

NEW MEXICO OIL CONSERVATION COMMISSION

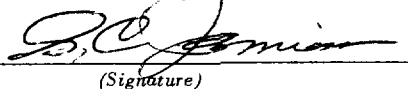
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Continental Oil Company		ADDRESS Box 460, Hobbs, New Mexico	
LEASE NAME Lockhart B-13A	WELL NO. 4	FIELD Terry-Blaine	COUNTY Lea
LOCATION UNIT LETTER K ; WELL IS LOCATED 1980 FEET FROM THE South LINE AND 1980 FEET FROM THE West LINE, SECTION 13 TOWNSHIP 21S RANGE 37E NMMP.			

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	10 3/4"OD	256'	250	surface	circ.
INTERMEDIATE	7 5/8"OD	3149'	1045'	585'	Temp. Survey
LONG STRING	5 1/2"OD	6049'	520	3038'	Temp. Survey
TUBING	2 3/8"OD	4475'	NAME, MODEL AND DEPTH OF TUBING PACKER Baker Tension Model AD or equivalent @ 4475'		
NAME OF PROPOSED INJECTION FORMATION San Andres			TOP OF FORMATION 4108'		BOTTOM OF FORMATION 5305'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLES? Perfs.	PROPOSED INTERVAL(S) OF INJECTION 4510-70', 4610'-50', 4955-95', 5045-5125'		
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Producing Oil Well		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? Yes		
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH Set C.I. Bridging Plug @ 5150' Capped w/l sack cement					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 200'		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA 5679 T/Blaine	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.) 250	MINIMUM 525	MAXIMUM 525	OPEN OR CLOSED TYPE SYSTEM closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity	APPROX. PRESSURE (PSI) 0
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE - Yes		WATER TO BE DISPOSED OF Yes		NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? Yes
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Eva Mae Tousaint, Wayne C. Stephens, Frances Marion Stephens, Jr. & William O. Stephens, Box 115, Eunice, New Mexico					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Gulf Oil Corp. Drawer 1938, Roswell, New Mexico					
Western Oil Fields, Box 1147, Hobbs, New Mexico					
Mobil Oil Company, Box 1800, Hobbs, N.M.					
50 JUL 25 PM 2 00					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? Yes	SURFACE OWNER Yes		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes		THE NEW MEXICO STATE ENGINEER No
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) Yes	PLAT OF AREA Yes		ELECTRICAL LOG Yes		DIAGRAMMATIC SKETCH OF WELL Yes

I hereby certify that the information above is true and complete to the best of my knowledge and belief.



Assistant Division Manager

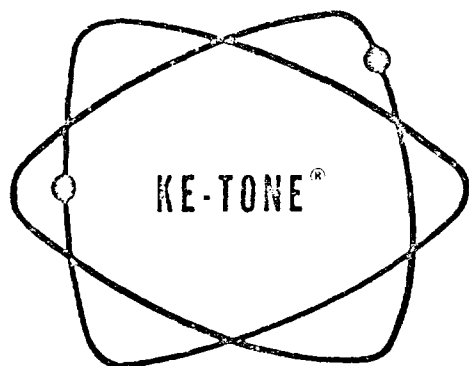
7-23-68

(Signature)

(Title)

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well. not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.



UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil Company

Field _____

Lease Wantz-Hare #1Sampling Date 11/30/67Type of Sample Separators

WATER ANALYSIS

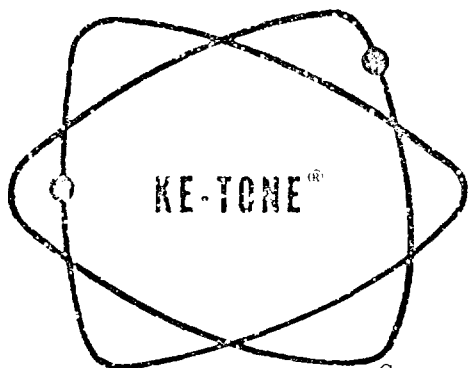
IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	471.06	9440
Magnesium (Mg++)	162.10	1971
Sodium (Na+) (calculated)	1586.01	36,462
Iron		82
Bicarbonate (HCO ₃ -)	1.10	67
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH -)	NOT	FOUND
Sulphate (SO ₄ -)	35.30	1700
Chloride (Cl -)	2182.68	77,400
6.1 ^{ph c} 68 ^{°F}		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	633.16	31,658
Carbonate Hardness as CaCO ₃ (temporary)	1.10	55
Non-Carbonate Hardness as CaCO ₃ (permanent)	532.06	31,603
Alkalinity as CaCO ₃	1.10	55
Specific Gravity c 68° F		

MOORE BUSINESS FORMS INC.

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

Makes Water Work



UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil CompanyField Burnham FieldLease Hawk B-3Sampling Date 7/5/68

Type of Sample _____

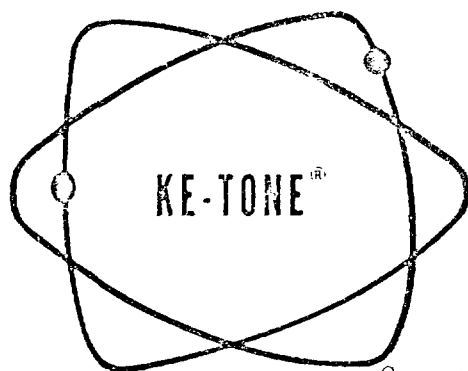
WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	369.26	7400
Magnesium (Mg++)	114.23	1389
Sodium (Na+) (cal.)	1532.74	35,238
Bicarbonate (HCO ₃)	1.80	109
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	29.15	1400
Chloride (Cl-)	1985.28	70,400
6.7 pH @ 68 ° F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	483.49	24,175
Carbonate Hardness, as CaCO ₃ (temporary)	1.80	90
Non-Carbonate Hardness as CaCO ₃ (permanent)	481.69	24,085
Alkalinity as CaCO ₃	1.80	90
Specific Gravity @ 68° F	1.080	

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UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil CompanyField Tubb
Block B-13 No. 7Lease Hawk B-9Sampling Date 7/5/68

Type of Sample _____

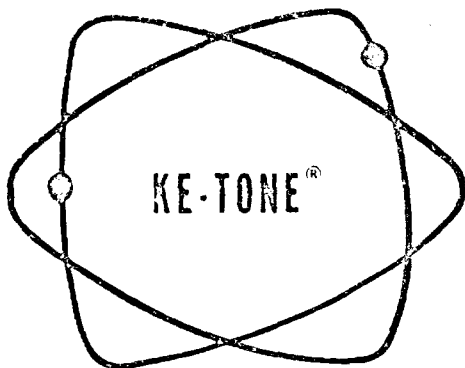
WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	542.91	10,880
Magnesium (Mg++)	254.20	3091
Sodium (Na+) (cal.)	2587.99	59,498
Bicarbonate (HCO ₃)	3.80	231
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	25.50	1225
Chloride (Cl-)	3355.80	119,000
6.3 pH ° @ 68 ° F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	797.11	39,856
Carbonate Hardness, as CaCO ₃ (temporary)	3.80	190
Non-Carbonate Hardness as CaCO ₃ (permanent)	793.31	39,666
Alkalinity as CaCO ₃	3.80	190
Specific Gravity @ 68° F	1.125	

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* me/l = millicivalents per Liter

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# UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil Company  
Field Terry Blinberry  
Lease Lockhart B-13 Sampling Date 11/30/67  
Type of Sample Separators

## WATER ANALYSIS

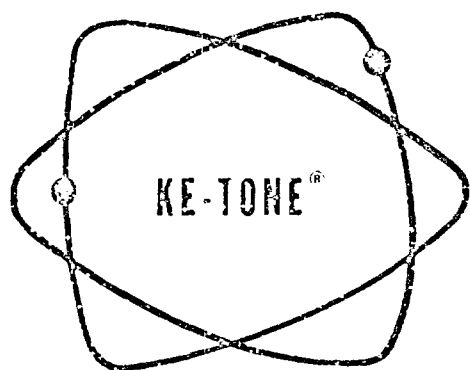
| IONIC FORM                                              | me/l *  | mg/l *  |
|---------------------------------------------------------|---------|---------|
| Calcium (Ca++)                                          | 798.40  | 16,000  |
| Magnesium (Mg++)                                        | 442.12  | 5376    |
| Sodium (Na+) (calculated)                               | 4360.58 | 100,250 |
| Iron (dissolved;iron)                                   |         |         |
| Bicarbonate (HCO <sub>3</sub> )                         | 2.20    | 134     |
| Carbonate (CO <sub>3</sub> -)                           | NOT     | FOUND   |
| Hydroxide (OH-)                                         | NOT     | FOUND   |
| Sulphate (SO <sub>4</sub> -)                            | 15.30   | 735     |
| Chloride (Cl-)                                          | 5583.60 | 198,000 |
| 6.6h c 68 °F                                            |         |         |
| Dissolved Solids on Evap. at 103° - 105° C              |         |         |
| Hardness as Ca CO <sub>3</sub>                          | 1240.52 | 62,026  |
| Carbonate Hardness as CaCO <sub>3</sub> (temporary)     | 2.20    | 110     |
| Non-Carbonate Hardness as CaCO <sub>3</sub> (permanent) | 1238.32 | 61,916  |
| Alkalinity as CaCO <sub>3</sub>                         |         |         |
| Specific Gravity c 68° F 1.210                          |         |         |

MOORE BUSINESS FORMS INC.

\* mg/l = milligrams per Liter

\* me/l = milliequivalents per Liter

*Makes Water Work*



# UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil CompanyField BlaineberryLease Lockhart Sampling Date 11/30/67Type of Sample Separators

## WATER ANALYSIS

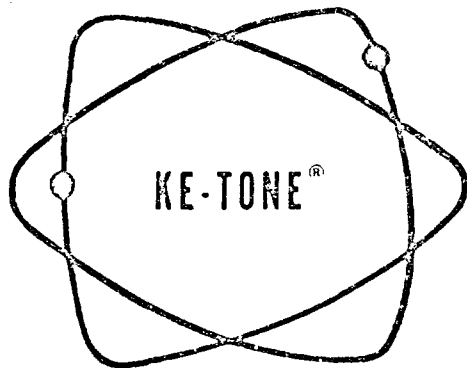
| IONIC FORM                                              | me/l *  | mg/l *  |
|---------------------------------------------------------|---------|---------|
| Calcium (Ca++)                                          | 459.08  | 9200    |
| Magnesium (Mg++)                                        | 257.90  | 3136    |
| Sodium (Na+) (calculated)                               | 2358.42 | 53,990  |
| Iron                                                    |         | I.W.    |
| Bicarbonate (HCO <sub>3</sub> -)                        | 2.20    | 134     |
| Carbonate (CO <sub>3</sub> -)                           | NOT     | FOUND   |
| Hydroxide (OH-)                                         | NOT     | FOUND   |
| Sulphate (SO <sub>4</sub> -)                            | 45.80   | 2200    |
| Chloride (Cl-)                                          | 3017.40 | 107,900 |
| 6.7 <sup>ph</sup> c 68°F                                |         |         |
| Dissolved Solids on Evap. at 103° - 105° C              |         |         |
| Hardness as Ca CO <sub>3</sub>                          | 716.98  | 35,849  |
| Carbonate Hardness as CaCO <sub>3</sub> (temporary)     | 2.20    | 110     |
| Non-Carbonate Hardness as CaCO <sub>3</sub> (permanent) | 714.78  | 35,739  |
| Alkalinity as CaCO <sub>3</sub>                         | 2.20    | 110     |
| Specific Gravity c 68° F I. W.                          |         |         |

MOORE BUSINESS FORMS INC.

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\* me/l = milliequivalents per Liter

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UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil Company

Field Drinkard

Lease Lockhart B-11 Sampling Date 11/30/67

Type of Sample Separators

WATER ANALYSIS

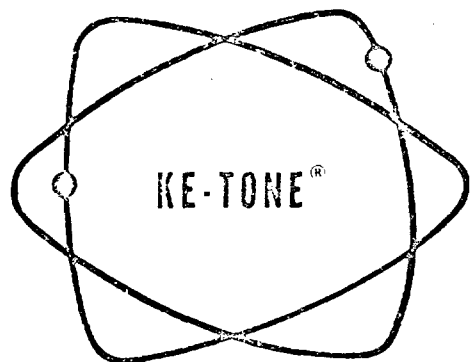
| IONIC FORM | me/l ¹⁰⁰⁰ | mg/l ¹⁰⁰⁰ |
|---|----------------------|----------------------|
| Calcium (Ca++) | 618.76 | 12,400 |
| Magnesium (Mg++) | 239.48 | 2912 |
| Sodium (Na+) (calculated) | 3286.13 | 75,548 |
| Iron | | 328 |
| Bicarbonate (HCO ₃) | 0.10 | 6 |
| Carbonate (CO ₃ -) | NOT | FOUND |
| Hydroxide (OH-) | NOT | FOUND |
| Sulphate (SO ₄ -) | 27.07 | 1300 |
| Chloride (Cl-) | 4117.20 | 146,000 |
| 5.7 ph c 68 °F | | |
| Dissolved Solids on Evap. at 103° - 105° C | | |
| Hardness as Ca CO ₃ | 858.24 | 42,912 |
| Carbonate Hardness as CaCO ₃ (temporary) | .10 | 5 |
| Non-Carbonate Hardness as CaCO ₃ (permanent) | 858.14 | 42,907 |
| Alkalinity as CaCO ₃ | .10 | 5 |
| Specific Gravity c 68° F 1.155 | | |

MOORE BUSINESS FORMS INC. L

* mg/l = milligrams per Liter

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Makes Water Work



UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil CompanyField ABOLease Lockhart B 11 #17 Sampling Date 12/9/67

Type of Sample _____

WATER ANALYSIS

| IONIC FORM | me/l * | mg/l * |
|---|---------|---------|
| Calcium (Ca++) | 878.24 | 17,600 |
| Magnesium (Mg++) | 294.75 | 3584 |
| Sodium (Na+) (calculated) | 2523.68 | 58,019 |
| Bicarbonate (HCO ₃) | 1.00 | 61 |
| Carbonate (CO ₃ -) | NOT | FOUND |
| Hydroxide (OH-) | NOT | FOUND |
| Sulphate (SO ₄ -) | 29.67 | 1425 |
| Chloride (Cl-) | 3666.00 | 130,000 |
| 6.2 ^{ph} c 68 °F | | |
| Dissolved Solids on Evap. at 103° - 105° C | | |
| Hardness as Ca CO ₃ | 1172.00 | 58,650 |
| Carbonate Hardness as CaCO ₃ (temporary) | 1.00 | 50 |
| Non-Carbonate Hardness as CaCO ₃ (permanent) | 1171.00 | 58,600 |
| Alkalinity as CaCO ₃ | 1.00 | 50 |
| Specific Gravity c 68° F 1.140 | | |

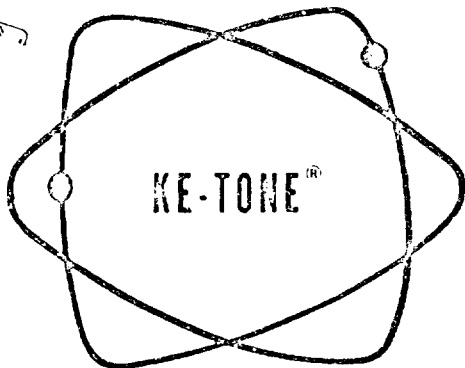
MOORE BUSINESS FORMS INC. L

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

~~~~~ Makes Water Work ~~~~~





# UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Continental Oil Company

Field Blineberry

Lease Lockhart B 13 #6 Sampling Date 12/9/67

Type of Sample \_\_\_\_\_

## WATER ANALYSIS

| IONIC FORM                                              | me/l *  | mg/l *  |
|---------------------------------------------------------|---------|---------|
| Calcium (Ca++)                                          | 351.30  | 7040    |
| Magnesium (Mg++)                                        | 224.76  | 2733    |
| Sodium (Na+) (calculated)                               | 2444.10 | 56,190  |
| Bicarbonate (HCO <sub>3</sub> -)                        | 1.90    | 115     |
| Carbonate (CO <sub>3</sub> -)                           | NOT     | FOUND   |
| Hydroxide (OH-)                                         | NOT     | FOUND   |
| Sulphate (SO <sub>4</sub> -)                            | 57.26   | 2750    |
| Chloride (Cl-)                                          | 2961.00 | 105,000 |
| 6.7 ph c 68 °F                                          |         |         |
| Dissolved Solids on Evap. at 103° - 105° C              |         |         |
| Hardness as Ca CO <sub>3</sub>                          | 576.06  | 28,803  |
| Carbonate Hardness as CaCO <sub>3</sub> (temporary)     | 1.90    | 95      |
| Non-Carbonate Hardness as CaCO <sub>3</sub> (permanent) | 574.16  | 28,708  |
| Alkalinity as CaCO <sub>3</sub>                         | 1.90    | 95      |
| Specific Gravity c 68° F                                | 1.110   |         |

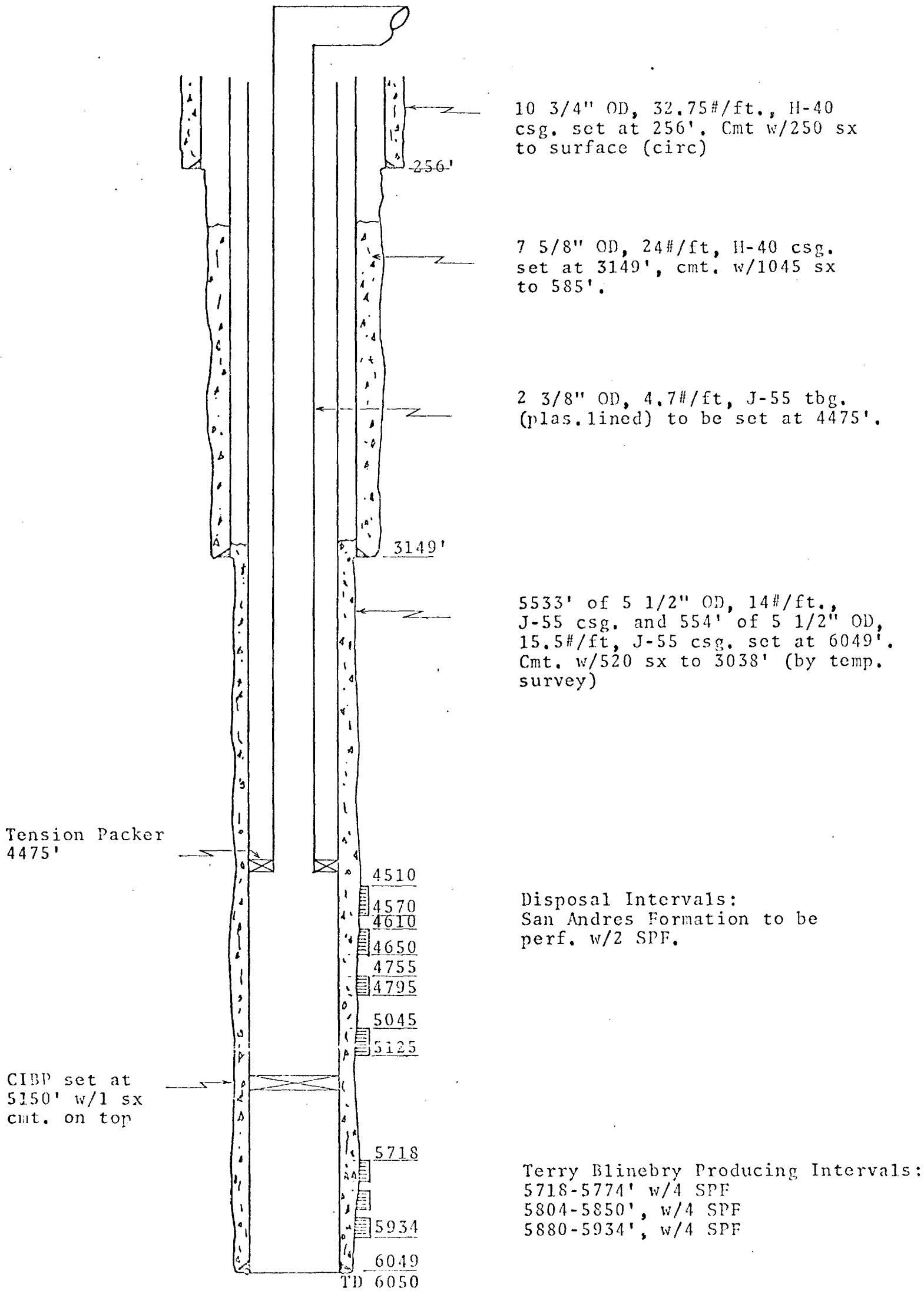
MOORE BUSINESS FORMS INC.

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*Makes Water Work*

Lockhart B-13 A No. 4  
 1980' FSL & FWL, Sec. 13, T-21S, R-37E  
 Elev. 3433' DF  
 13' above LF



LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE

LOCKHART B-13 A NO 4

TOP of SAN ANDRES

4200

4300

4400

4500

4570

4600

4650

4700

4755

4800

4900

5000

5045

5100

5125

5200

TOP of GLORIETA