

CASE NO. 4021

and

CASE NO. 4022

APPLICATIONS OF ERNEST A. HANSON AND CHARLES B. READ FOR AN
EXCEPTION TO ORDER NO. R-3221, AS AMENDED,
LEA COUNTY, NEW MEXICO

Applicants, in the above-styled cause, seek an exception
to the provisions of Oil Conservation Commission Order No.
R-3221, as amended, to permit the continued use of unlined
surface pits for disposal of produced water in the West Teas-
Yates-Seven Rivers Pool, Lea County, New Mexico.

THE FOLLOWING EXHIBITS ARE IN SUPPORT OF THIS APPLICATION.

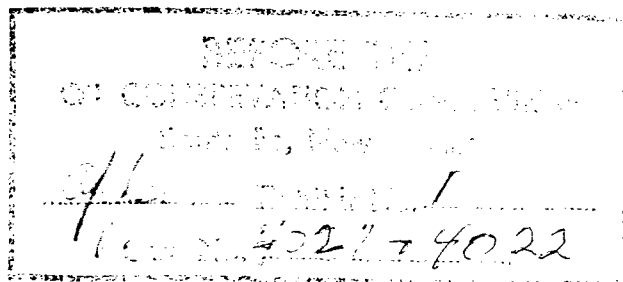


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R-33-E

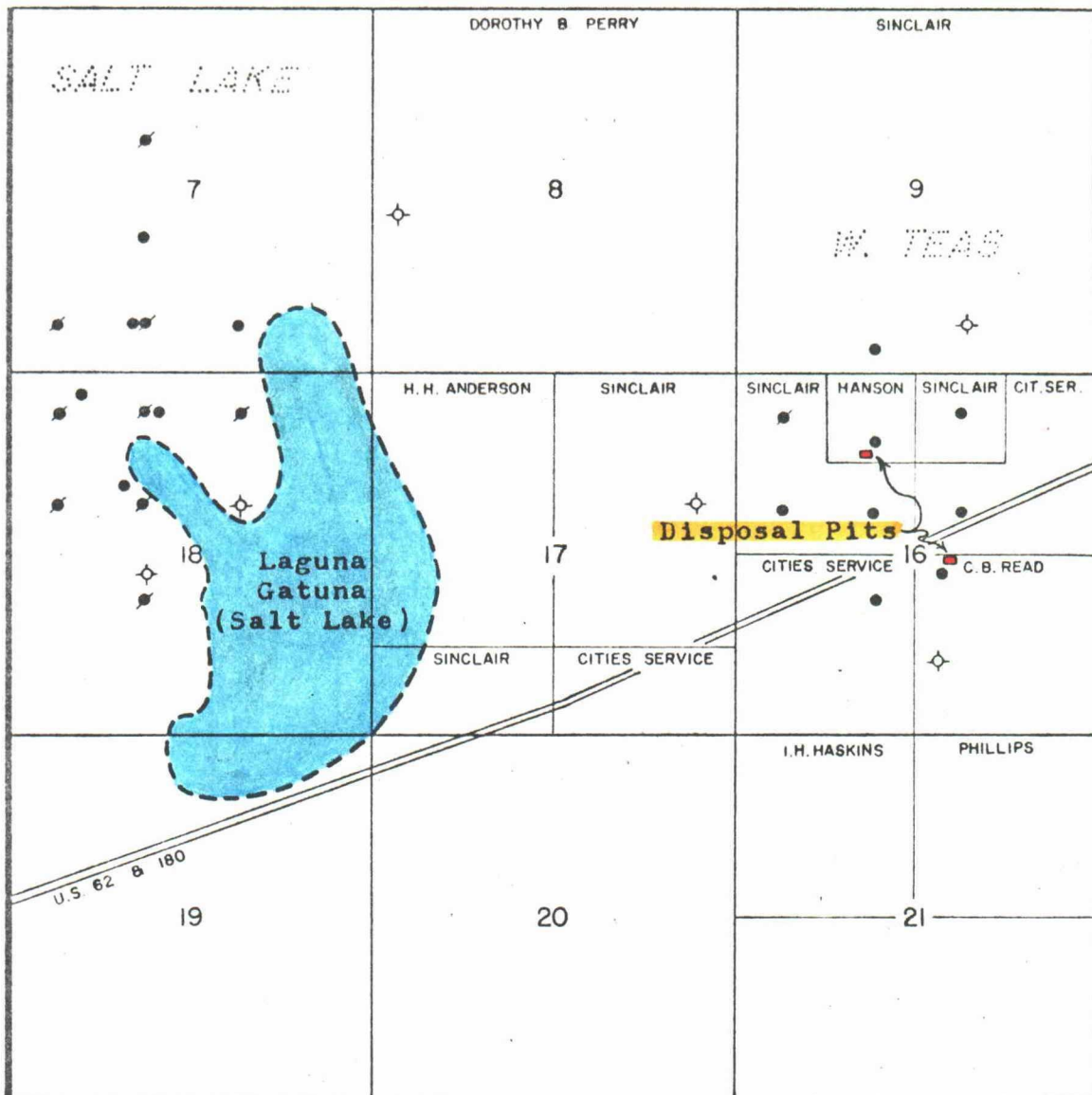


EXHIBIT NO. 1

West Teas Pool
T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

LOCATION MAP

Scale: 2 Inches = 1 Mile
Date: January, 1969

R - 33 - E

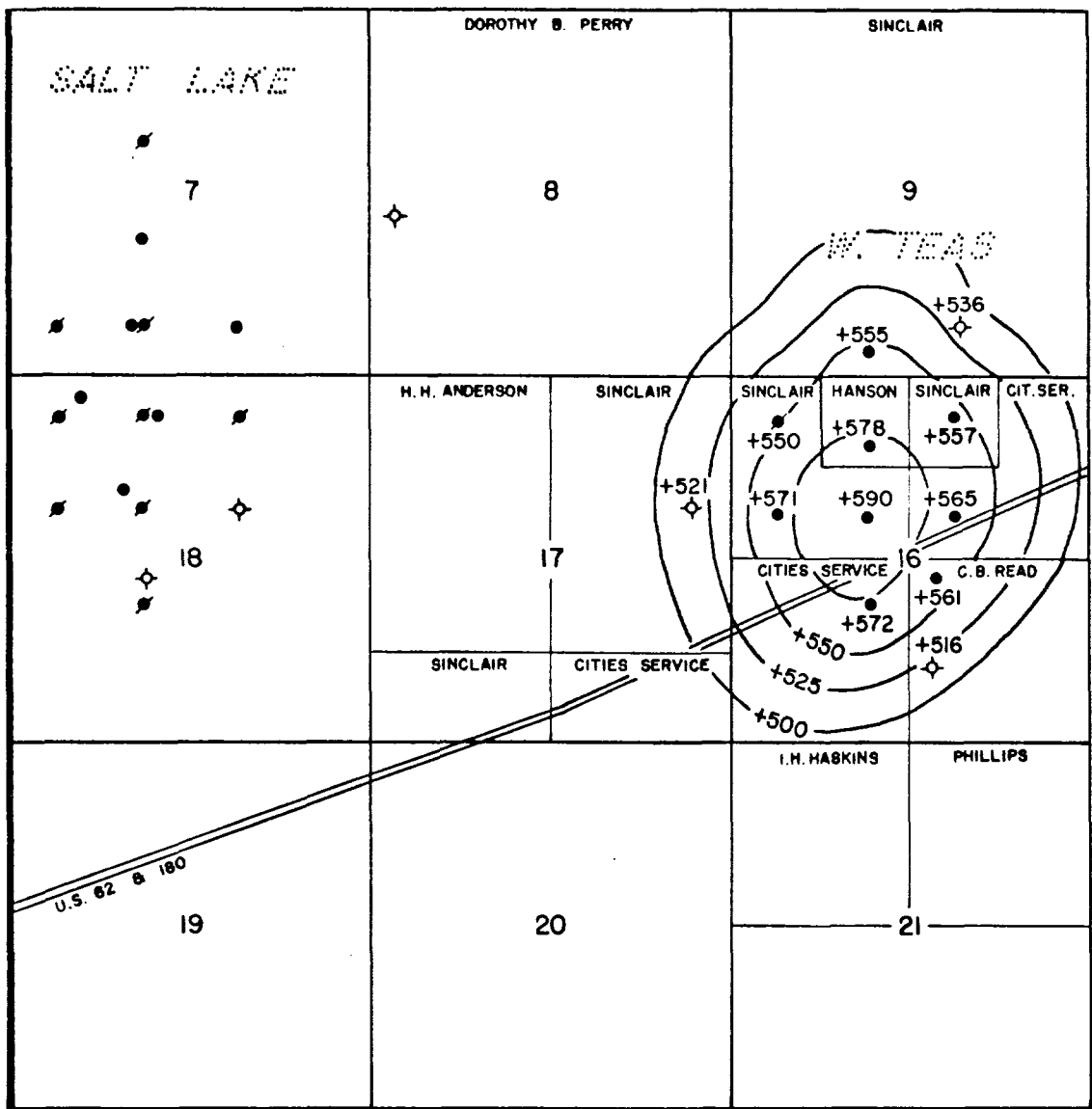


EXHIBIT NO. 2

STRUCTURE CONTOUR MAP

West Teas Pool
T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

Contour Datum: Top of Yates Fm.
Contour Interval: 25 Feet
Scale: 2 Inches = 1 Mile
Date: January, 1969

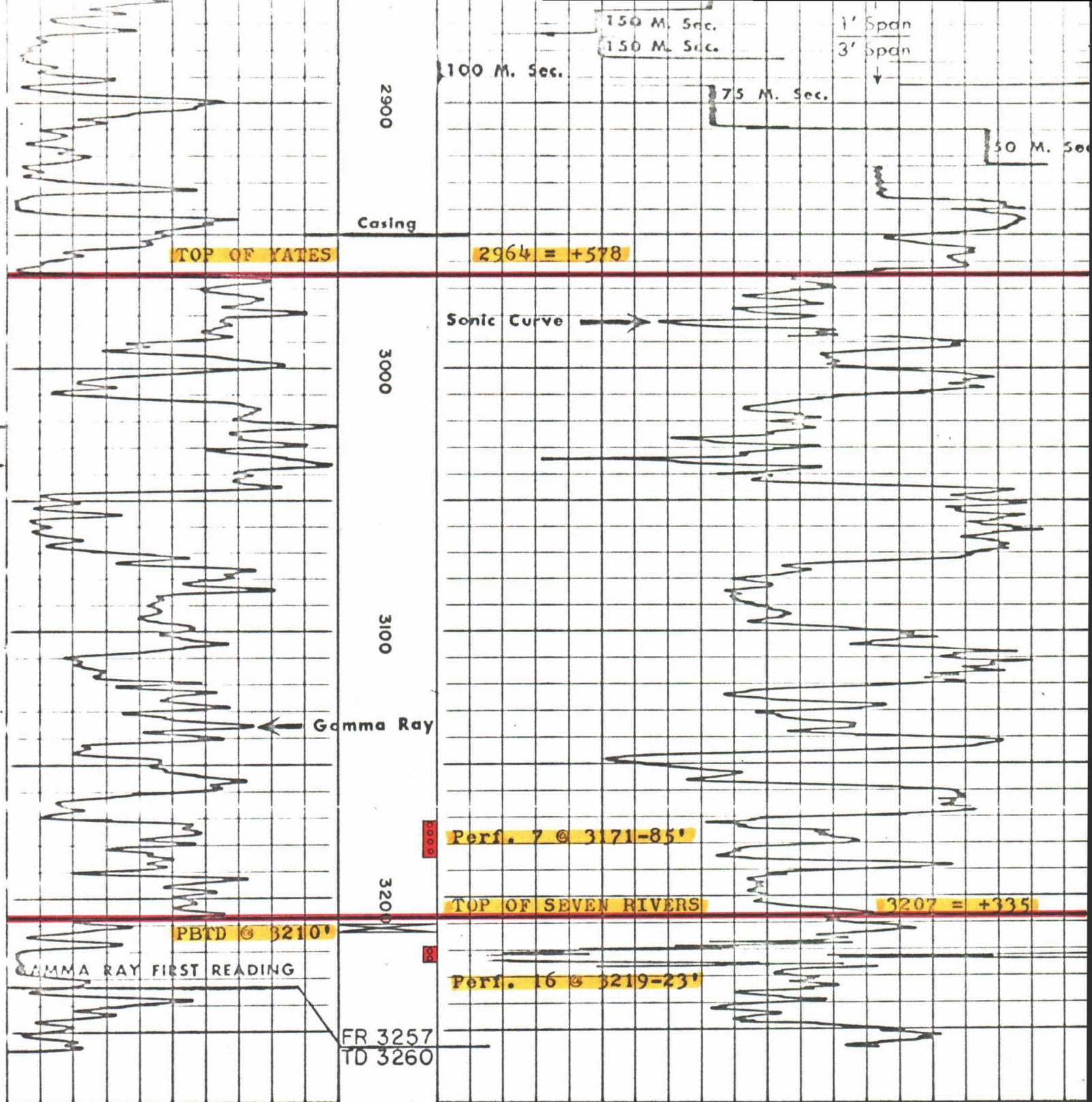


EXHIBIT NO. 3

Gamma Ray - Sonic Log
Ernest A. Hanson - #1 Atlantic State
990' FNL & 1980' FWL
Sec. 16, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

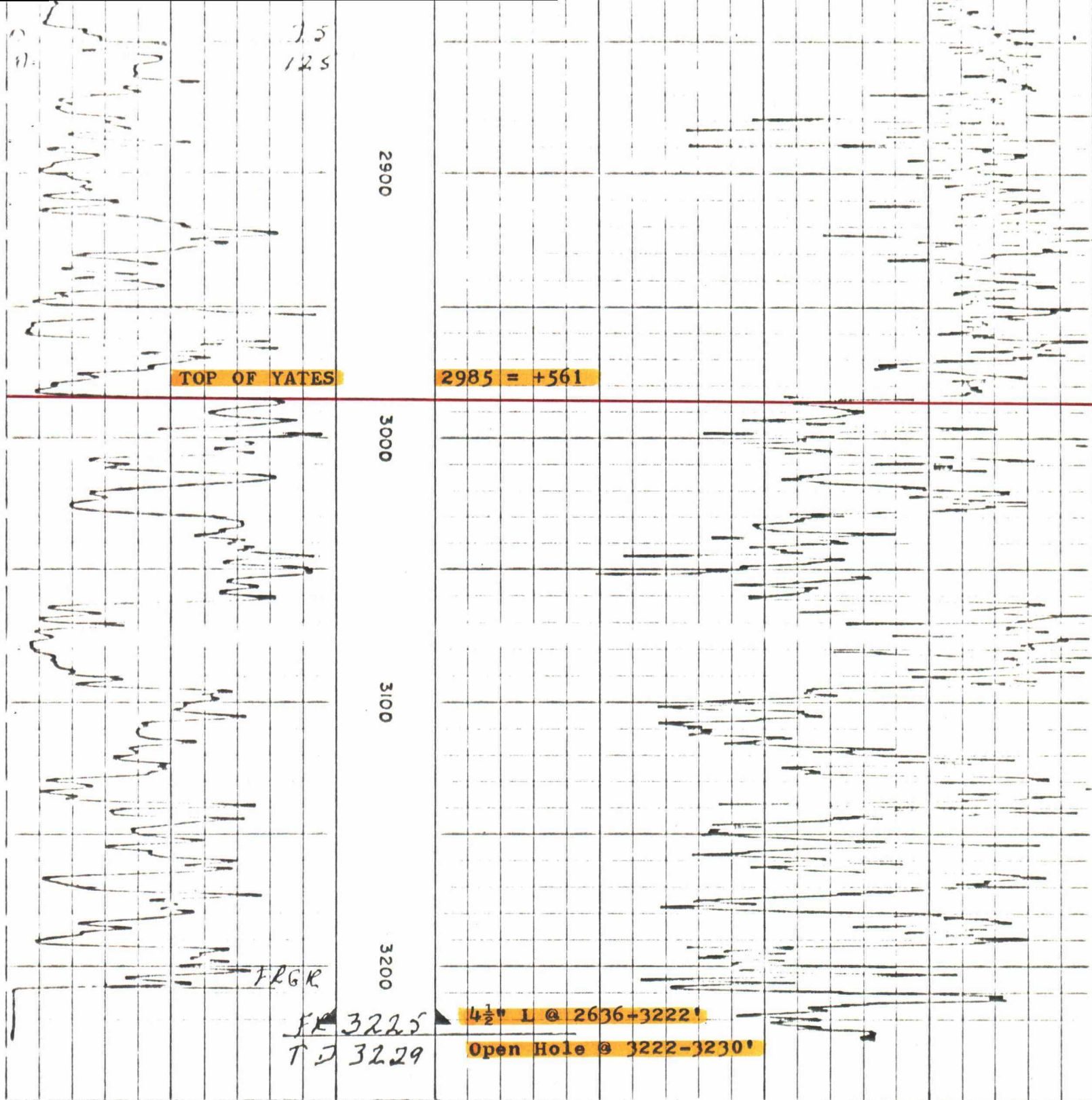


EXHIBIT NO. 3-A

Gamma Ray - Sonic Log
Charles B. Read - #1 Snyder
2310' FSL & FEL
Sec. 16, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

EXHIBIT NO. 4

WELL DATA

West Teas Pool
T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

NAME	LOCATION	COMPLETE	DEPTH	CASING	PROD. FM.	PROD. DEPTH	TREATMENT	I. P. P.	P&A	ACCUM. PROD.
Sinclair #1 Federal Lea	O- 9-20-33	5- 6-60	3300'	5" L @ 2974'- 3300'	P&A		SCF 7,000	Dry	5- 6-60	
Sinclair #2 Federal Lea	N- 9-20-33	8-16-63	3350' PB 3310'	5" L @ 2875'- 3350'	Yates	3180-3196'	SCF 10,000	58 BO + 2 BWPD		84,937
Cities Service #1 State EF	G-16-20-33	7-25-60	3278' PB 3203'	5" L @ 2925'- 3275'	Yates	3166-3208'	SCF 29,000	51 BO + 39 BWPD		103,242
Cities Service #2 State EF	K-16-20-33	1-31-61	3225' PB 3224'	5" L @ 2898'- 3225'	Yates	3094-3208'	SCF 10,000	20 BO + 5 BWPD		22,770
Hanson #1 Atlantic State	C-16-20-33	3- 1-61	3260'	4½" @ 3260'	Yates	3171-3185'	SCF 20,000	58 BO + 0 BWPD		78,641
Read #1 Snyder	J-16-20-33	11- 2-64	3230'	4½" L @ 2636'- 3222'	7-R	3222-3230'	Natural	42 BOFD		67,404
Read #2 Snyder	O-16-20-33	5-17-65	3295'	10-3/4" @ 365'	P&A			Dry	5-17-65	
Sinclair #1 St. Lea 886	F-16-20-33	12- 5-59	3325' PB 3315'	5½" @ 3325'	7-R	3220-3232'	Acid 500	586 BOFD		130,417
Sinclair #2 St. Lea 886	B-16-20-33	4- 4-60	3360' PB 3220'	5" L @ 2895'- 3274'	Yates	3182-3206'	SCF 4,000	92 BOFD		126,069
Sinclair #3 St. Lea 886	E-16-20-33	4- 8-60	3260' PB 3226'	5" L @ 2901'- 3260'	Yates	3166-3195'	Acid 500	1632 BOFD		125,516
Sinclair #2 St. Lea 6019	D-16-20-33	5-21-60	3297' PB 3263'	2-7/8" L @ 1028'- 3297'	Yates	3194-3199'	SCF 1500	47 BO + 31 BWPD	1965	11,861
Byrom #1 Federal 17	H-17-20-33	7-30-62	3286'	7" @ 2944'	P&A			Dry	7-30-62	

SAMPLE NO. _____

THE WESTERN COMPANY
Service Laboratory

WATER ANALYSIS

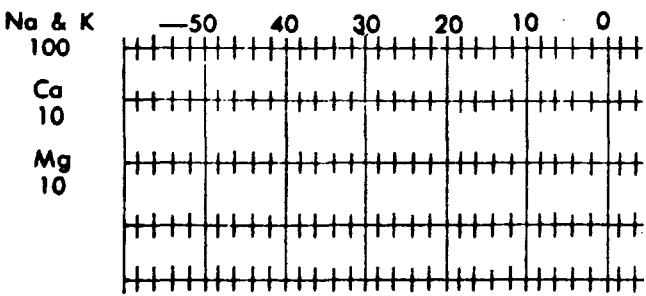
Operator	Hanson Oil Company	Date Sampled	5-10-68
Well	Atlantic State #1	Date Received	5-14-68
Field	Salt Lake	Submitted by	Hobbs District
Formation	Yates	Worked by	Jones
Depth	3171 - 3185'	Other Description	
County	Lea, New Mexico		

CHEMICAL DETERMINATIONS

Density	1.010 @ 76°F	pH	7.0
Iron	Very Faint Trace	Hydrogen Sulfide	Very Strong Trace
Sodium and Potassium	4,540 ppm	Bicarbonate	1,086 ppm
Calcium	800 ppm	Sulfate	2,840 ppm
Magnesium	316 ppm	Phosphate	ppm
Chloride	6,800 ppm	as Sodium Chloride	ppm

Remarks:

for Stiff type plot (in meq./l.)



Per

EXHIBIT NO. 5-A

WATER ANALYSIS

Hanson - #1 Atlantic State
Sec. 16, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

HALLIBURTON DIVISION LABORATORY
HALLIBURTON COMPANY
MIDLAND DIVISION

LABORATORY WATER ANALYSIS

No. W1-354-68To Charles B. ReadDate September 5, 1968Fox 2126Roswell, New Mexico 88201

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Submitted by _____ Date Rec. 8-30-68

Well No. _____ Depth _____ Formation _____

County _____ Field Lynch Source _____

	<u>Humble St. #1</u>	<u>Sinclair St. #1</u>	<u>Snyder #1</u>
Resistivity	<u>.642 @ 71 F</u>	<u>.510 @ 71 F</u>	<u>.644 @ 76 F</u>
Specific Gravity	<u>1.005</u>	<u>1.006</u>	<u>1.004</u>
pH	<u>6.0</u>	<u>6.7</u>	<u>6.2</u>
Calcium (Ca)			<u>*MPL</u>
Magnesium (Mg)			
Chlorides (Cl)	<u>5,500</u>	<u>7,000</u>	<u>5,500</u>
Sulfates (SO ₄)	<u>1,750</u>	<u>1,400</u>	<u>1,340</u>
Bicarbonates (HCO ₃)			
Soluble Iron (Fe)			
cc: <u>Mr. Gene Snow</u>			
<u>606 South 13.</u>			
<u>Lovington, N M</u>			

Remarks:

*Milligrams per liter

Respectfull

Analyst: Frank Whitfield

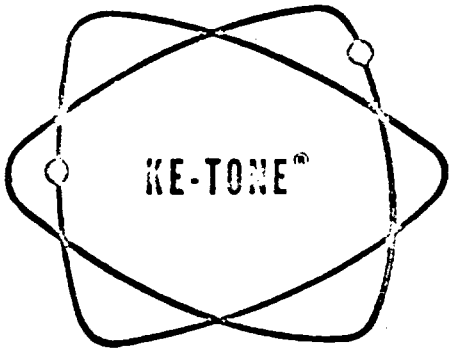
cc:

EXHIBIT NO. 5-BWATER ANALYSIS

Read - #1 Snyder
Sec. 16, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

NO-

This report is limited to the described sample tested. Any use for any loss or damage, whether it be to act or omission, is



UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company R. F. Montgomery, et al

Field _____

Lease Brooks T-7-3 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS *Unit 0 7-20-33*

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	45.91	920
Magnesium (Mg++)	32.24	392
Sodium (Na+) (cal.)	184.81	4249
Bicarbonate (HCO ₃)	7.40	451
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	66.62	3200
Chloride (Cl -)	188.94	6700
7.8ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	78.15	3908
Carbonate Hardness as CaCO ₃ (temporary)	7.40	370
Non-Carbonate Hardness as CaCO ₃ (permanent)	70.75	3538
Alkalinity as CaCO ₃	7.40	370
Specific Gravity c 68° F	1.010	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 5-C

WATER ANALYSIS

Minerals, Inc. - #1 Bass
Sec. 18, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

////////// *Mak...*

OF NEW MEXICO

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Field_

Lease Bass #2 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS

F 18-20.33

IONIC FORM	me/l	mg/l
Calcium (Ca++)	51.90	1040
Magnesium (Mg++)	32.24	392
Sodium (Na+) (cal.)	177.10	4072
Bicarbonate (HCO ₃ -)	13.40	817
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	64.54	3100
Chloride (Cl-)	183.30	6500
9 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	84.14	4207
Carbonate Hardness as CaCO ₃ (temporary)	13.40	670
Non-Carbonate Hardness as CaCO ₃ (permanent)	70.74	3537
Alkalinity as CaCO ₃	13.40	670
Specific Gravity c 68° F	1.010	

* me/l = milliequivalents per Liter

EXHIBIT NO. 5-D

WATER ANALYSIS

Minerals, Inc. - #2 Bass
Sec. 18, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

..... Makai No

HOBBS, NEW MEXICO 88240

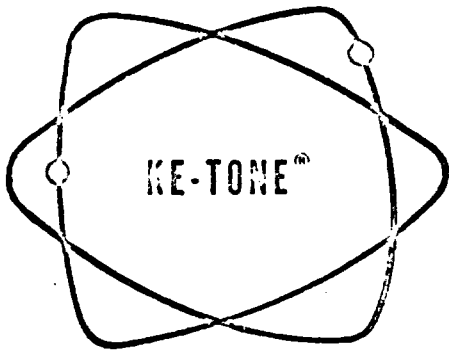
C 18-20-33

6.9 ph c @ 68 °F

Specific Gravity c 68° F

Minerals, Inc. - #3 Bass
Sec. 18, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

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UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Minerals, Incorporated

Field Salt Lake Field

Lease Bass #3 Sampling Date 10/24/68

Type of Sample _____

WATER ANALYSIS

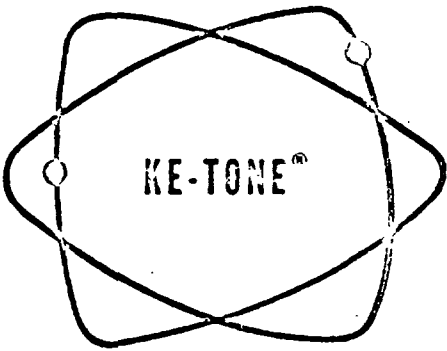
IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	65.77	1318
Magnesium (Mg++)	53.13	646
Sodium (Na+) (cal.)	728.10	16,739
Bicarbonate (HCO ₃)	19.57	1194
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	115.80	5562
Chloride (Cl -)	711.63	25,235
6.7 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	118.90	5945
Carbonate Hardness as CaCO ₃ (temporary)	19.57	979
Non-Carbonate Hardness as CaCO ₃ (permanent)	99.33	4967
Alkalinity as CaCO ₃	19.57	979
Specific Gravity c 68° F	1.030	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 5-F

WATER ANALYSIS

R. F. Montgomery - #3 Brooks "7"
Sec. 7, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico



UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company R. F. Montgomery, et al

Field _____

Lease Brooks T-7-4 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS

K - 7-20-33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	36.93	740
Magnesium (Mg++)	27.63	336
Sodium (Na+) (cal.)	169.67	3901
Bicarbonate (HCO ₃)	21.00	1281
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	46.85	2250
Chloride (Cl-)	166.38	5900
6.6 ^{ph} c@ 68 F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	64.56	3228
Carbonate Hardness as CaCO ₃ (temporary)	21.00	1050
Non-Carbonate Hardness as CaCO ₃ (permanent)	43.56	2178
Alkalinity as CaCO ₃	21.00	1050
Specific Gravity c 68° F	1.005	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 5-G

WATER ANALYSIS

R. F. Montgomery - #4 Brooks "7"
Sec. 7, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

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OF NEW MEXICO

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Field_

Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS Unit N 7-20-33

IONIC FORM	mg/l	mg/l
Calcium (Ca++)	34.93	700
Magnesium (Mg++)	27.63	336
Sodium (Na+) (cal.)	163.29	3754
Bicarbonate (HCO ₃ -)	26.59	1622
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	38.52	1850
Chloride (Cl-)	160.74	5700
6.7 ^{ph} c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	62.56	3128
Carbonate Hardness as CaCO ₃ (temporary)	26.56	1330
Non-Carbonate Hardness as CaCO ₃ (permanent)	36.00	1800
Alkalinity as CaCO ₃	26.56	1330
Specific Gravity c 68° F	1.005	

* me/l = milliequivalents per Liter

EXHIBIT NO. 5-H

WATER ANALYSIS

R. F. Montgomery - #6 Brooks "7"
Sec. 7, T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

EXHIBIT NO. 6-A

WATER WELL INFORMATION

T-20-S, R-33-E, N.M.P.M.
Lea County, New Mexico

Township-20-South, Range-33-East

- Sec. 4 SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Quaternary
T. D. 58'. ABANDONED STOCK. Rancher states water was gyp and cattle would walk greater distance to another water source.
- Sec. 5 SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Triassic
T. D. 680'. COMMERCIAL - was used for oil well drilling.
- Sec. 18 NE $\frac{1}{4}$ NW $\frac{1}{4}$ Triassic
T. D. 450' (approx). ABANDONED. Well was reportedly drilled in 1942 and water was not potable. Used only for washing in old oil field camp.
- Sec. 21 NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Quaternary
T. D. 52'. ABANDONED STOCK.
- Sec. 24 SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Triassic
T. D. 676'. STOCK.

Township-20-South, Range-32-East

- Sec. 1 SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Quaternary
No T. D. recorded. NON-PRODUCING. Rancher states well was too salty for cattle to drink.
- Sec. 23 SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Quaternary (2 wells)
T. D. DOMESTIC AND STOCK. These wells are approx. 2 miles from salt lake being used for surface disposal.
- Sec. 25 NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Quaternary (2 wells)
T. D. 65' (2 wells) Both STOCK.
- Sec. 36 SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Quaternary (3 wells)
T. D. 50'. STOCK AND DOMESTIC.
T. D. 65'. ABANDONED.
T. D. 80'. NON-PRODUCING.

HOBBS, NEW MEXICO 88240

Type of Sample.

See. 7, 18 20-33

7.7 ph c @ 68

Dissolved Solids on Evap. at 103°-105° C

* mg/l = milligrams per liter

* meq/l = milliequivalents per liter

EXHIBIT NO. 6-B

LAGUNA GATUNA WATER ANALYSIS

Sec. 7 & 18, T-20-S, R-33-E
Lea County, New Mexico

Alibi: Yes

HOBBS, NEW MEXICO 88240

Type of Sample _____

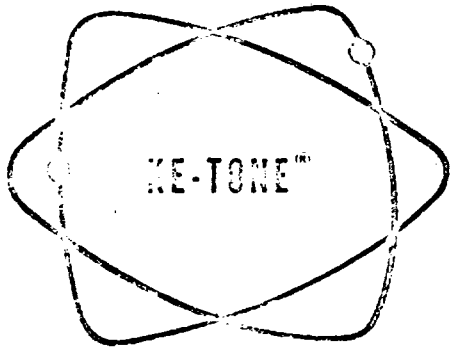
SUN NE 10-20-30

8.4 ph c @ 68 °F

Specific Gravity c 68° F	1.115
--------------------------	-------

SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 19, T-20-S, R-33-E
Lea County, New Mexico

Abraham Lincoln



UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated
Field Salt Lake Field
Lease Bingham Well Sampling Date 10/24/68
Type of Sample NW 1/4 NW 1/4 Sec. 21 - T-20-S

WATER ANALYSIS

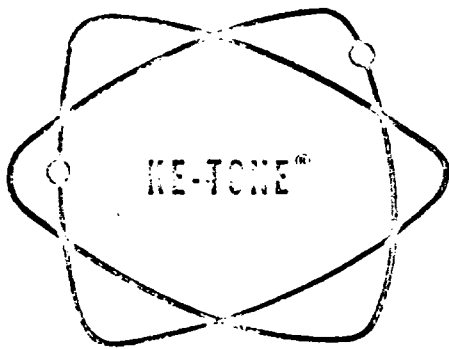
IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	19.86	398
Magnesium (Mg++)	17.19	209
Sodium (Na+) (cal.)	84.21	1936
Bicarbonate (HCO ₃ -)	3.21	196
Carbonate (CO ₃ -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	18.84	905
Chloride (Cl-)	99.21	3518
7.5 ph c @ 68 °F		
Dissolved Solids on Evap. at 103°- 105° C		
Hardness as Ca CO ₃	37.05	1853
Carbonate Hardness as CaCO ₃ (temporary)	3.21	161
Non-Carbonate Hardness as CaCO ₃ (permanent)	33.84	1692
Alkalinity as CaCO ₃	3.21	161
Specific Gravity @ 68° F	1.005	

* mg/l = milligrams per Liter.
* me/l = milliequivalents per Liter

EXHIBIT NO. 6-D

BINGHAM WELL WATER ANALYSIS

NW 1/4 NW 1/4 NW 1/4, Sec. 21, T-20-S, R-33-E
Lea County, New Mexico



UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Minerals, Incorporated

Field Salt Lake Field

Lease Well #3 Wells Sampling Date 10/24/68

Type of Sample _____

WATER ANALYSIS *WUSE 4-20-77*

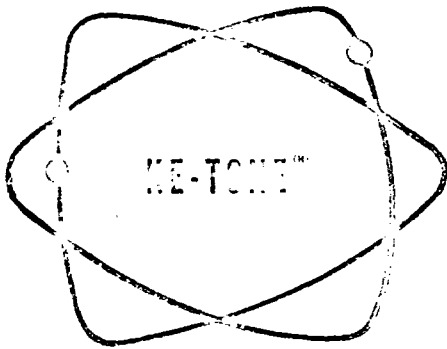
IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	21.61	433
Magnesium (Mg++)	122.37	1488
Sodium (Na+) (cal.)	561.94	12,919
Bicarbonate (HCO ₃ -)	4.60	286
Carbonate (CO ₃ -)	0.80	24
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO ₄ -)	334.54	16,068
Chloride (Cl-)	365.98	12,978
8.3 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO ₃	143.98	7199
Carbonate Hardness as CaCO ₃ (temporary)	5.40	270
Non-Carbonate Hardness as CaCO ₃ (permanent)	138.58	6929
Alkalinity as CaCO ₃	5.40	270
Specific Gravity c 68° F	1.030	

* mg/l = milligrams per Liter
* me/l = millicivalents per Liter

EXHIBIT NO. 6-E

THREE WELLS WATER ANALYSIS

NW¹/₄SE¹/₄, Sec. 4, T-20-S, R-33-E
Lea County, New Mexico



UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Minerals, Incorporated
Field Salt Lake
Lease Bass #1 Water Well Sampling Date 11/4/68
Type of Sample 18-20S-33E

WATER ANALYSIS

IONIC FORM	mg/l	mg/l
Calcium (Ca++)	59.33	1189
Magnesium (Mg++)	105.68	1285
Sodium (Na+) (calculated)	508.85	11.698
Iron		212
Bicarbonate (HCO ₃)	0.20	12
Carbonate (CO ₃ -)		Not Found
Hydroxide (OH-)		Not Found
Sulphate (SO ₄ -)	81.09	3895
Chloride (Cl-)	592.57	21,013
5.9 pH @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as CaCO ₃	165.01	8251
Carbonate Hardness as CaCO ₃ (temporary)	0.20	10
Non-Carbonate Hardness as CaCO ₃ (permanent)	164.81	8241
Alkalinity as CaCO ₃	0.20	10
Specific Gravity @ 68° F	1.025	

1 mg/l = milligrams per Liter
1 me/l = milliequivalents per Liter

Calcium Carbonate Scaling Index - Negative at 86°F
Calcium Sulfate Scaling Index - Negative

EXHIBIT NO. 6-F

BASS WATER WELLS
WATER ANALYSIS

Sec. 18, T-20-S, R-33-E
Lea County, New Mexico

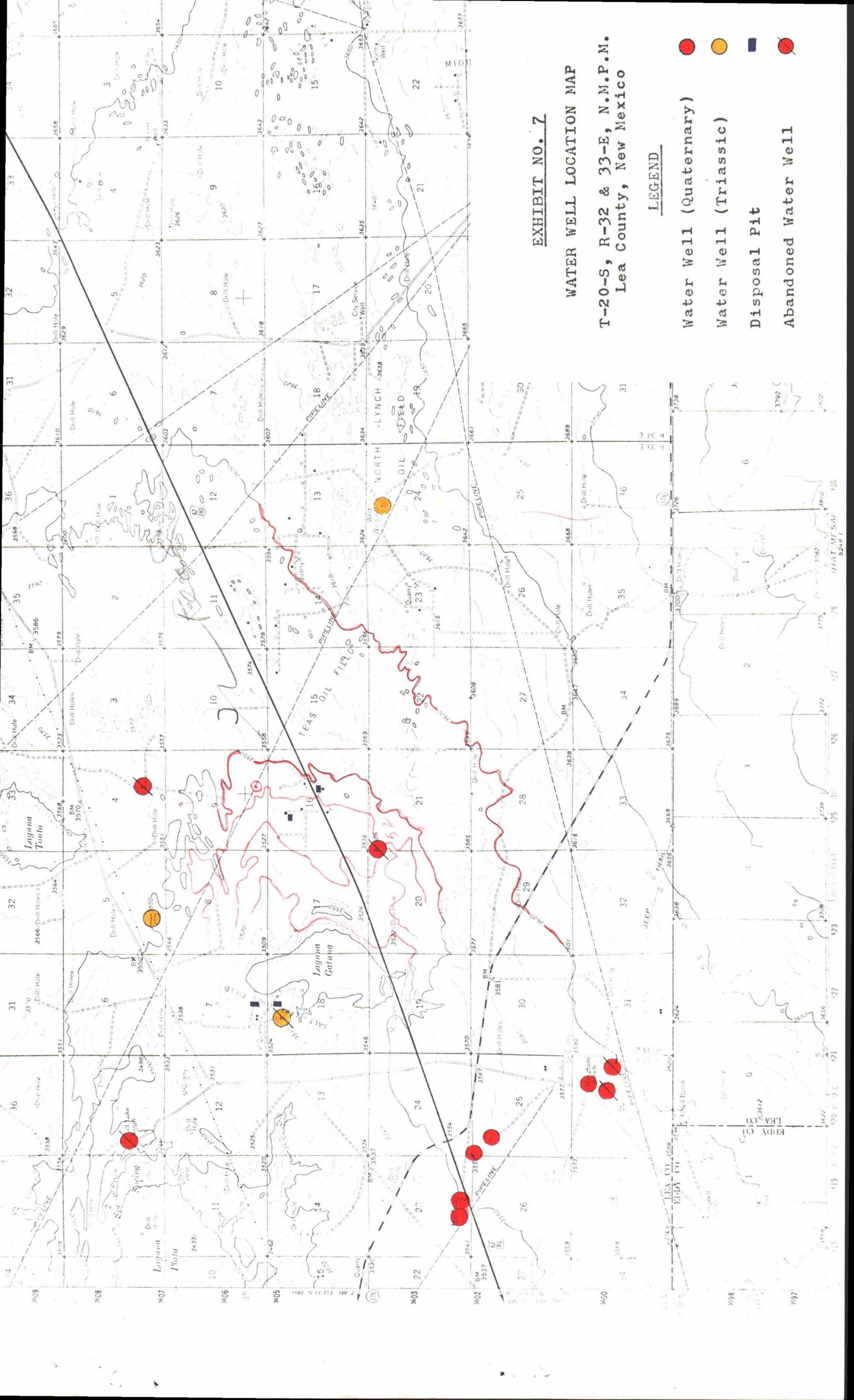


EXHIBIT NO. 7

WATER WELL LOCATION MAP

**T-20-S, R-32 & 33-E, N.M.P.M.
Lea County, New Mexico**

LEGEND

- Water Well (Quaternary)
- Water Well (Triassic)
- Disposal Pit
- Abandoned Water Well