



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

GARREY CARRUTHERS
GOVERNOR

6-4-90

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

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

6-4-90

RE: Proposed:

MC _____
DHC _____
NSL _____
NSP _____
SWD ☒ _____
WFX _____
PMX _____

Gentlemen:

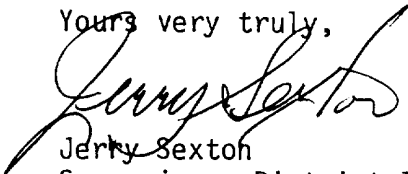
I have examined the application for the:

Southland Royalty Co. West Corbin #16-07-18-33
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

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
Sr. Staff Env./Reg. Specialist

RLB:dst

Attachments

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

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.

RECEIVED

JUN 04 1990

OCD
HOBB'S OFFICE

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

Southland Royalty Company

West Corbin Federal

OPERATION	LEASE			
16	800'FSL & 1980'FEL	7	18-South	33-East
WELL NO.	PROYACT LOCATION	SECTION	TOWNSHIP	RANGE

Schematic

Attached

Tabular Data

Surface Casing

Size 13-3/8" Cemented with 370 ss.
 TOC Surface feet determined by Circulating
 Hole size 17-1/2"

Intermediate Casing

Size 8-5/8" Cemented with 1500 ss.
 TOC Surface feet determined by Circulating
 Hole size 12-1/4"

Log string

Size 5-1/2" Cemented with 2825 ss.
 TOC 4840 feet determined by CBL
 Hole size 7-7/8"
 Total depth 11,700'

Injection interval -Perforations

8666 feet to 8982 feet
 (perforated to XXXXXX, indicate which)

INJECTION WELL DATA SHEET

Side 2

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2-7/8" lined with Plastic set in a
(material)
5-1/2" Baker Model AL-2 Lok-Set packer at 8600 feet
(brand and model)

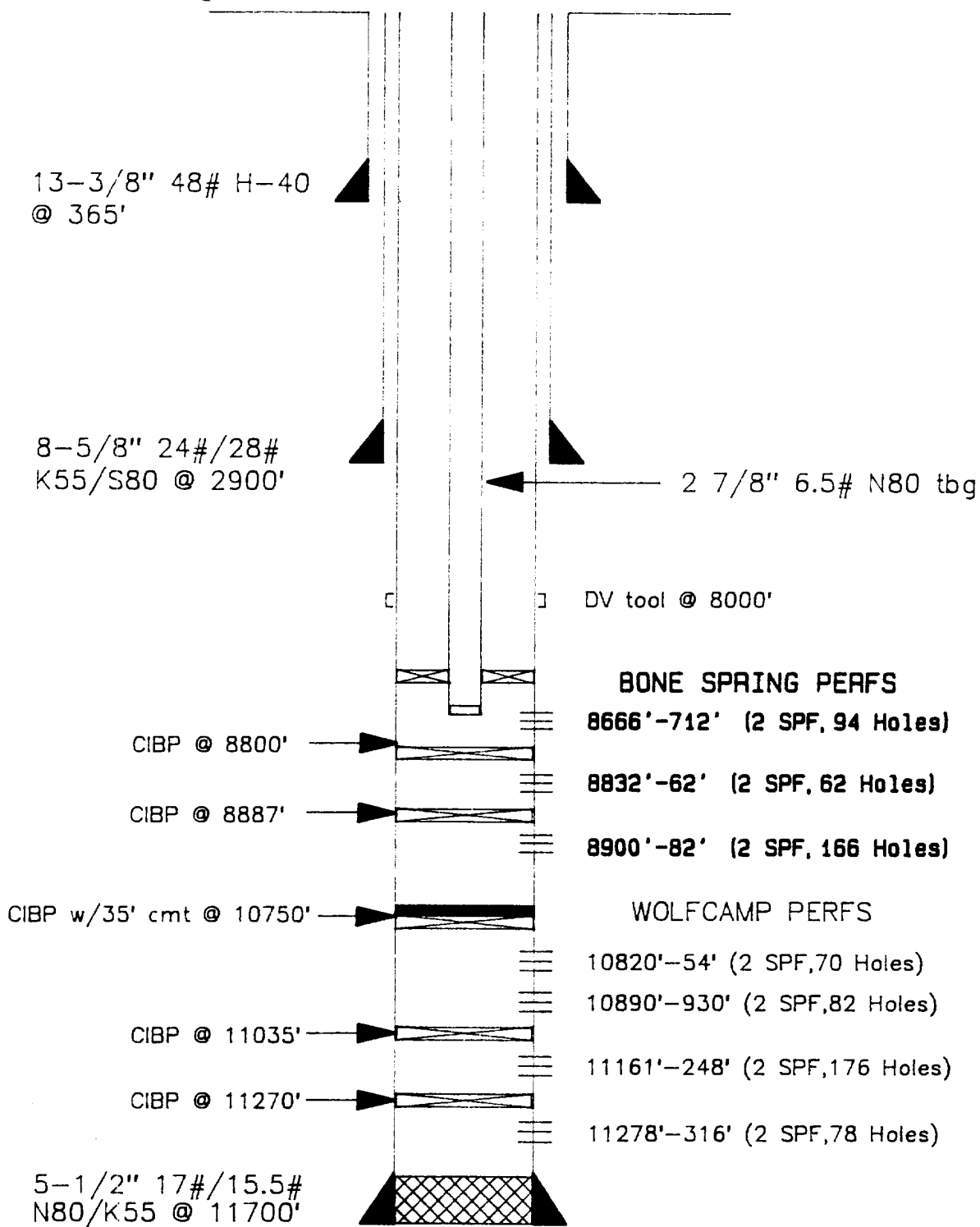
(or describe any other casing-tubing seal).

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 ☒ 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'

HOBBY

WEST CORBIN FEDERAL #16
SOUTH CORBIN (BONE SPRING) FIELD
 LEA COUNTY, NEW MEXICO
 CURRENT SCHEMATIC



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

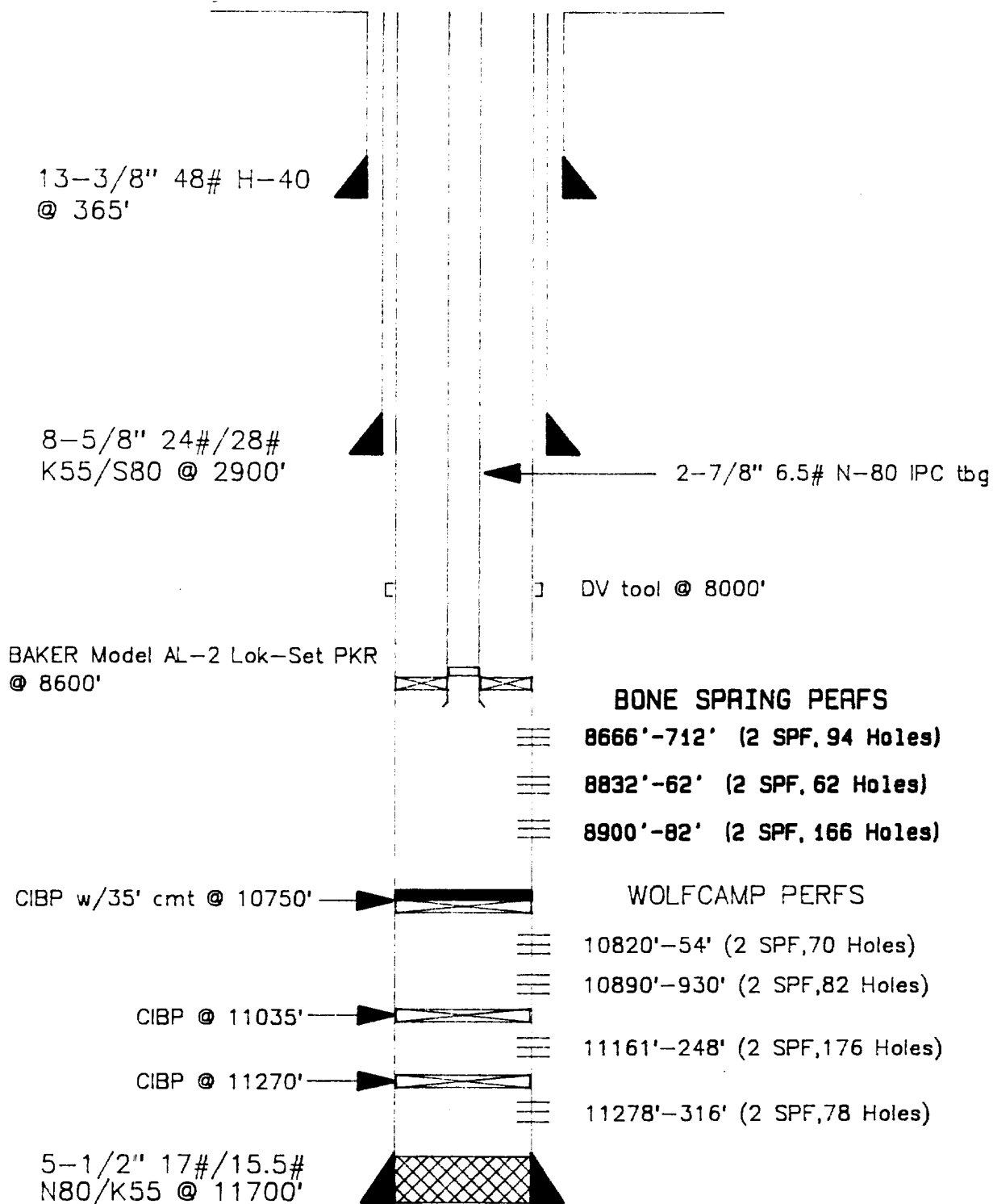
2/21/90 JEK

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JUN 04 1992

OFFICE
OF THE ATTORNEY GENERAL

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

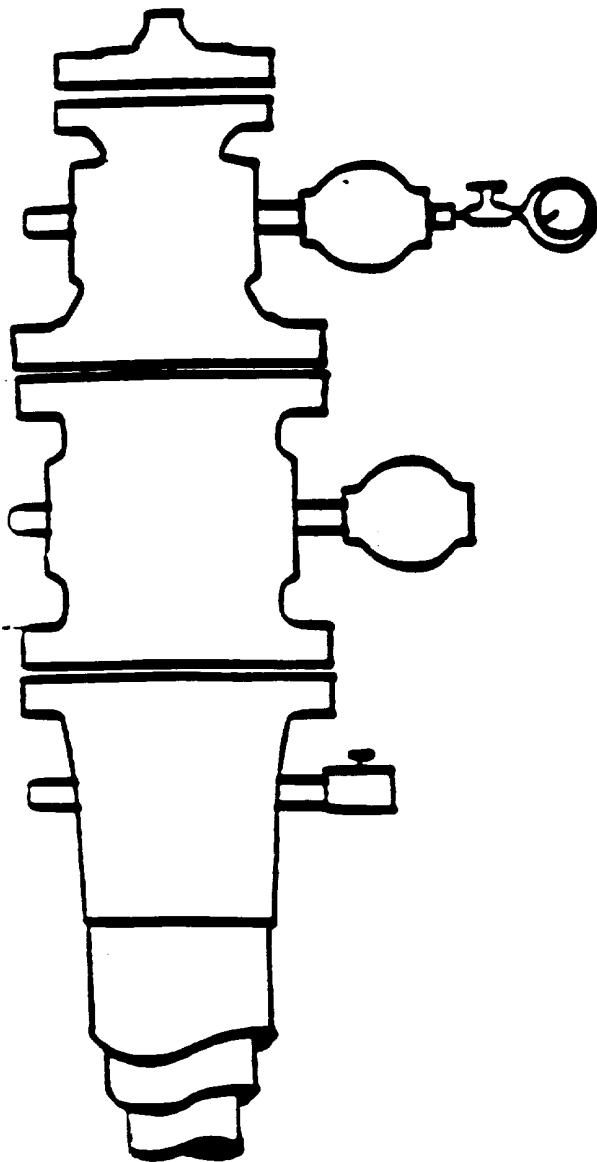
MECHANICAL DATA

<u>Type Tubular:</u>	<u>OD</u> <u>(in)</u>	<u>ID</u> <u>(in)</u>	<u>Weight</u> <u>(#/ft)</u>	<u>Grade</u>	<u>Conn.</u>	<u>Depth</u> <u>(ft)</u>	<u>Collapse</u> <u>(psi)</u>	<u>Burst</u> <u>(psi)</u>	<u>Tensile</u> <u>(BPF)</u>
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
PBD @ ±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;

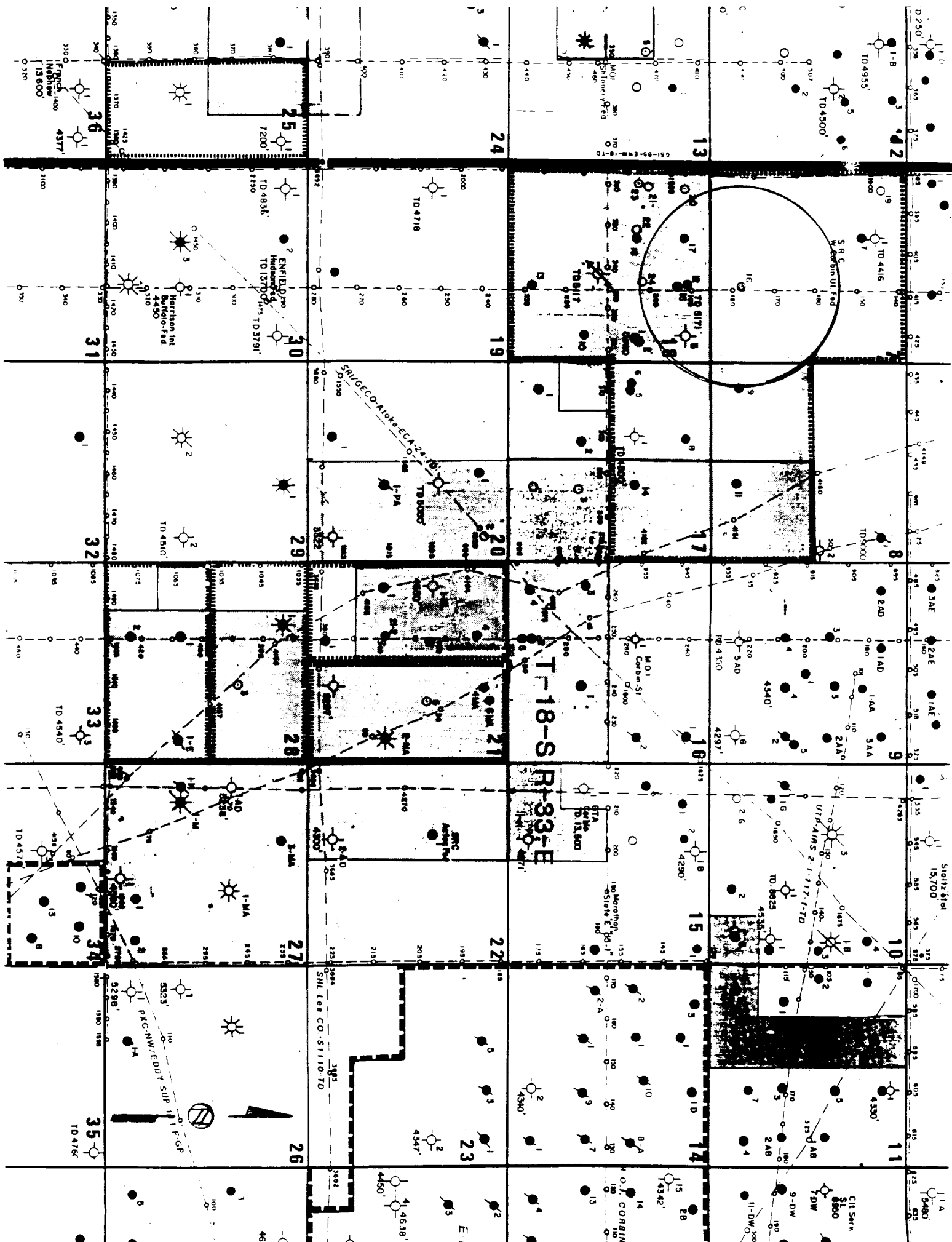
CASING HEAD

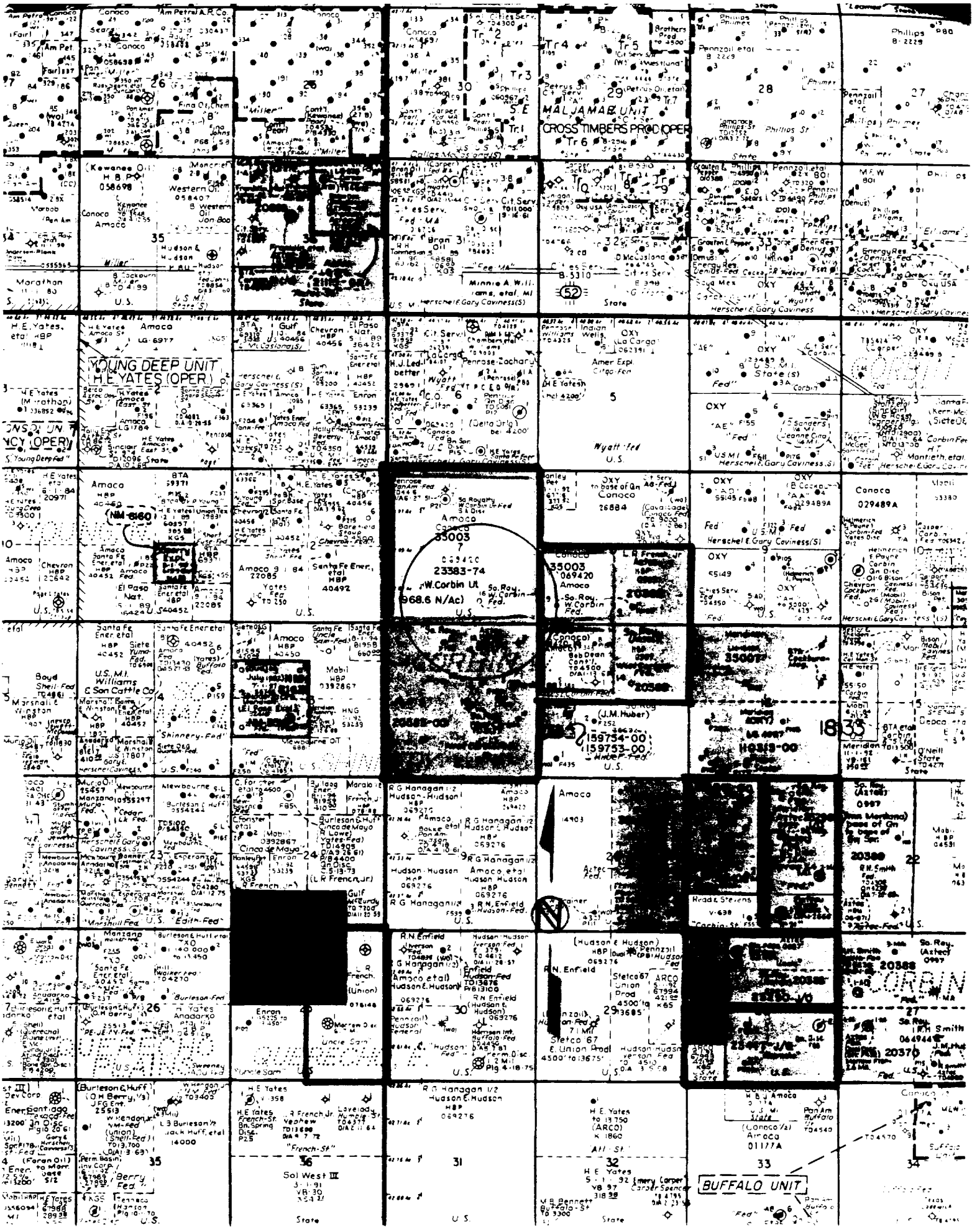
- 13-3/8" SOW by 13-5/8" 2M PSI WP F/E;
- 2 - 2" LPO;
- 1 - 2" XH Solid Bull Plug;
- 1 - 2" x 6" XH Nipple;
- 1 - 2" 2M PSI WP Ball Valve;
- 1 - 8-5/8" Casing Hanger.

RECEIVED

JUN 04 1990

GOO
HOBBS OFFICE





10 copies
file

November 24, 1976

~~Mr. Arthur K. Brown, District Engineer
United States Geological Survey
P.O. Box 1457
Hobbs, New Mexico 88240~~

Dear Mr. Brown:

Recently our office received a letter from you requesting water disposal procedures and data on our West Corral No. 1 well, 197-03. At the present, water produced is being disposed of in a disposal pond. Other pertinent information regarding this matter is listed as follows:

1. Location: 8330' FSL & 8650' FSL, Sec 13-18-13e, Lea County, New Mexico.
2. Formation Producing Water: Delaware Sand (Cherry Canyon).
3. Average Permeability of Water Per Day: ¹³⁰130 bbls.
4. Water Quality Data:
 - A. Resistivity - .042 @ 74°F
 - B. Specific Gravity - 1.182
 - C. pH - 6.1
 - D. Calcium (Ca) - 1,000
 - E. Magnesium (Mg) - 6,600
 - F. Chlorides (Cl) - 173,000
 - G. Sulfates (SO₄) - 1,600
 - H. Bicarbonates (HCO₃) - 730
 - I. Soluble Iron (Fe) - 111
5. Contractor: Steve Carter & Son
6. SND Disposal Location: Laguna Disposal.

Respectfully submitted,

Gary D. Wilson
District Clerk

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OCD
HOBBS OFFICE

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:

<u>Rate (bpm)</u>	<u>Time (min)</u>	<u>Volume (bbls)</u>	<u>Injection Pressure</u>
.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

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JUN 04 1990

OCD
HCBBS OFFICE

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)

Specific Gravity:	<u>Sample 1</u>
Total Dissolved Solids:	1.108
pH:	151616
IONIC STRENGTH:	6.26
	3.127

<u>CATIONS:</u>		<u>me/liter</u>	<u>mg/liter</u>
Calcium	(Ca ⁺⁺)	440	8800
Magnesium	(Mg ⁺⁺)	420	5100
Sodium	(Na ⁺)	1830	42100
Iron (total)	(Fe ⁺⁺)	4.37	122
Barium	(Ba ⁺⁺)	0.022	1.50

<u>ANIONS:</u>			
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)

	<u>Temperature</u>	<u>Calcium</u>	<u>Calcium</u>
86°F	30°C	<u>Carbonate</u>	<u>Sulfate</u>
		-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)

Specific Gravity:	Sample 1
Total Dissolved Solids:	1.092
pH:	129452
IONIC STRENGTH:	6.60
	2.551

CATIONS:		me/liter	mg/liter
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 ₂ S)		0

SCALING INDEX (positive value indicates scale)

Temperature	Calcium	Calcium
95°F	Carbonate	Sulfate
30°C	0.27	-23

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JUN 04 1990

CCD
HOBBS OFFICE

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)

Specific Gravity:
Total Dissolved Solids:
pH:
IONIC STRENGTH:

Sample 1
1.167
234166
6.60
4.918

<u>CATIONS:</u>		<u>me/liter</u>	<u>mg/liter</u>
Calcium	(Ca ²⁺)	380	17600
Magnesium	(Mg ²⁺)	620	7530
Sodium	(Na ⁺)	2660	61200
Iron (total)	(Fe ²⁺)	1.99	55.7
Barium	(Ba ²⁺)	0.010	0.700
<u>ANIONS:</u>			
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)	4100	147000
<u>DISSOLVED GASES</u>			
Carbon Dioxide	(CO ₂)		230
Hydrogen Sulfide	(H ₂ S)		0

SCALING INDEX (positive value indicates scale)

<u>Temperature</u>		<u>Calcium</u>	<u>Calcium</u>
		<u>Carbonate</u>	<u>Sulfate</u>
86°F	30°C	1.6	3.3

Unichem International

707 North Leach

P.O. Box 1400

Hobbs, New Mexico 88240

Company : MERIDIAN OIL & GAS

Date : 10-20-1989

Location: DELAWARE FORMATION - STATE 16 #4 (on 10-16-1989)

Specific Gravity:

Sample 1

Total Dissolved Solids:

1.130

pH:

182494

IONIC STRENGTH:

6.00

3.802

CATIONS:

		me/liter	mg/liter
Calcium	(Ca ⁺⁺)	672	13400
Magnesium	(Mg ⁺⁺)	448	5440
Sodium	(Na ⁺)	2120	48600
Iron (total)	(Fe ⁺⁺)	1.04	29.0
Barium	(Ba ⁺⁺)	0.003	0.200

ANIONS:

Bicarbonate	(HCO ₃ ⁻)	3.00	183
Carbonate	(CO ₃ ⁻²)	0	0
Hydroxide	(OH ⁻)	0	0
Sulfate	(SO ₄ ⁻²)	16.7	800
Chloride	(Cl ⁻)	3220	114000

SCALING INDEX (positive value indicates scale)

<u>Temperature</u>		Calcium	Calcium
86°F	30°C	Carbonate	Sulfate
		0.39	-0.90

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JUN 04 1990

OCD
HOBBS OFFICE

Unichem International

707 North Leech

P.O. Box 1499

Hobbs, New Mexico 88240

Company: Canadian Oil & Gas

Date: 11-25-1987

Location: Wellcamp - State 16 #1; Treater (on 09-22-1987)

Specific Gravity:

Sample 1

Total Dissolved Solids:

1.121

pH:

10.9566

CATION STRENGTH:

4.44

3.484

CATIONS:

		mg/liter	mg/liter
Calcium	(Ca ²⁺)	530	11600
Magnesium	(Mg ²⁺)	380	4620
Sodium	(Na ⁺)	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
86°F 30°CCalcium Calcium
Carbonate Sulfate
-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)

Specific Gravity:	<u>Sample 1</u>
Total Dissolved Solids:	1.178
pH:	249093
IONIC STRENGTH:	5.84
	4.519

<u>CATIONS:</u>		<u>me/liter</u>	<u>mg/liter</u>
Calcium	(Ca ⁺⁺)	168	3360
Magnesium	(Mg ⁺⁺)	204	2480
Sodium	(Na ⁺)	3920	90200
Iron (total)	(Fe ⁺⁺)	2.39	66.8
Barium	(Ba ⁺⁺)	0.015	1.00
<u>ANIONS:</u>			
Bicarbonate	(HCO ₃ ⁻)	1.20	73.2
Carbonate	(CO ₃ ⁻²)	0	0
Hydroxide	(OH ⁻)	0	0
Sulfate	(SO ₄ ⁻²)	62.5	3000
Chloride	(Cl ⁻)	4230	150000

SCALING INDEX (positive value indicates scale)

<u>Temperature</u>	<u>Calcium</u>	<u>Calcium</u>
86°F 30°C	<u>Carbonate</u>	<u>Sulfate</u>
	-0.38	-0.47

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)

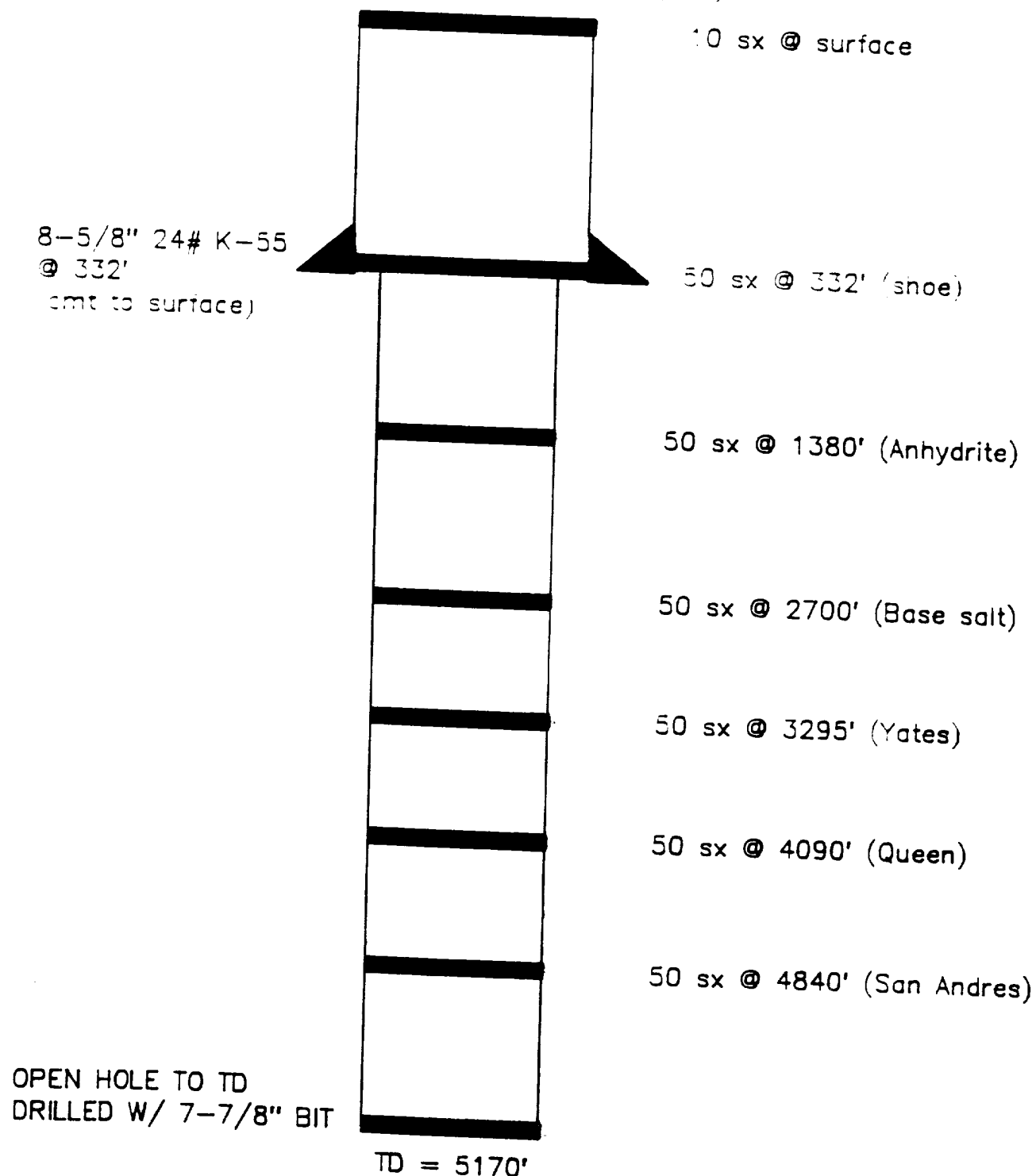
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WEST CORBIN FEDERAL #3

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)

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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)

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

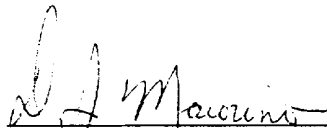
Reservoir Description

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 well-bore. 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.


Dennis J. Maiorino
Sr. Staff Geologist

DJM/pwh
WP+:274-053090

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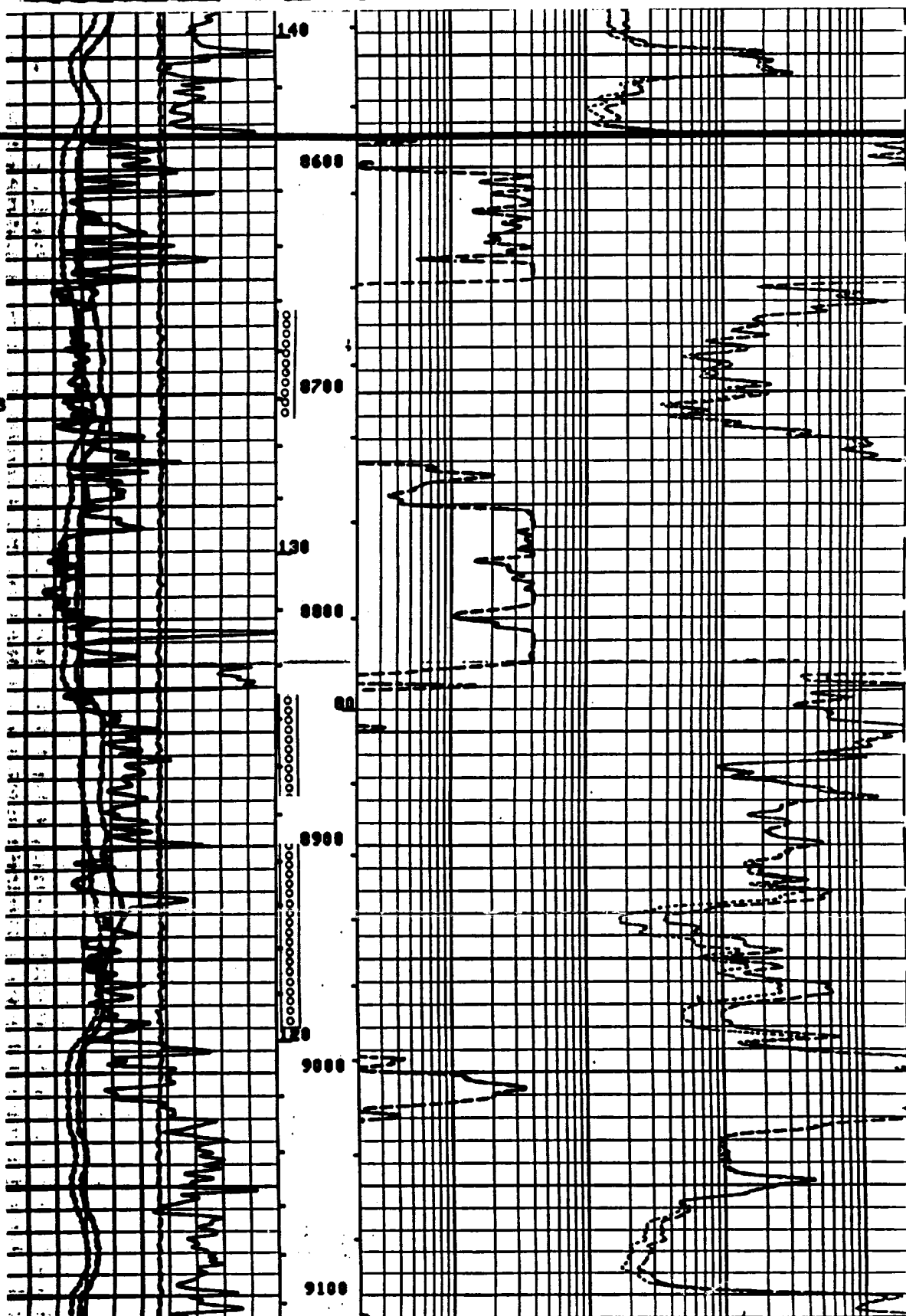
COMPENSATED NEUTRON - LITHO DENSITY

Perf 8900-8982
Acid w/8200 ga
Swbd 10 hrs
Rec. 154 BFW
and 41 BLW

8586

COMPANY	MERIDIAN OIL COMPANY		
WELL	WEST CORBIN FEDERAL #76		
FIELD	SOUTH CORBIN (WOLFCAMP)		
COUNTY	LEA	STATE	NEW MEXICO
LOCATION	800' PGL. & 1000' FEL.		
API SERIAL NO.	SECT.	TWP.	RANGE
	7	18S	33E
			Other Services DL/MFTL LSS

Permanent Data		DL	Rev.	2000.0 F		
Log Measured From		KL	7.0 F	above Perm. Datum		
Drilling Measured From		KL				
Date	05-NOV-98					
Item No.	ONE					
Depth Driller	11700.0 F					
Depth Logger (Seal)	11600.0 F					
Bot. Log Interval	11600.0 F					
Top Log Interval	12000.0 F					
Coring-Driller	9 5/8 @21000.0 F	● ●				
Coring-Logger	2000.0 F					
Bit Size	7 7/8					
Type Fluid In Hole	CUT WATER / POLYMER					
Visc.	8.00 LBS	25.0 S				
PH	8.5	10.0 CS				
Source of Sample	FIELD PT					
Run @ Water Temp.	150 DEGR	●	70.0 DEGR	●		
● Water Temp.	1500 DEGR	●	70.0 DEGR	●		
● / Water Temp.		●		●		
Seismic Run (Sec)	1500	●	70.0	●		
Run @ 0.017	1500 DEGR	●	70.0 DEGR	●		
Seismic Data	1500 @ 7.0					
Logger on Seismic	1500 LBS					
Bot. Sec. Temp.	150 DEGR					
Depth	1500	●	70.0	●		
Seismic By	JOHN BLANCHARD					



2ND
BONE SPRING
CARBONATE

Perf 8666-8712
Acid w/4600 gals
Swbd 9 hrs
Rec. 125 BFW w/NS

Perf 8832-8862
Acid w/3000 gals
Swbd 10 hrs
Rec. 156 BFW
and 84 BLW

Perf 8900-8982
Acid w/8200 gals
Swbd 10 hrs
Rec. 154 BFW
and 41 BLW

8586

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