



BEFORE THE
OIL CONSERVATION DIVISION
Santa Fe, New Mexico

Oil Conservation Division
Engineering Bureau
2040 Pacheco St.
Santa Fe, New Mexico 87505

Case No. 11784 Exhibit No. 1

Submitted by: Layton Enterprises Inc.

Attn: Mr. David Catanach

Hearing Date: June 12, 1997

Dear Sir:

We are in the process of submitting Form C-108, Application for Authorization to Inject, for our Fox A State No. 5 well located in the SENW 4, Sec. 2, Twp. 9S, Rge. 36E, Lea County, N.M. in the Allison Penn Pool. Because of a unique situation in this well, we request a hearing be set for the May 1997 docket.

The proposed well was drilled in 1991 to test the Devonian zone. The initial test was 100% water as were two subsequent workover attempts. In the interim the well was completed in the Bough C Penn zone, but after a test period of several months the zone was abandoned as uneconomic.

The Bough C Penn zone is in a state of near total depletion due to the extremely low bottom hole pressure. Within the proposed project area in the southern end of the Allison Field there are only seven producing wells remaining. All are small marginal wells and are at or very near economic limit, subject to abandonment.

The project area of approximately 1800 acres has produced 5.4 MMBO plus an estimated 4 MMBW and 7 MMCFG. Sufficient reservoir data is not available to make an accurate volumetric calculation. However, since the primary producing mechanism appears to be solution-gas, with a possible assist from connate water expansion, it is reasonable to assume that oil recovery to date would not exceed 25% of original oil in place. Therefore, a successful secondary recovery attempt projected to recover an additional 10% of original oil in place would recover 2 MMBO which would otherwise not be produced.

The sizable void space in the reservoir will require a prolific and inexpensive water source to accomplish fill up. The only water currently available is a small amount of produced water (1350 BD) currently being disposed in another Bough C well. The only adequate source available is from the Devonian zone.

April 25, 1997

Page 2

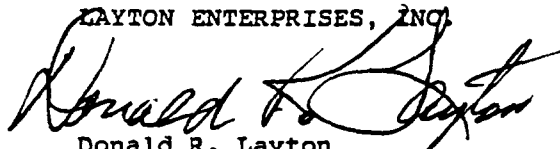
Since the Bough C zone is capable of accepting adequate volumes of water by gravity pressure, it follows that injection can be accomplished by completing both zones in the same well bore and utilizing the higher pressure and volume from the Devonian zone.

We propose to complete the injection well in both the Bough C and Devonian zones with tubing and packer set above the Bough C zone. This will allow the higher pressure Devonian water to flow into the Bough C zone. This flow, supplemented with available produced water, is expected to effect our desired rate of 2000 to 2500 BWPD. Following the anticipated successful performance of this well and the pilot area, we intend to re-complete two additional combination wells which are available in the project area.

Our application on Form C-108 with the required information and data will follow shortly. We will appreciate your placing our hearing on the May docket.

Very truly yours,

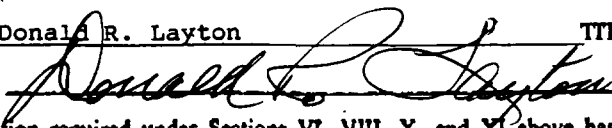
LAYTON ENTERPRISES, INC.

A handwritten signature in dark ink, appearing to read "Donald R. Layton", is written over the typed name and title.

Donald R. Layton
President

DRL/bwl

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ Yes ☒ No
- II. OPERATOR: LAYTON ENTERPRISES, INC.
ADDRESS: 3103 79th St. LUBBOCK, TEXAS 79423
CONTACT PARTY: Donald R. Layton PHONE: 806/745-4638
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed 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 sources 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: Donald R. Layton TITLE: President
SIGNATURE:  DATE: 5-5-97
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office



May 5, 1997

CERTIFIED MAIL

State of New Mexico
Commissioner of Public Lands
Oil, Gas, and Minerals Division
310 Old Santa Fe Trail
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

Devon Energy Corporation
20 North Broadway, Suite 1500
Oklahoma City, OK 73102-8260

Yates Petroleum Corp.
105 South Fourth Street
Artesia, New Mexico 88210

Discovery Operating, Inc.
800 N. Marienfeld, Suite 100
Midland, Texas 79701

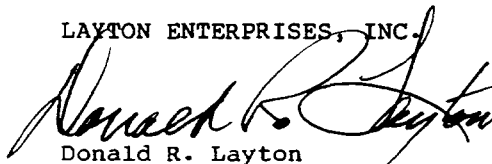
Re: Application for Injection
Fox A State No. 5
Allison Penn Field
Lea County, New Mexico

Gentlemen:

In accordance with the rules of the Oil Conservation Division, attached is a copy of the subject application as notification to you as surface owner or offset leaseholder.

Very truly yours,

LAYTON ENTERPRISES, INC.


Donald R. Layton
President

P 588 187 910

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to NEW MEXICO	
Street & Number PO BOX 1148 310 AF6	
Post Office, State, & ZIP Code SANTA FE, N.M. 87504-1148	
Postage	\$ 78
Certified Fee	110
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ 188
Postmark or Date	

PS Form 3800, April 1995

P 588 187 911

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to VATES PETROLEUM CORP.	
Street & Number 105 S. 4TH ST	
Post Office, State, & ZIP Code ARTESIA, N.H. 88210	
Postage	\$ 78
Certified Fee	110
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ 188
Postmark or Date	

PS Form 3800, April 1995

P 588 187 912

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
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Sent to DEVON ENERGY CORP.	
Street & Number 30 N. BROADWAY, STE 1500	
Post Office, State, & ZIP Code OKLA. CITY, OK 73102-8260	
Postage	\$ 78
Certified Fee	110
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ 188
Postmark or Date	

PS Form 3800, April 1995

P 588 187 913

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to DISCOVERY OPERATING	
Street & Number 800 N. MARIENFELD, STE 100	
Post Office, State, & ZIP Code MIDLAND TX 79701	
Postage	\$ 78
Certified Fee	110
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ 188
Postmark or Date	

PS Form 3800, April 1995

FORM C-108 — RESPONSE TO QUESTIONS — SIDE 1:

- VII. 1. 2000-2500 BHPD est. initial rate
1000-1500 BHPD after stabilization
2. Closed System
3. Gravity Pressure
4. See Attached Analyses.

VIII. Geological Data

The Bough C Pennsylvania Zone occurs at a depth of 9650 (-5576) with a gross thickness of 25 to 30 feet. It is a stratigraphic trap consisting of a series of algal mounds or mats resting on a gently southwest dipping surface. The zone is comprised of a fine crystalline, tan and gray vuggy limestone carrying late Cisco fossils confirming that it is Pennsylvanian in age. The limited core data indicates net thickness of 10-15 ft., porosity 10-12% and permeability of 200 md. Estimates of original oil in place are 40-65%. The trap is controlled by up-dip porosity pinchout. Barren areas can occur within the field as a result of inter-mound locations.

The only known freshwater source in the area is a small well located in the SWSE¼ of Section 2 at a depth of approximately 200 feet, apparently Ogallala.

- IX. 500 Gal 15% HCl acid wash on each zone
- X. Last production test August 1996
0.2 BOPD — 15 BHPD — 4 MCFD
- XI. See Attached Analysis.

TABULATION OF DATA ON ALL C WELLS OF PUBLIC RECORD
IN THE AREA OF REVIEW - PARAGRAPH VI OF C-108

LAYTON ENTERPRISES INC.
FOX A STATE #1

UNIT F SEC 2, T9S, R36E

DRILLED JUNE 1961

CSG: $13\frac{3}{8}"$ @ 360 w/ 325 SX
 $8\frac{5}{8}"$ @ 4245 w/ 2520 SX
 $4\frac{1}{2}"$ @ 9725 w/ 500 SX

PERFS: 9651-63

PRODUCING

LAYTON ENTERPRISES, INC.
FOX A STATE #2

UNIT H SEC 2, T9S, R36E

DRILLED MAY 1959

CSG: $13\frac{3}{8}"$ @ 360 w/ 400 SX
 $8\frac{5}{8}"$ @ 4166 w/ 1700 SX
 $5\frac{1}{2}"$ @ 9815 w/ 700 SX

PERFS: 9644-54

PRODUCING

LAYTON ENTERPRISES, INC.
FOX A STATE #3

UNIT N SEC 2, T9S, R36E

DRILLED JULY 1959

CSG: $13\frac{3}{8}"$ @ 450 w/ 950 SX
 $9\frac{5}{8}"$ @ 4200 w/ 3000 SX
 $5\frac{1}{2}"$ @ 9809 w/ 600 SX

PERFS: 9675-89

PRODUCING

LAYTON ENTERPRISES, INC.
FOX A STATE #4

UNIT B SEC 2, T9S, R36E

DRILLED AUGUST 1958

CSG: $13\frac{3}{8}"$ @ 358 w/ 400 SX
 $8\frac{5}{8}"$ @ 4104 w/ 1700 SX
PBTD $5\frac{1}{2}"$ @ 5970 w/ 1000 SX
SHUT IN

COASTAL STATES PROD. UNIT D SEC 2, T9S, R36E
LEA STATE #2 DRILLED NOVEMBER 1961

Csg. $13\frac{3}{8}"$ @ 366 w/ 300 sx
 $8\frac{5}{8}"$ @ 4140 w/ 1590 sx
 $5\frac{1}{2}"$ @ 9784 w/ 600 sx

CEMENT PLUGS: 25 sx @ 9750

PERFS: 9758-62 25 sx @ 4012
10 sx @ SURFACE

P & A APRIL 1967

CACTUS DRILLING
JUNRAY STATE A #1

UNIT B SEC 2, T9S, R36E
DRILLED AUGUST 1958

Csg: $13\frac{3}{8}"$ @ 358 w/ 400 sx
 $8\frac{5}{8}"$ @ 4104 w/ 1700 sx
 $5\frac{1}{2}"$ @ 9840 w/ 500 sx

PERFS: 9668-78

PULLED 6000' OF $5\frac{1}{2}"$

CEMENT PLUGS: 15 sx @ 9668
25 sx @ 6050
25 sx @ 4175

P & A APRIL 1965 10 sx @ SURFACE

ADA OIL CO.
ADAMS STATE #1

UNIT M SEC 2, T9S, R36E
DRILLED MARCH 1955

Csg: $13\frac{3}{8}"$ @ 357 w/ 350 sx
 $8\frac{5}{8}"$ @ 4166 w/ 2000 sx
 $5\frac{1}{2}"$ @ 9730 w/ 200 sx

OPEN HOLE: 9730-60

PULLED 4175' $5\frac{1}{2}"$

BRIDGE PLUG: 9700 w/ 50' CEMENT

CEMENT PLUGS: 25 sx @ 4175
10 sx @ SURFACE

P & A OCTOBER 1962

MARATHON
STATE E 6859 #1

UNIT O SEC 2 T9S R36E
DRILLED JULY 1959
CSG: 16" @ 384 w/ 710 SX
10 $\frac{3}{4}$ " @ 4175 w/ 1900 SX
7" @ 9730 w/ 900 SX
PERFS: 9690-95
PULLED 4750' OF 7"
CEMENT PLUGS: 40 SX @ 9700
20 SX @ 4750
40 SX @ 4172
10 SX @ SURFACE
P & A JANUARY 1967

GULF OIL CORP.
CORDE FED. #1

UNIT N SEC 35 T8S R36E
DRILLED DECEMBER 1959
CSG: 13 $\frac{3}{8}$ " @ 394 w/ 450 SX
8 $\frac{5}{8}$ " @ 4249 w/ 2400 SX
5 $\frac{1}{2}$ " @ 9810 w/ 425 SX
PERFS: 9714-30
PULLED 3450' OF 5 $\frac{1}{2}$ "
BRIDGE PLUG: 9682 w/ 25 SX
CEMENT PLUGS: 30 SX @ 4248
35 SX @ 3500
50 SX @ SURF
P & A JANUARY 1968

SCHEMATIC OF P.A. WELLS IN AREA OF REVIEW

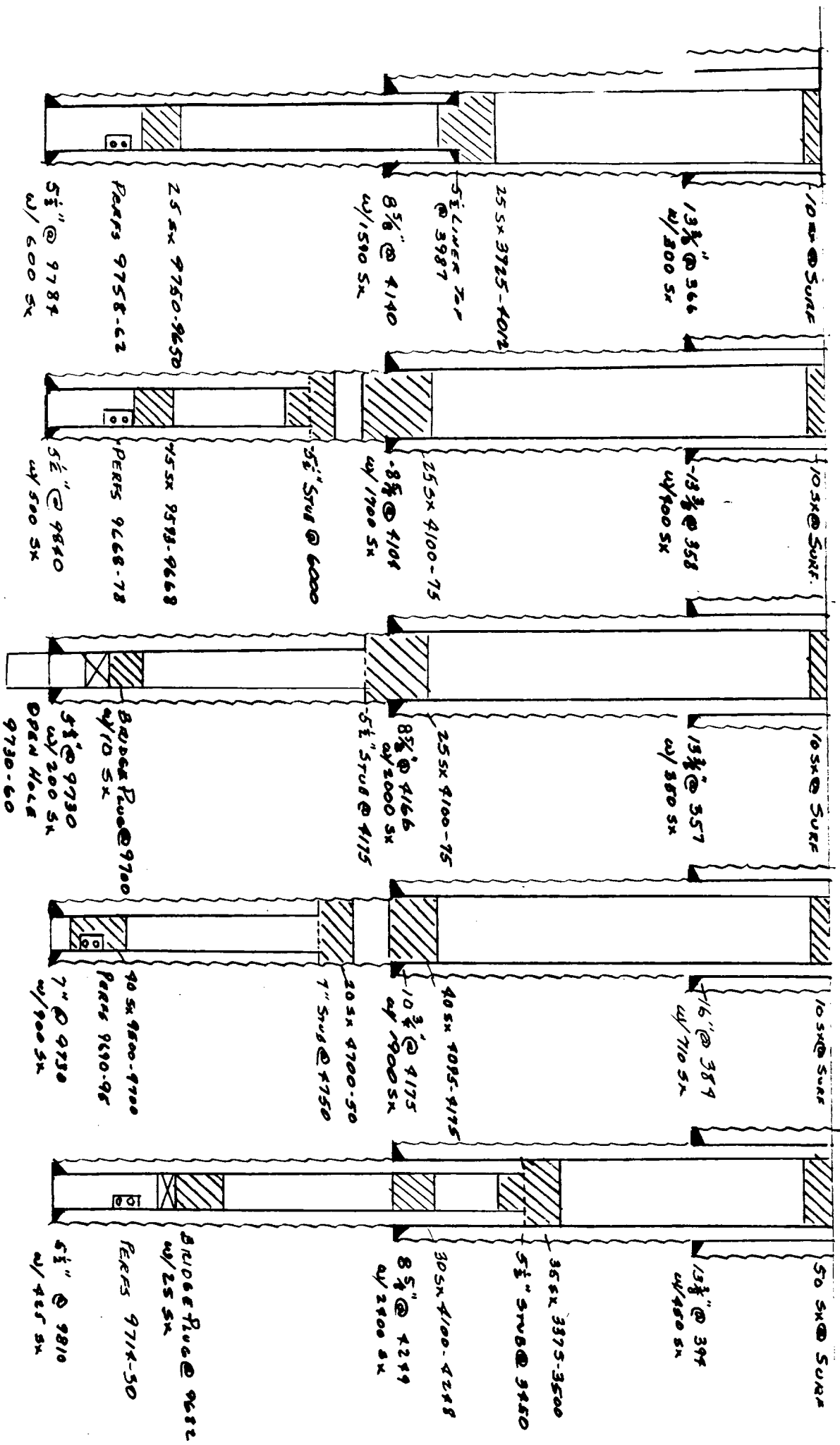
CONATAL STATES
LEO STATE #2
UNIT D
SEE 2, T95, R36E

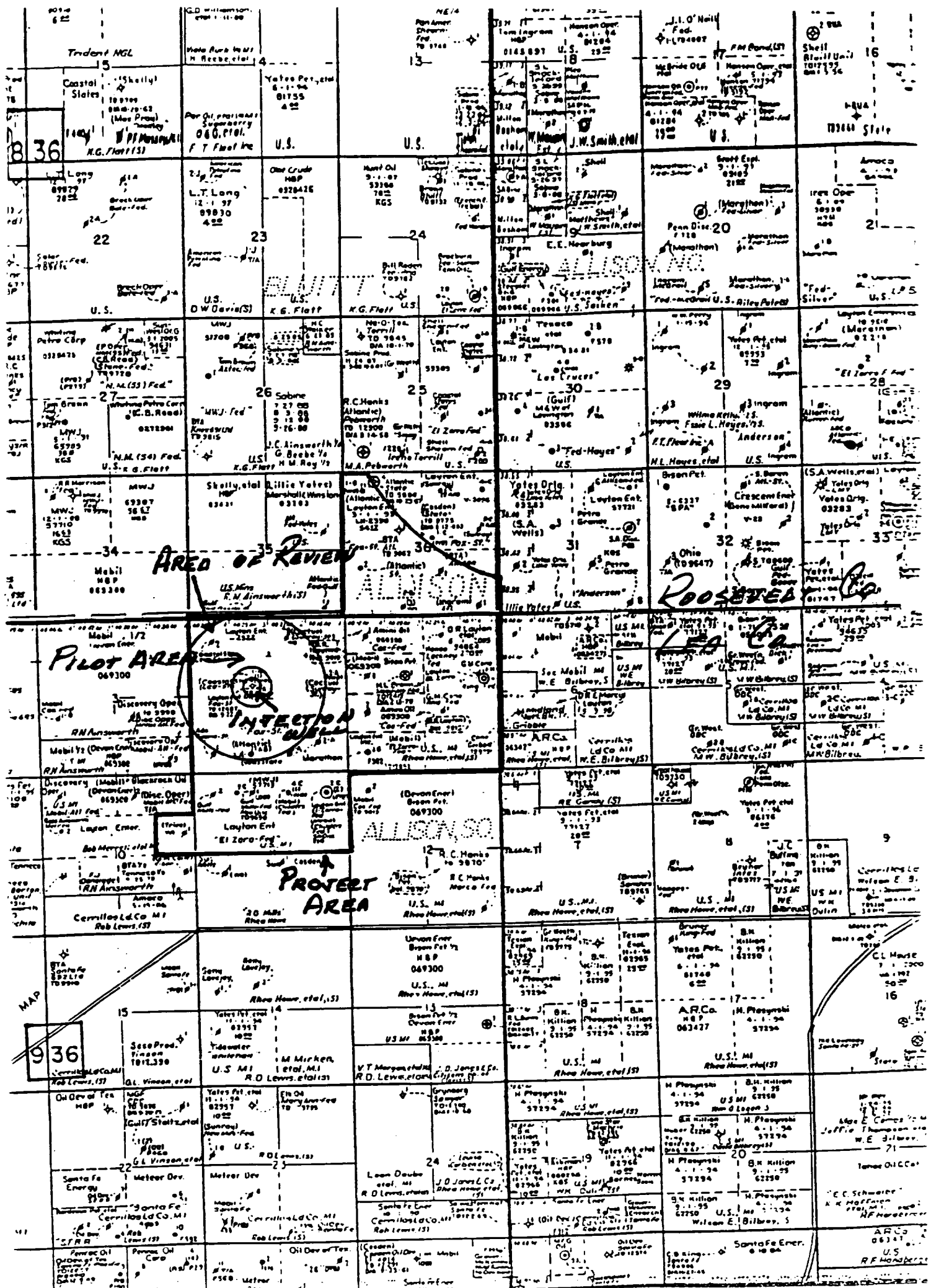
CAETUS DRILLING
SUNRAY STATE #1
UNIT B
SEE 2, T95, R36E

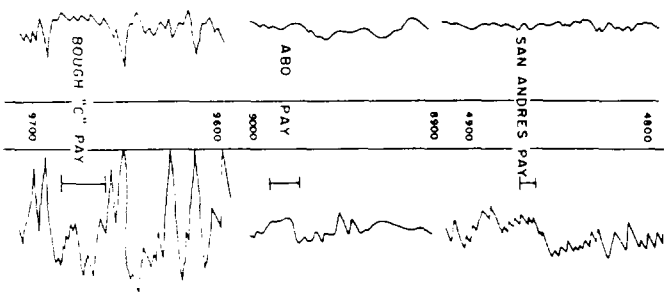
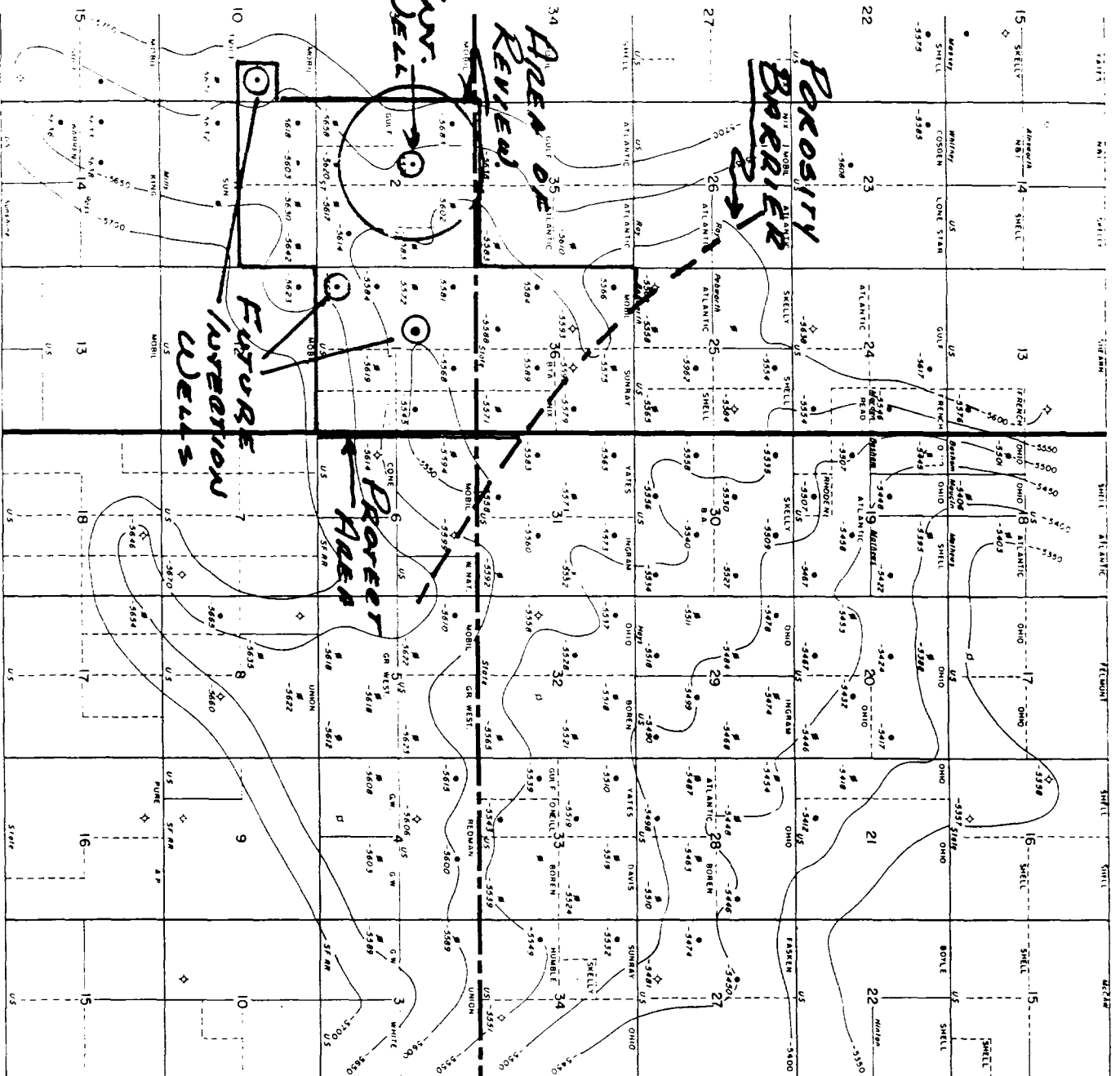
ADA OIL Co.
ADAMS STATE #1
UNIT M
SEE 2, T95, R36E

MARATHON
STATE E 6859 #1
UNIT O
SEE 2, T95, R36E

GULF OIL CORP
GOOD E 6859 #1
UNIT N
SEE 35, T85, R36E







ALLISON FIELD

LEA & ROOSEVELT COS. N.M.

STRUCTURAL

BOUCH

CONTOUR INTERVAL 50'

Scale in Miles

APRIL 1966

This geological cross-section is plotted on a grid with elevation in feet on the vertical axis. The vertical scale is marked at 1200, 1300, 1400, 1500, and 1600 feet. The section is divided into two main units: the Bouch C formation and the Devonian formation. The Bouch C formation is located between approximately 1200 and 1400 feet and is characterized by a series of horizontal, slightly wavy lines. The Devonian formation is located below the Bouch C formation, starting around 1400 feet and extending down to 1600 feet. It is characterized by a series of more pronounced, wavy, and irregular lines. A prominent fault line is visible, dipping from the left towards the right, separating the Bouch C formation from the Devonian formation. The fault line is marked with a jagged, sawtooth pattern. The Bouch C formation is labeled 'BOUCH C' in large, bold, capital letters. The Devonian formation is labeled 'DEVONIAN' in large, bold, capital letters. The cross-section shows a complex geological structure with various layers and faults.

InterChem

(915) 550-7027 - 3803 Mankins - Odessa, Tx. 79763

WATER ANALYSIS REPORT

SAMPLE

1 Co. : Layton Enterprises
 Lease : Fox A
 Well No.: State #1 BOUGH C
 Analysis:

Sample Loc. :
 Date Sampled : 29-April-1991
 Attention :
 Chemical Co. : Pro-Kem, Inc.

ANALYSIS

1. pH 5.700
2. Specific Gravity 60/60 F. 1.068
3. CaCO₃ Saturation Index @ 80 F. -1.033
 @ 140 F. -0.108

Dissolved Gasses

4. Hydrogen Sulfide Not Present
5. Carbon Dioxide Not Determined
6. Dissolved Oxygen Not Determined

Cations

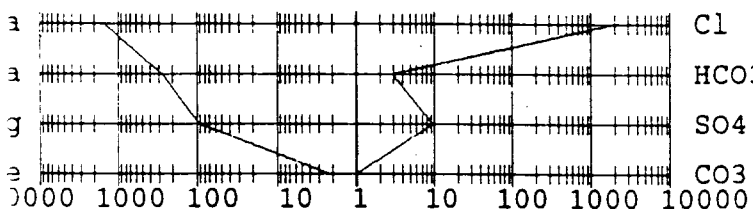
- | | | | |
|---|----------------|----------|----------|
| 7. Calcium (Ca ⁺⁺) | 5,210 | / 20.1 = | 259.20 |
| 8. Magnesium (Mg ⁺⁺) | 1,094 | / 12.2 = | 89.67 |
| 9. Sodium (Na ⁺) (Calculated) | 34,373 | / 23.0 = | 1,494.48 |
| 10. Barium (Ba ⁺⁺) | Not Determined | | |

Anions

- | | | | |
|--|------------|----------|----------|
| 11. Hydroxyl (OH ⁻) | 0 | / 17.0 = | 0.00 |
| 12. Carbonate (CO ₃ ²⁻) | 0 | / 30.0 = | 0.00 |
| 13. Bicarbonate (HCO ₃ ⁻) | 169 | / 61.1 = | 2.77 |
| 14. Sulfate (SO ₄ ²⁻) | 450 | / 48.8 = | 9.22 |
| 15. Chloride (Cl ⁻) | 64,985 | / 35.5 = | 1,830.56 |
| 16. Total Dissolved Solids | 106,281 | | |
| 17. Total Iron (Fe) | 39 | / 18.2 = | 2.14 |
| 18. Total Hardness As CaCO ₃ | 17,516 | | |
| 19. Resistivity @ 75 F. (Calculated) | 0.083 /cm. | | |

LOGARITHMIC WATER PATTERN *meq/L.

PROBABLE MINERAL COMPOSITION COMPOUND EQ. WT. X *meq/L = mg/L.



Calcium Sulfate Solubility Profile



Cl	Ca(HCO ₃) ₂	81.04	2.77	224
HCO ₃	CaSO ₄	68.07	9.22	628
SO ₄	CaCl ₂	55.50	247.22	13,721
CO ₃	Mg(HCO ₃) ₂	73.17	0.00	0
	MgSO ₄	60.19	0.00	0
	MgCl ₂	47.62	89.67	4,270
	NaHCO ₃	84.00	0.00	0
	NaSO ₄	71.03	0.00	0
	NaCl	58.46	1,493.67	87,320

*Milli Equivalents per Liter

This water is somewhat corrosive due to the pH observed on analysis.
 The corrosivity is increased by the content of mineral salts in solution.

Oilfield Solutions, Inc.
2814 S.C.R. 1257, Midland, Tx. 79706

WATER ANALYSIS REPORT

Company: Layton Enterprises
Location: Fox A State #5
Source: Well Head
Date Sampled: April 29, 1997

DEVONIAN

Sampled By:
Analysis Date:
Salesman: Chem Tech Services, Inc.
 May 5, 1997
 Dick Tubb

ANALYSIS	mg/L	EQ. WT.	MEQ/L
1. pH	6.25		
2. Specific Gravity 60/60 f.	1.047		
3. Hydrogen Sulfide	0 PPM		
4. Carbon Dioxide	Not Determined		
5. Dissolved Oxygen	Not Determined		
6. Hydroxyl (OH-)	0 /	17.0 =	0.00
7. Carbonate (CO3=)	0 /	30.0 =	0.00
8. Bicarbonate (HCO3-)	526 /	61.1 =	8.59
9. Chloride (Cl-)	39,991 /	35.5 =	1,126.51
10. Sulfate (SO4=)	1,450 /	48.8 =	29.71
11. Calcium (Ca++)	2,808 /	20.1 =	139.60
12. Magnesium (Mg++)	1,216 /	12.2 =	99.67
13. Sodium (Na+)	21,267 /	23.0 =	925.54
14. Barium (Ba++)	Not Determined		
15. Total Iron (Fe)	2.00		
16. Dissolved Solids	67.276		
17. Filterable Solids	0.00		
18. Total Solids	67.275		
19. Total Total Hardness As CaCO3	12,011		
20. Suspended Oil	0		
21. Volume Filtered (ml)	0		
22. Resistivity @ 75 F. (calculated)	0.117 /cm.		
23. CAC03 Saturation Index			
@ 80 F.	-0.4191		
@ 100 F.	-0.1091		
@ 120 F.	0.1509		
@ 140 F.	0.5109		
@ 160 F.	0.8509		
24. Calcium Sulfate solubility @ 90 F.	3.651 mg/L		

PROBABLE MINERAL COMPOSITION			
COMPOUND	EQ. WT.	X	MEQ/L
Ca(HCO3)2	81.04	8.59	898
CaSO4	68.07	29.71	2,022
CaCl2	55.50	101.30	5,622
Mg(HCO3)2	73.17	0.00	0
MgSO4	60.19	0.00	0
MgCl2	47.62	99.67	4,746
NaHCO3	84.00	0.00	0
NaSO4	71.03	0.00	0
NaCl	58.44	925.54	54,107

Chemist: _____

INJECTION WELL DATA SHEET

LAYTON ENTERPRISES, INC.

FOX "A" STATE

OPERATOR

LEASE

5

2310' FNL

2070' FNL

2

9S

36E

WELL NO.

FOOTAGE LOCATION

SECTION

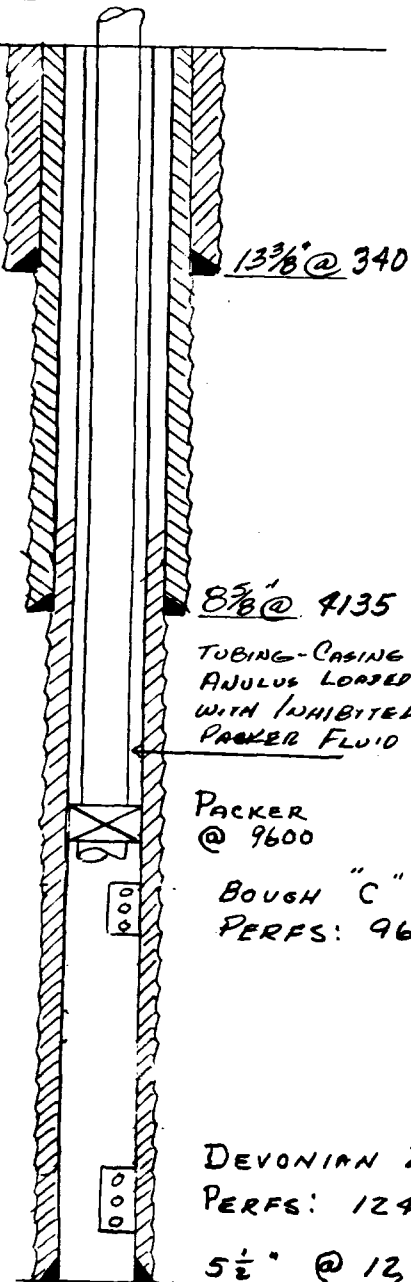
TOWNSHIP

RANGE

LEA COUNTY, NEW MEXICO

Schematic

Tabular Data



Surface Casing

Size 13 3/8 " Cemented with 350 sx.TOC SURFACE feet determined by CIRCULATIONHole size 17 1/2 "

Intermediate Casing

Size 8 5/8 " Cemented with 1700 sx.TOC SURFACE feet determined by CIRCULATIONHole size 11 "

Long string

Size 5 1/2 " Cemented with 2000 sx.TOC 4000 feet determined by CALCULATIONHole size 7 7/8 "Total depth 12,511

Injection interval

9648 feet to 9658 feet
(perforated or open-hole, indicate which)Tubing size 2 7/8 lined with RICE ENGR. FIBERGLASS DUO-LINE set in a
(material)BAKER LOK-SET (PLASTIC COATED) packer at 9600 feet
(brand and model)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation BOUGH "C" (PENN)2. Name of Field or Pool (if applicable) ALLISON PENN3. Is this a new well drilled for injection? ☐ Yes ☒ NoIf no, for what purpose was the well originally drilled? OIL PRODUCTION

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)

SAN ANDRES 7165-66, SQZ 300 SX, 5300-01, SQZ 150 SX; BOUGH D
9765-76 SQZ 300 SX; MORROW 11,978-88, SQZ 100 SX.

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

8950 - ABO4800 - SAN ANDRES