Gauge w/1/2" NPT;

CASING SPOOL

13-5/8" 2M PSI WP F/E by 11" 3M PSI WP F/E;
- 2 - 2" LPO;
- 1 - 2" XH Solid Bull Plug;
- 1 - 2" x 6" XH Nipple;
- 1 - 2-1/16" 3M PSI WP Gate Valve with 2" LP S/E;
- 1 - 5-1/2" Casing Hanger;

CASING HEAD

13-3/8" SOW by 13-5/8" 2M PSI WP F/E;
- 2 - 2" LPO;
- 1 - 2" XH Solid Bull Plug;
- 1 - 2" x 6" XH Nipple;
- 1 - 2" 2M PSI WP Ball Valve;
- 1 - 8-5/8" Casing Hanger.

Log File
Schlumberger

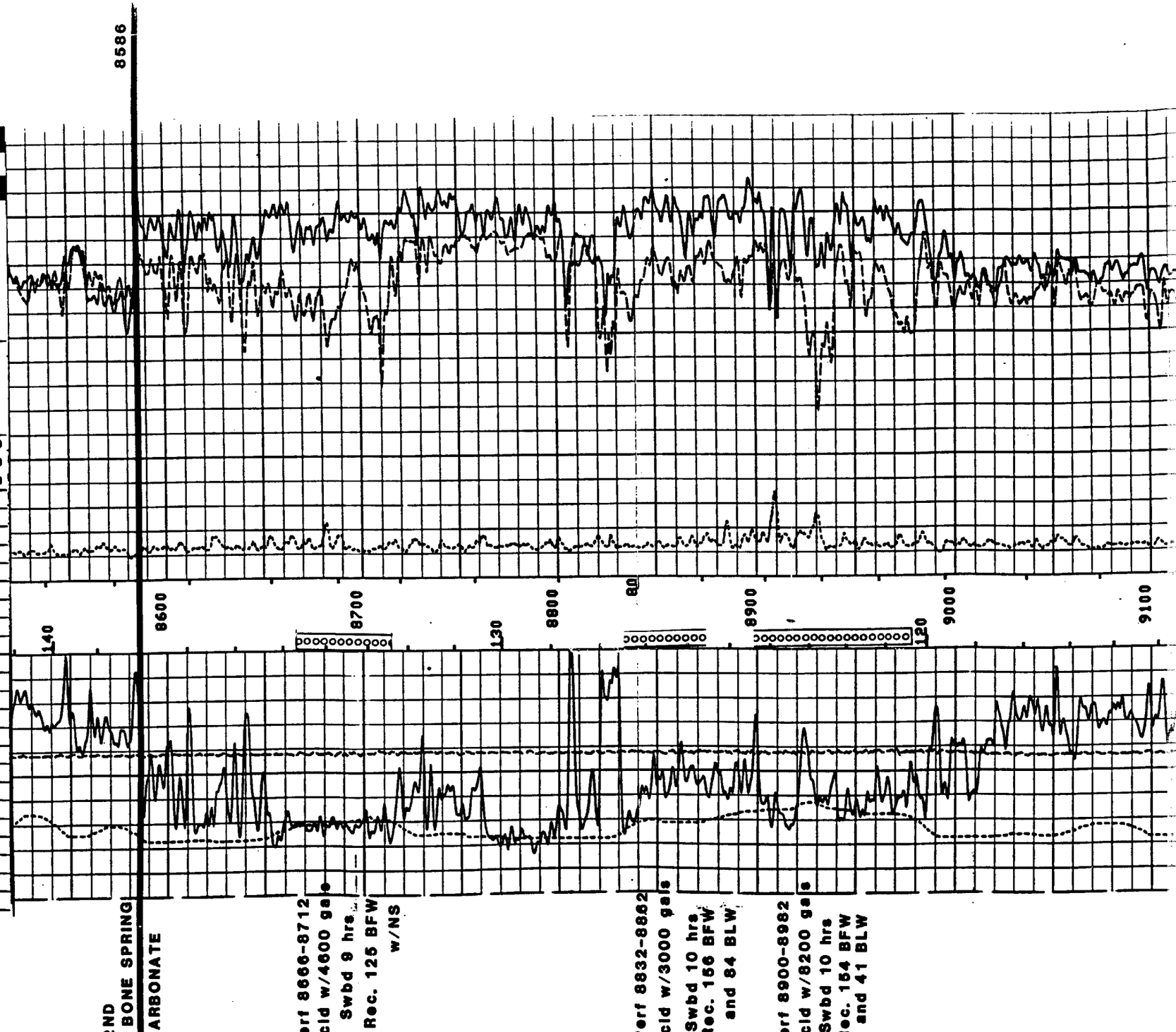
COMPENSATED NEUTRON - LITHO DENSITY

COMPANY	MERIDIAN OIL COMPANY
WELL	WEST CORBIN FEDERAL #16
FIELD	SOUTH CORBIN (WOLFCAMP)
COUNTY	LEA STATE NEW MEXICO
LOCATION	800' FSL & 1980' FEL
Other Services:	DLL/MSFL LSS

API SERIAL NO.	SECT.	TWP.	RANGE
	7	18S	33E

Permanent Datum	G.L.	Elev. 3883.0 F	Elev.: K.B.3900.0
Log Measured From	K.B.	17.0 F above Perm. Datum	D.F.3899.0
Drilling Measured From	K.B.		G.L.3883.0

Date	06-NOV-1989			
Run No.	ONE			
Depth Driller	11700.0 F			
Depth Logger (Schl.)	11690.0 F			
Btm. Log Interval	11657.0 F			
Top Log Interval	70.0 F			
Casing-Driller	8 5/8 @2900.0 F	@	@	
Casing-Logger	2896.0 F			
Bit Size	7 7/8			
Type Fluid in Hole	CUT BRINE / POLYMER			
Dens. / Visc.	9.00 LB/G	28.0 S		
pH / Fluid Loss	9.5	10.0 C3		
Source of Sample	MUD PIT			
Rm @ Meas. Temp.	.110 OHMM	@ 70.0 DEGF	@	
Rmf @ Meas. Temp.	.090 OHMM	@ 70.0 DEGF	@	
Rmc @ Meas. Temp.		@	@	
Source: Rmf / Rmc	MEAS	N/A		
Rm @ BHT	.063 OHMM	@ 163. DEGF	@	
Time Circulation Ended	16:30 06 11/5			
Time Logger on Bottom	SEE LOG			
Max. Rec. Temp.	163. DEGF			
Equip. / Location	8382	HOBBS, NM		
Recorded By	KEVIN BLANKENBURG			
Witnessed By				



Log File
Schlumberger

DUAL LATEROLOG / MICRO-SFL

COMPANY MERIDIAN OIL COMPANY

WELL WEST CORBIN FEDERAL #16

FIELD SOUTH CORBIN (WOLFCAMP)

COUNTY LEA STATE NEW MEXICO

LOCATION: 800' FEL & 1980' FEL

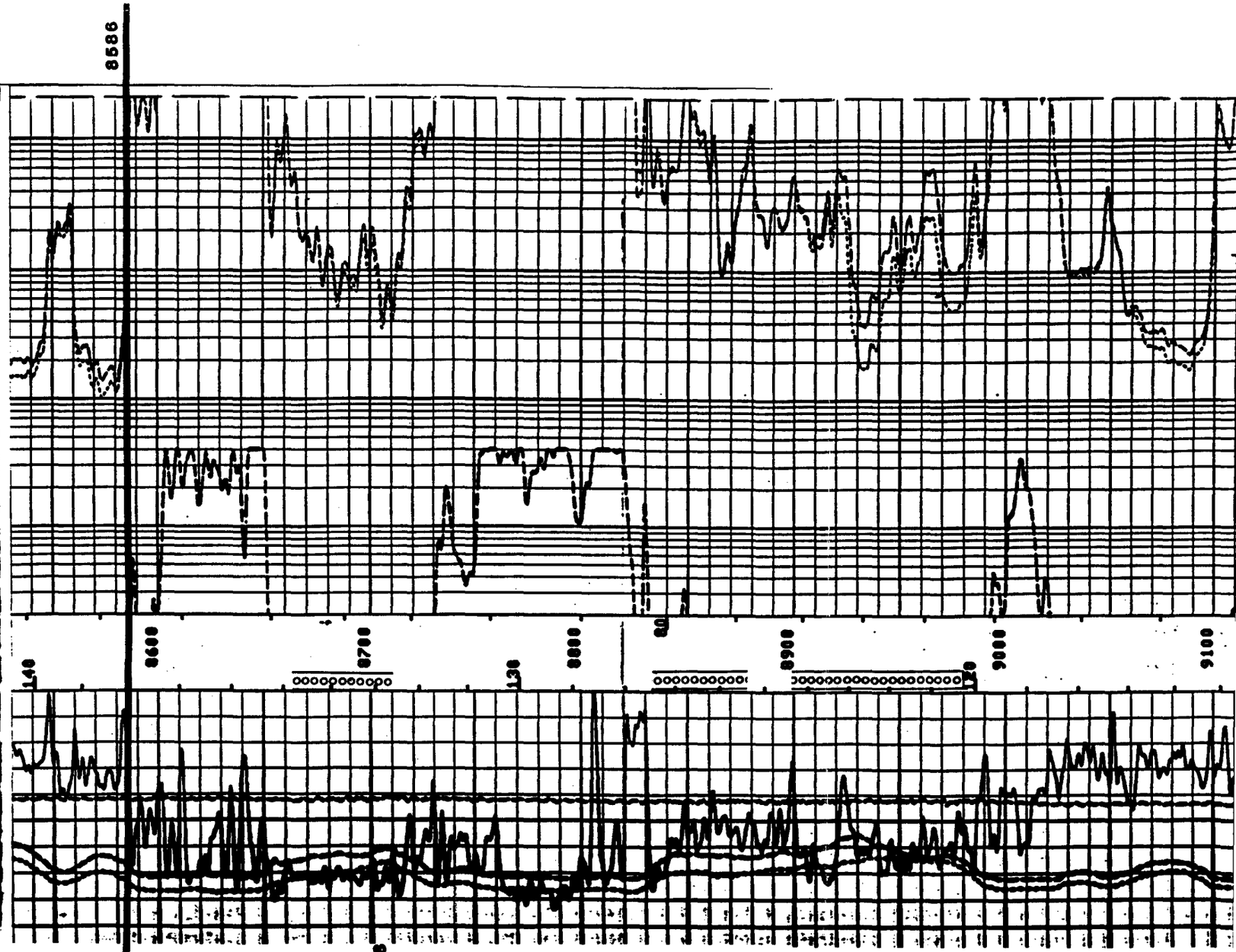
Other Services: DLL/MSFL LSS

API SERIAL NO.	SECT.	TWP.	RANGE
	7	18S	33E

Permanent Datum	G.L.	Elev.	3983.0 F
Log Measured From	K.B.	17.0 F	above Perm. Datum
Drilling Measured From	K.B.		

Elev.: K.B. 3983.0 D.F. 3983.0 G.L. 3983.0

Date		05-NOV-1989				
Run No.		ONE				
Depth Driller		11700.0 F				
Depth Logger (Schl.)		11690.0 F				
Btm. Log Interval		11688.0 F				
Top Log Interval		2998.0 F				
Casing-Driller		8 5/8 @2900.0 F				
Casing-Logger		2998.0 F				
Bit Size		7 7/8				
Type Fluid in Hole		CUT BRINE / POLYMER				
Dens.	Visc.	8.00 LB/G	28.0 S			
pH	Fld. Loss	8.5	10.0 C3			
Source of Sample		MUD PIT				
Rm @ Meas. Temp.		.310 @ 68	70.0 DEGF			
Rmf @ Meas. Temp.		.000 @ 68	70.0 DEGF			
Rmc @ Meas. Temp.						
Source Rmf / Rmc		MEAS	N/A			
Rm @ BHT		.000 @ 68	180. DEGF			
Time Circulation Stopped		0200 05 NOV				
Time Logger on Bottom		0730 LOG				
Max. Rec. Temp.		180. DEGF				
Equip. Location		3000	HOBBS, NM			
Recorded By		DAVID GLASSCOCK				



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

'90 JUN 7 AM 9 33

6-4-90

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:
MC_____
DHC_____
NSL_____
NSP_____
SWD X
WFX_____
PMX_____

Gentlemen:

I have examined the application for the:

Southland Royalty Co. West Corbin #16-O 7-18-33
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed

MERIDIAN OIL

18 AM 9 07

June 15, 1990

Mr. David Catanach
Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501-2088

Re: Southland Royalty Company
West Corbin Federal No. 16
Sec. 7, T18S, R33E
Lea County, NM

Dear Mr. Catanach:

Attached is the Affidavit of Publication and a copy of the legal notice published on June 5 and June 6, 1990, regarding plans to convert the referenced well for disposal of produced water into the South Corbin (Bone Spring) Field. If other information is needed, please contact me at (915) 686-5678.

Sincerely,

Robert L. Bradshaw /dt

Robert L. Bradshaw
Sr. Staff Env./Reg. Specialist

RLB/dst

cc: Well file
R. L. Pryer

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Don Teer

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of

Two Days.

Beginning with the issue dated

June 5, 1990

and ending with the issue dated

June 6, 1990

Business Manager

Sworn and subscribed to before me this 14th day of June, 1990

Notary Public.

My Commission expires

July 24, 1991

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

30 **LEGAL NOTICE**
June 5, 6, 1990

Southland Royalty Company has applied to the Oil Conservation Division for authorization to convert its West Corbin Federal #18 for disposal into the South Corbin (Bone Spring) in the interval 8666' - 8982'.

This well is located:
800' FSL & 1980' FEL
Section 7, T18S, R33E
Lea County, NM

Form C-108 "Application for Authorization to Inject" has been submitted to the Oil Conservation Division in Santa Fe, NM, requesting administrative approval for this project. For further information, please contact the:

Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87501

MERIDIAN OIL

June 18, 1990

Mr. David Catanach
Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Re: Southland Royalty Company
West Corbin Federal No. 16
Lea County, New Mexico

Dear Mr. Catanach:

Attached are analysis results of water samples obtained from the West Corbin Federal No. 16 and No. 19. Each sample is of Bone Spring water. The perforation interval is shown on each analysis sheet.

If other information is needed, please contact me at (915) 686-5678.

Sincerely,

Robert L. Bradshaw

Robert L. Bradshaw
Sr. Staff Env./Reg. Specialist

RLB:gs

Attachments

cc: Well File
J. E. Kramer

1543 A

1ST WATER SAMPLE
PERFS 8900-8982'

HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No.

To Meridian Oil Inc.

Date 3-11-90

21 Desta Drive

Midland, Texas 79701

Submitted by

Date Rec. 3-11-90

Well No. West Corbin 16 Depth Formation

County Field Source

Resistivity	0.058 @ 70° F			
Specific Gravity	1.14			
pH	4.5			
Calcium (Ca)	6,350			*MPL
Magnesium (Mg)	7,290			
Chlorides (Cl)	111,500			
Sulfates (SO_4)	Heavy			
Bicarbonates (HCO_3)	144			
Soluble Iron (Fe)	Heavy			

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: David Redwine

HALLIBURTON COMPANY

cc:

By

CHEMIST

NOTICE

HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

2ND WATER SAMPLE
PERFS 8900'-8982'

LABORATORY WATER ANALYSIS

No.

To Meridian

Date 3-12-90

21 Desta Drive

Midland, Texas 79701

Submitted by

Date Rec. 3-12-90

Well No. West Corbin 16 Depth Formation

County Field Source

	First		
Resistivity	0.060 @ 70° F	0.057 @ 70° F	
Specific Gravity	1.12	1.13	
pH	4.5	5.0 ←	
Calcium (Ca)	7,500	4,000	*Mi
Magnesium (Mg)	6,300	5,850	
Chlorides (Cl)	103,500	115,000 ←	
Sulfates (SO_4)	Heavy	Heavy	
Bicarbonates (HCO_3)	Not Available	Not Avialable	
Soluble Iron (Fe)	Heavy	Moderate	

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: David Redwine

HALLIBURTON COMPANY

cc:

By

CHEMIST

NOTICE

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MAR-17-'90 SAT 13:50 ID:HALLIBURTON SV 20340 #661 P01

HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No.

To Meridian Oil Inc.

Date 3-17-90

21 Desta Drive

Midland, Texas 79701

attn.: Jim Kramer

Submitted by

Date Rec. 3-16-90

Well No. West Corbin #16 Depth Formation

County Field Source

Resistivity	0.0578 @ 70° F			
Specific Gravity	1.11			
pH	5.6			
Calcium (Ca)	5,750			*M
Magnesium (Mg)	4,620			
Chlorides (Cl)	97,500			
Sulfates (SO_4)	heavy			
Bicarbonates (HCO_3)	36			
Soluble Iron (Fe)	moderate			

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: David Redmond

HALLIBURTON COMPANY

cc:

By

CHEMIST

THIS REPORT IS [illegible]

NOTICE

Perfs: 866'- 8712

HALLIBURTON DIVISION LABORATORY
HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No.

To Meridian Oil Inc.

21 Desta Drive

Midland, Texas 79701

Date 3-17-90

Submitted by

Date Rec. 3-17-90

Well No. W. Corbin #16 Depth Formation

County Field Source

Resistivity	0.0565 @ 70° F			
Specific Gravity	1.12			
pH	5.6			
Calcium (Ca)	5,500			*M
Magnesium (Mg)	3,450			
Chlorides (Cl)	102,500			
Sulfates (SO_4)	heavy			
Bicarbonates (HCO_3)	36			
Soluble Iron (Fe)	moderate			

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: David Redwine

HALLIBURTON COMPANY

cc:

By

CHEMIST

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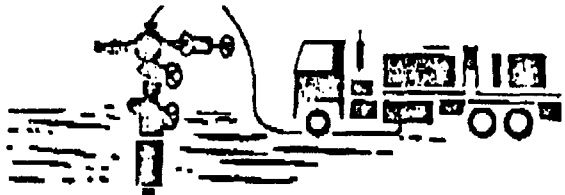

DOWELL SCHLUMBERGER INCORPORATED

LAB NUMBER H090173

COMPANY Meridian

DATE 4-16-90

WELL NAME West Corbin #19

2nd BS Perfs
8500 - 8524
8540 - 8558

WATER ANALYSIS

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Jim Kramer	From Hobbs Lab
Co.	Co.
Dept.	Phone #
Fax #	Fax #

	MG/L
SODIUM, Na (calc)	78,333
CALCIUM, Ca	4211
MAGNESIUM, Mg	1458
BARIUM, Ba	———
CHLORIDES, Cl	130,456
SULFATES, SO4	3000
CARBONATES, CO3	0
BICARBONATES, HCO3	24.4
Ph	6.02
SPECIFIC GRAVITY	1.13
RESTIVITY, Rw	.07 @ 75°F
IRON, Fe	80
SULFIDES, as H2S	0
CARBON DIOXIDE, CO2	———
NITRATES, NO3	22
HYDROXIDES	0
TOTAL DISSOLVED SOLIDS	217,562

$Rw_{corr} = .07\left(\frac{75°+6.77}{130°+6.77}\right)$

$Rw_{corr} = .04$