FORM 470 2-57

PAN AMERICAN PETROLEUM CORPORATION

Post Office Box 68
Hobbs, New Mexico

August 28, 1968

File: VES-346-986.510

Subject: Application for Salt Water Disposal - Fowler Field Lea County, New Mexico

Mr. A. L. Porter
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Gentlemen:

Pan American Petroleum Corporation respectfully requests administrative approval to dispose of produced water from the Fowler Field into the San Andres formation in the Myers "B" No. 14, located in Unit I, Section 9, Township 24 South, Range 37 East, Lea County, New Mexico. In accordance with Rule 701-C, we are attaching in triplicate hereto our "Application to Dispose of Salt Water By Injection Into Porous Formation". We are also attaching the following:

1. A plat showing the location of the proposed injection well and the location of all other wells within a radius of two miles from the proposed injection well with the wells coded showing the completion zone in each well.

2. A log of the proposed injection well.

3. A diagrammatic sketch of the proposed injection well.

4. A water analysis of the produced water to be disposed of and analysis of produced San Andres water from the nearest San Andres production in Littman San Andres Field.

The Myers "B" No. 14, the proposed injection well, was originally drilled as a producing well in the Fowler Devonian Field. The Devonian interval 7730' to 7770' was depleted and squeezed off, with a subsequent completion in the Blinebry interval 5610'-5766'. Currently the well is temporarily abandoned with the above-mentioned perforations open. Prior to conversion to a disposal well, a cement plug from 5550' to 5800' will be placed across the perforations 5610'-5766'. The 5-1/2" casing will be cut and pulled from approximately 5200' and a 100' cement plug will be placed in and out of the 5-1/2" casing stub over the interval 5150'- 5250'. A 100' plug will be placed across

the Glorieta formation from 4900' to 5000'. Water will be disposed of in the open hole San Andres interval 3901' - 4900', through plastic coated tubing and packer. Lost circulation was encountered in this zone during the drilling of the well, and it should readily handle the anticipated daily injection volume of 200 barrels.

The San Andres formation is not oil productive in this general area, with the nearest production located 16 miles north and five miles east in the Littman San Andres Field. Water analyses indicate the chloride content to be 37,000 parts per million in the Elliott Parsel Well No. 4, a Littman San Andres Field well.

Yours very truly,

V. E. Staley
Area Superintendent

JFS/jt

Copies to:
Clyde Cooper - Jal, New Mexico
W. K. Byrom - Hobbs, New Mexico
Humble Oil & Refining - Hobbs, New Mexico
Sinclair Oil & Gas Company - Hobbs, New Mexico
N. B. Hunt - Dallas, Texas
Gulf Oil Corporation - Hobbs, New Mexico
Ralph Clarke - Hobbs, New Mexico
Continental Emsco - Hobbs, New Mexico
Skelly Oil Company - Hobbs, New Mexico
Mr. N. S. Whitmore - Fort Worth

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

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

OPERATOR		ADDRESS	
Pan American Petroleum Corporation		P. O. Box 68, Hobbs, New Mexico	
LEASE NAME	WELL NO.	FIELD	COUNTY
Myers "B"	14	Fowler Blinebry	Lea

LOCATION

UNIT LETTER I ; WELL IS LOCATED 1650 FEET FROM THE South LINE AND 660 FEET FROM THE East LINE, SECTION 9 TOWNSHIP 24-S RANGE 37-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8	308	400	Circulated	
INTERMEDIATE	8-5/8	3901	2950 sx 8% Gel x 100 sx Neat	100'	Calculated 120% of Caliper Volume
LONG STRING	5-1/2	7996	675	5200	Temp. Survey
TUBING: None			NAME, MODEL AND DEPTH OF TUBING PACKER		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
San Andres	3850	4963

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Tubing	Open Hole	3901-4900

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing well in Fowler Devonian	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH
Devonian Perfs 7736-770'. Retainer Set at 5920. Blinebry Perfs 5610 - 5766', now open. Squeeze Perfs with 25 sx cmt.

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
1600'	Bottom of Penrose 3586	Top of Glorieta 4963'.

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
100	500	Closed	Gravity	Vacuum

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 —	WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)
Clyde Cooper, Jal, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL
Pan American Petroleum Corporation, P. O. Box 68, Hobbs, New Mexico 88240
W. K. Byrom - 817 N. Turner, Hobbs, New Mexico
Humble Oil & Refining, P. O. Box 2100, Hobbs, New Mexico
Sinclair Oil & Gas Company, P. O. Box 1920, Hobbs, New Mexico
N. B. Hunt, 1401 Elm, Dallas, Texas 75202
Gulf Oil Corporation, P. O. Box 670, Hobbs, New Mexico
Ralph Clarke, P. O. Box 2310, Hobbs, New Mexico
Continental Emsco Company, P. O. Box 519, Hobbs, New Mexico
Skelly Oil Company, P. O. Box 730, Hobbs, New Mexico

'68 AUG 30 PM

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	XXXXXXXXXXXXXXXXXXXX
	Yes	Yes	

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
	Yes	Yes	Yes

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

(Signature)	Area Superintendent (Title)	August 29, 1968 (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.

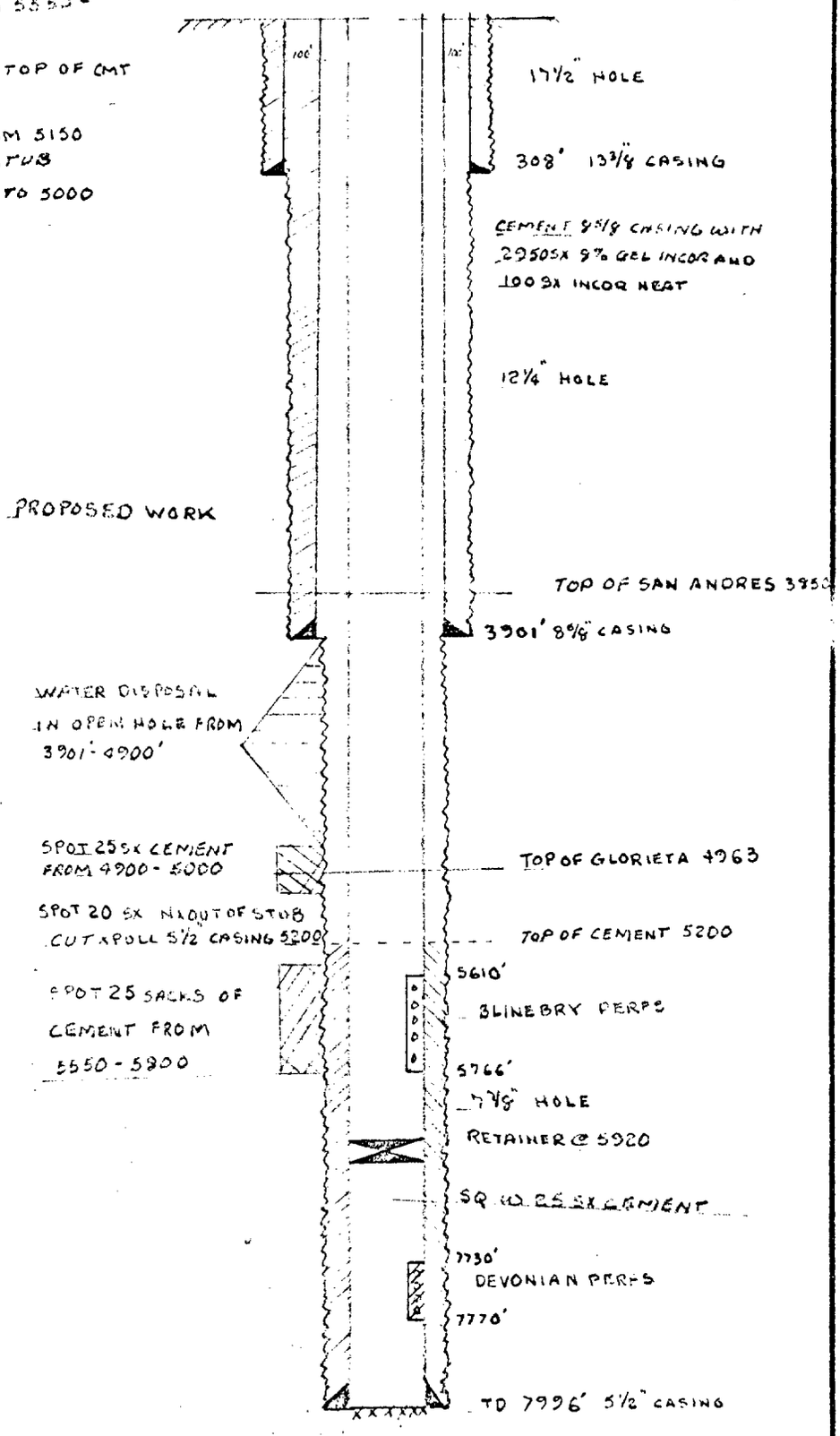
CONVERSION OF MYERS "B" WELL NO 14 T.O. SALT WATER DISPOSAL

1) SPOT 25 SACKS INCOR CEMENT FROM 5550 - 5800 ACROSS BLINEBRY PERFS

2) CUT AND PULL 5½" CASING AT 5200' TOP OF CMT AT 5200 BY TEM. SURVEY

3) SPOT 20 SACKS OF INCOR CEMENT FROM 5150 TO 5250 IN AND OUT OF 5½" CASING STUB

4) SPOT 25 SACKS OF CEMENT FROM 4900 TO 5000 ACROSS TOP OF GLORIETA



PAN AMERICAN PETROLEUM CORPORATION	SCALE:
MYERS "B" WELL NO 14 FOWLER BLINEBRY FIELD	DRG. NO. C-[illegible]

TRIM

FORM 432 2-57

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

202 2M 6 54

DOWELL INCORPORATED–WATER ANALYSIS RECORD

OWNER ELLIOTT LEASE PARCELL #4 WELL NO.

SECTION COUNTY LEA STATE N M

POOL LITTMAN DEPTH M.X. NO.

FORMATION

	PARTS PER MILLION	REACTION COEFFICIENT	REACTION VALUE
CALCIUM	6600	.04991	329
MAGNESIUM	920	.08224	76
SODIUM	15,300	.04348	665
R_2O_3		.05373	
CHLORIDE	37,000	.02820	1041
SULPHATE		.02082	
BICARBONATE	1760	.01639	29
CARBONATE		.0333	
TOTAL		SPECIFIC GRAVITY	1.045 @ 85°

PH. 6.2

FORM 66 2-66
PRINTED IN U.S.A.

AMERICAN PETROLEUM CORPORATION
RESEARCH CENTER
WATER ANALYSIS

LOCATION SAMPLED: Division Fort Worth District Lubbock Area Hobbs
Operator (Plant) Pan American Well No. 3 Lease State "D"
State (Province) New Mexico County (Parish) Lea
Twp. ____ Rng. ____ Sec. ____ Quarter (Lsd.) ____ Other (Meridian) ____
Wildcat ( ) Field Well (X)
Field name Fowler Devonian Sample used for detailed analyses ____
Sample collected from ____ Sample collected by T. W. Wilson Date ____
Interval sampled ____ to ____ Interval name ____
Recovery ____
Form 97 transmitted by V. E. Staley Date transmitted 8-3-67, File: VES-315-538
Technical Service request authorized by ____ Office ____
Technical Service Number: 3094

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
Phenols					
HC Gases					

DESCRIPTION OF SAMPLE

Condition as received ____
Color ____
Odor ____
Suspended solids ____
Bottom sediment ____
Oil content ____

QUALITY OF SAMPLE

Chloride ion mg/1:	BOTTOM	MIDDLE	TOP

Comments on quality ____

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1[1]	% of Total Major Ions	Reaction Value meq/1[2]	% of Total Reaction Value
CATIONS	Sodium	Na^+	51,079	31.26	2,221.92	39.04
	Calcium	Ca^{++}	8,800	5.39	439.12	7.71
	Magnesium	Mg^{++}	2,250	1.38	184.95	3.25
	Potassium	K^+				
ANIONS	Chloride	Cl^-	100,000	61.20	2,820.00	49.54
	Bicarbonate	HCO_3^-	63	.04	1.03	.02
	Sulfate	SO_4^{--}	1,200	.73	24.96	.44
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		163,392			

Total solids by evaporation 170,320 mg/1
NaCl resistivity equivalent (Dunlap) 164,556 mg/1
Resistivity .054 ohm-meters at 77 °F
pH 6.0 Specific gravity 1.115 at ____ °F
Ryznar stability index (2pHs–pH) ____ at ____ °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1
Lithium Li^+		Bromide Br^-		Iron Fe	
		Iodide I^-		Boron B	
				Silica SiO_2	

[1] Data previously reported on Form 66 7-62 under the heading P.P.M. was actually in milligrams per liter. By definition, ppm = mg/1 /sp. gr.
[2] meq/1 means milligram equivalents per liter.

REMARKS AND CONCLUSIONS: ____

cc: ____ Date received 8-22-67 Field sample no. ____
Lab. no. T-18715
Analyst Dan Reed Date 9-6-67

(Water charts on back)

DWR:sw

FORM 66 2-66
PRINTED IN U.S.A.

PAN AMERICAN PETROLEUM CORPORATION
RESEARCH CENTER
WATER ANALYSIS

LOCATION SAMPLED: Division Fort Worth District Lubbock Area Hobbs
Operator (Plant) Pan American Well No. 24 Lease Myers "B"
State (Province) New Mexico County (Parish) Lea
Twp. ____ Rng. ____ Sec. ____ Quarter (Lsd.) ____ Other (Meridian) ____
Wildcat ( ) Field Well (x)
Field name Fowler Blinebry Sample used for detailed analyses ____
Sample collected from ____ Sample collected by T. W. Wilson Date ____
Interval sampled ____ to ____ Interval name ____
Recovery ____
Form 97 transmitted by V. E. Staley Date transmitted 8-3-67, File: VEM-316-538
Technical Service request authorized by ____ Office ____
Technical Service Number: 3094

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
Phenols					
HC Gases					

DESCRIPTION OF SAMPLE

Condition as received ____
Color ____
Odor ____
Suspended solids ____
Bottom sediment ____
Oil content ____

QUALITY OF SAMPLE

Chloride ion mg/1:	BOTTOM	MIDDLE	TOP

Comments on quality ____

CONVENTIONAL MAJOR ION ANALYSIS

		Major Ions mg/1[1]	% of Total Major Ions	Reaction Value meq/1[2]	% of Total Reaction Value
CATIONS	Sodium Na^+	30,813	34.11	1,340.38	43.63
	Calcium Ca^{++}	2,760	3.06	137.72	4.48
	Magnesium Mg^{++}	708	.78	58.20	1.89
	Potassium K^+				
ANIONS	Chloride Cl^-	50,700	56.13	1,429.74	46.53
	Bicarbonate HCO_3^-	1,044	1.16	17.12	.56
	Sulfate SO_4^{--}	4,300	4.76	89.44	2.91
	Carbonate CO_3^{--}	0	0	0	0
	TOTAL	90,325			

Total solids by evaporation 90,440 mg/1
NaCl resistivity equivalent (Dunlap) 87,983 mg/1
Resistivity .088 ohm-meters at 77 °F
pH 7.1 Specific gravity 1.064 at ____ °F
Ryznar stability index (2pHs–pH) ____ at ____ °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1
Lithium Li^+		Bromide Br^-		Iron Fe	
		Iodide I^-		Boron B	
				Silica SiO_2	

[1] Data previously reported on Form 66 7-62 under the heading P.P.M. was actually in milligrams per liter. By definition, ppm = mg/1 /sp. gr.
[2] meq/1 means milligram equivalents per liter.

REMARKS AND CONCLUSIONS: ____

cc: ____ Date received 8-22-67 Field sample no. ____
Lab. no. T-18716
Analyst [signature] Date 9-6-67

(Water charts on back)

TWR:bw

FORM 66 2-66
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PAN AMERICAN PETROLEUM CORPORATION
RESEARCH CENTER
WATER ANALYSIS

LOCATION SAMPLED: Division Fort Worth District Lubbock Area Hobbs
Operator (Plant) Pan American Well No. _____ Lease So. Mattix Unit Treater
State (Province) New Mexico County (Parish) Lea
Twp. _____ Rng. _____ Sec. _____ Quarter (Lsd.) _____ Other (Meridian) _____
Wildcat ( ) Field Well ( )
Field name Fowler Lower Paddock (Oil Rim) Sample used for detailed analyses _____
Sample collected from Treater Sample collected by T. W. Wilson Date _____
Interval sampled _____ to _____ Interval name _____
Recovery _____
Form 97 transmitted by V. E. Staley Date transmitted 8-3-67, File: VES-318-335
Technical Service request authorized by _____ Office _____
Technical Service Number: 3094

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
Phenols					
HC Gases					

DESCRIPTION OF SAMPLE

Condition as received _____
Color _____
Odor _____
Suspended solids _____
Bottom sediment _____
Oil content _____

QUALITY OF SAMPLE

Chloride ion mg/1:	BOTTOM	MIDDLE	TOP

Comments on quality _____

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1[1]	% of Total Major Ions	Reaction Value meq/1[2]	% of Total Reaction Value
CATIONS	Sodium	Na^+	61,443	33.37	2,672.78	41.85
	Calcium	Ca^{++}	6,800	3.69	339.32	5.31
	Magnesium	Mg^{++}	2,210	1.20	181.66	2.84
	Potassium	K^+				
ANIONS	Chloride	Cl^-	112,000	60.82	3,158.40	49.45
	Bicarbonate	HCO_3^-	0	0	0	0
	Sulfate	SO_4^{--}	1,700	.92	35.36	.55
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		184,153			

Total solids by evaporation 189,160 mg/1
NaCl resistivity equivalent (Dunlap) 185,173 mg/1
Resistivity .051 ohm-meters at 77 °F
pH 4.2 Specific gravity 1.128 at _____ °F
Ryznar stability index (2pHs–pH) _____ at _____ °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1
Lithium Li^+		Bromide Br^-		Iron Fe	
		Iodide I^-		Boron B	
				Silica SiO_2	

[1] Data previously reported on Form 66 7-62 under the heading P.P.M. was actually in milligrams per liter. By definition, ppm = mg/1 /sp. gr.
[2] meq/1 means milligram equivalents per liter.

REMARKS AND CONCLUSIONS: _____

cc: _____ Date received 8-22-67 Field sample no. _____
Lab. no. T-18718
Analyst _____ Date 9-6-67

(Water charts on back)

DMR:sw

FORM 66 2-66
PRINTED IN U.S.A.

PAN AMERICAN PETROLEUM CORPORATION
RESEARCH CENTER
WATER ANALYSIS

LOCATION SAMPLED: Division Fort Worth District Lubbock Area Hobbs
(Operator (Plant) Pan American Well No. 7 Lease South Mattix Unit
State (Province) New Mexico County (Parish) Lea
Twp. Rng. Sec. Quarter (Lsd.) Other (Meridian)
Wildcat ( ) Field Well (X)
Field name Fowler Ellenburger Sample used for detailed analyses
Sample collected from Sample collected by T. W. Wilson Date
Interval sampled to Interval name
Recovery
Form 97 transmitted by V. E. Staley Date transmitted 8-3-67, File: VES-317-533
Technical Service request authorized by Office
Technical Service Number: 3099

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
Phenols					
HC Gases					

DESCRIPTION OF SAMPLE

Condition as received
Color
Odor
Suspended solids
Bottom sediment
Oil content

QUALITY OF SAMPLE

Chloride ion mg/1:	BOTTOM	MIDDLE	TOP

Comments on quality

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1[1]	% of Total Major Ions	Reaction Value meq/1[2]	% of Total Reaction Value
CATIONS	Sodium	Na^+	59,642	29.79	2,594.42	37.23
	Calcium	Ca^{++}	15,100	7.54	753.49	10.81
	Magnesium	Mg^{++}	1,660	.83	136.45	1.96
	Potassium	K^+				
ANIONS	Chloride	Cl^-	123,000	61.45	3,468.60	49.77
	Bicarbonate	HCO_3^-	73	.04	1.20	.02
	Sulfate	SO_4^{--}	700	.35	14.56	.21
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		200,175			

Total solids by evaporation 207,000 mg/1
NaCl resistivity equivalent (Dunlap) 200,677 mg/1
Resistivity .050 ohm-meters at 77 °F
pH 5.9 Specific gravity 1.140 at °F
Ryznar stability index (2pHs–pH) at °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1
Lithium Li^+		Bromide Br^-		Iron Fe	
		Iodide I^-		Boron B	
				Silica SiO_2	

[1] Data previously reported on Form 66 7-62 under the heading P.P.M. was actually in milligrams per liter. By definition, ppm = mg/1 /sp. gr.
[2] meq/1 means milligram equivalents per liter.

REMARKS AND CONCLUSIONS:

cc: Date received 8-22-67 Field sample no.
Lab. no. B-18717
Analyst Date 9-6-67

(Water charts on back)