November 27, 1962

Mr. Joe Mefford
Division Production Supt.
Sinclair Oil & Gas Company
Box 1470
Midland, Texas

Dear Mr. Mefford:

Reference is made to your application to the Oil Conservation Commission dated November 14, 1962 which seeks to convert a plugged and abandoned well in the Medicine Rock Devonian Pool in Lea County to a salt water injection well.

The number of sacks of cement used on the long string are not given in the application. The only information on cement used on the 9 5/8 inch casing is shown on the diagrammatic sketch, the application does not indicate that the tubing is lined, the application does indicate that the injection system will be open rather than closed, no analysis of the water to be injected has been submitted, the date the well was drilled has not been given. The diagrammatic sketch shows the top of cement used on the 9 5/8 inch casing to be at 3780 feet below the surface, but in view of the statement in the last sentence of paragraph 3 of the letter transmitting the application, the accuracy of the diagram is questionable. In view of the lack of confirmed information pertaining to this well, I am unable to determine what the situation may be with regard to fresh waters existing below the Ogallala formation and therefore must object to the granting of the application until such time as accurate and more detailed information is available to me.

Yours truly,

S. E. Reynolds
State Engineer

By:
Frank E. Irby
Chief
Water Rights Division

FEI/ma
cc-Mr. A. L. Porter, Jr.
Mr. F. H. Hennighausen

SINCLAIR OIL & GAS COMPANY
P. O. BOX 1470
MIDLAND, TEXAS

December 4, 1962

MIDLAND DIVISION

State of New Mexico
State Engineer's Office
State Capitol
Santa Fe, New Mexico

Attention: Mr. Frank E. Irby

Dear Sir:

Please refer to your letter of November 27, 1962, which made reference to our application to the Oil Conservation Commission dated November 14, 1962, seeking to convert a plugged and abandoned well in the Medicine Rock (Devonian) Pool, Lea County, New Mexico, to a salt water disposal well. We are pleased to answer the questions contained in your letter.

The 9 5/8 inch casing in the proposed disposal well was cemented with 300 sacks of cement. This figure appears erroneously on the application form on the line entitled, "List perforated intervals and number of sacks of cement used on any squeeze cementing operations." In as much as there were no squeeze cementing operations conducted on the well, the information printed on this line should have been "none", and the "300 sacks" should be inserted on the line entitled, "Number of sacks of cement used on long string."

The information shown on the diagrammatic sketch submitted with the application as to present status is accurate and correct as it was obtained from sworn well records on file with the Oil Conservation Commission.

The three inch tubing down which injection will occur will be plastic coated.

Attached are copies of water analyses from three Sinclair operated wells, produced from the Devonian formation. Devonian water is to be injected.

The proposed disposal well started drilling in the latter part of 1953, tested dry in the Devonian formation, and was plugged and abandoned February 19, 1954.

On November 23, 1962, a copy of a letter which transmitted a plat of the Medicine Rock Pool area and named the San Andres formation as the disposal interval was sent to your office. The letter was addressed to the Oil Conservation Commission.

Our geologists interpret the base of the Ogallala formation at about 300 feet, which is protected by the surface casing, cemented back to the surface. Below the Ogallala are predominately red beds of Triassic age. Any fresh water sands interspersed with these red beds, it is thought, would be thin and of very small areal extent. The red beds would be protected by the plastic coated tubing and by the 9 5/8 inch casing which will be run to 1180 feet and joined to the 9 5/8 inch casing now in the hole with a Baash-Ross casing bowl.

Should any further information be required regarding this matter, please advise us.

Yours very truly,

[illegible]

Joe Mefford
Division Production Supt.

JM:DWC:lw

Attachments

cc: Oil Conservation Commission
P. O. Box 671
Santa Fe, New Mexico
Attn: Mr. A. L. Porter, Jr.

FORMATION WATER ANALYSIS

SINCLAIR RESEARCH, INC.
TULSA, OKLAHOMA

Form SRI 3026 25M Sets Rev.

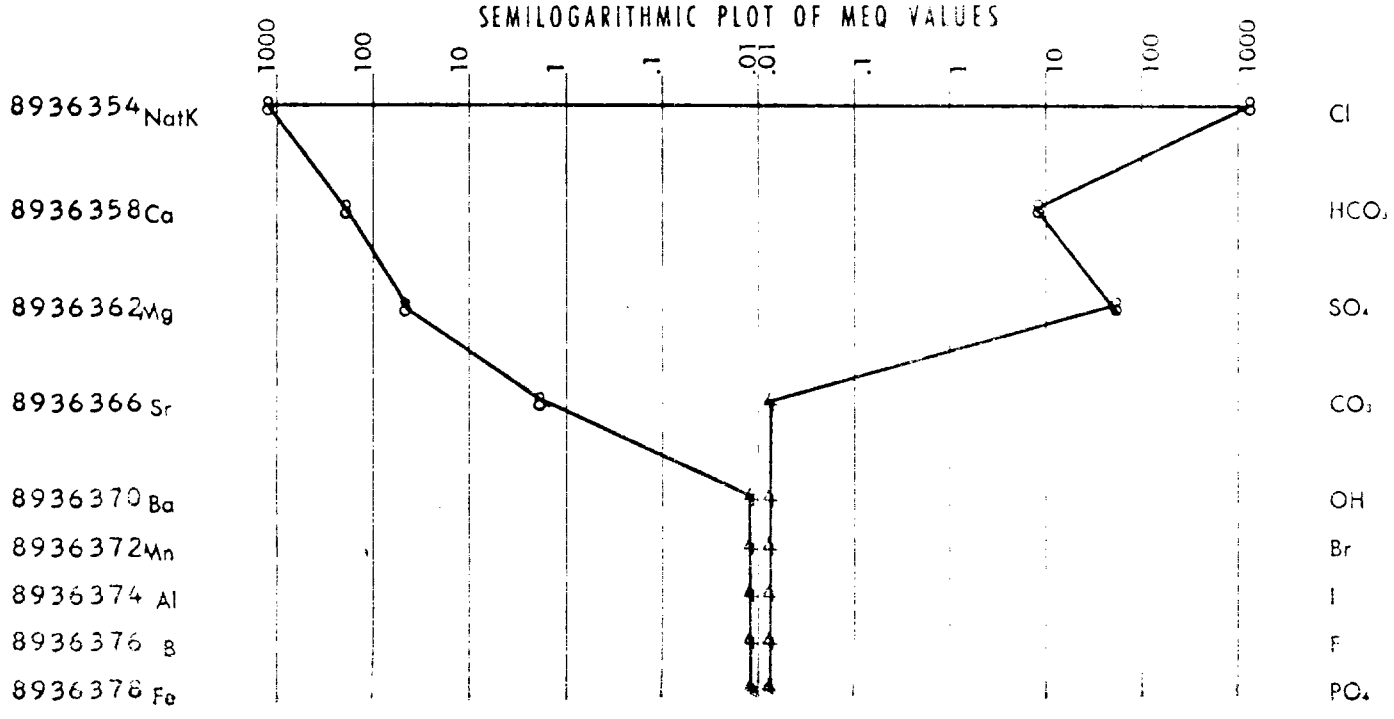
CODE NO.					St. No.
8936301	Company	SINCLAIR OIL AND GAS CO.	Date	08 22 62 Report No. S 9363	29
8936302	Well No.	1	Location	S22 T15SR38E	29
8936303	Lease Name	C S STONE	Formation	DEVONIAN	29
8936304	Field	MEDICINE ROCK DEVONIAN	Depths	12740 52	29
8936305	County	LEA	Type of Sample	PRODUCED	29
8936306	State	NEW MEXICO	Analyst	SRI GMS	29
8936307	Description of Sample	SAMPLED 8 3 62		P62 263	29

	CONSTITUENTS	MPL	MEQ	%MEQ	%TS
8936311	ALKALIES				% TS
8936312	Potassium	534	13.66	.53	.72
8936313	Sodium	24799	1078.27	42.19	33.22
8936314	Lithium	9	1.30	.05	.01
8936315		N.A.	.	.	.
8936316		N.A.	.	.	.
8936317	ALKALINE EARTHS				
8936318	Calcium	2680	133.73	5.23	3.59
8936319	Magnesium	607	49.92	1.95	.81
8936320	Barium	N.A.	.	.	.
8936321	Strontium	60	1.37	.05	.08
8936322	Manganese	N.A.	.	.	.
8936323	Iron	N.A.	.	.	.
8936324	Aluminum	N.A.	.	.	.
8936325	Boron	N.A.	.	.	.
8936326		N.A.	.	.	.
8936327	WEAK ACIDS				
8936328	Carbonate		.	.	.
8936329	Bicarbonate	336	5.51	.22	.45
8936330	Hydroxide		.	.	.
8936331		N.A.	.	.	.
8936332		N.A.	.	.	.
8936333	STRONG ACIDS				
8936334	Sulphate	1934	40.40	1.58	2.59
8936335	Chloride	43700	1232.34	48.20	58.53
8936336	Bromide	N.A.	.	.	.
8936337	Iodide	N.A.	.	.	.
8936338	Flouride	N.A.	.	.	.
8936339	Phosphate	N.A.	.	.	.
8936340		N.A.	.	.	.
8936341	TOTAL SOLIDS	74659			
8936342					
8936343	Sodium Chloride Equivalent	73851			
8936344	Chloride Salinity as NaCl	72043			

PROPERTIES of REACTION		
Primary Salinity	85.540	
Secondary Salinity	14.020	
Primary Alkalinity	.	
Secondary Alkalinity	.440	
Chloride Salinity	96.826	
Sulphate Salinity	3.174	
Tertiary Salinity	.	
HYPOTHETICAL COMBINATION		M P
$Mg(OH)_2$	.	
$Ca(OH)_2$	.	
NaOH	.	
$MgCO_3$	.	
$CaCO_3$	.	
$Mg(HCO_3)_2$	402.961	
$Ca(HCO_3)_2$	.	
$MgSO_4$	2423 611	
$CaSO_4$	.	
Na_2SO_4	.	
Na_2CO_3	.	
$NaHCO_3$	.	
$MgCl_2$	197.469	
$CaCl_2$	7421.751	
NaCl	63983.769	
	.	
pH	7.490	
Resistivity: Ohm-meters	.090	
at °F	76.	
Resistivity: Ohm-meters	.	
at °F	.	
Resistivity: Calculated	.097	
Specific Gravity	1.054	
at °F	60.	
$\frac{Ca^{++} + Mg^{++}}{Na^{+} + K^{+}}$	.130	

WATER ANALYSIS PATTERN

SEMILOGARITHMIC PLOT OF MEQ VALUES



FORMATION WATER ANALYSIS

SINCLAIR RESEARCH, INC.
TULSA, OKLAHOMA

Form SRI-3026 25M Sets Rev. 5-61

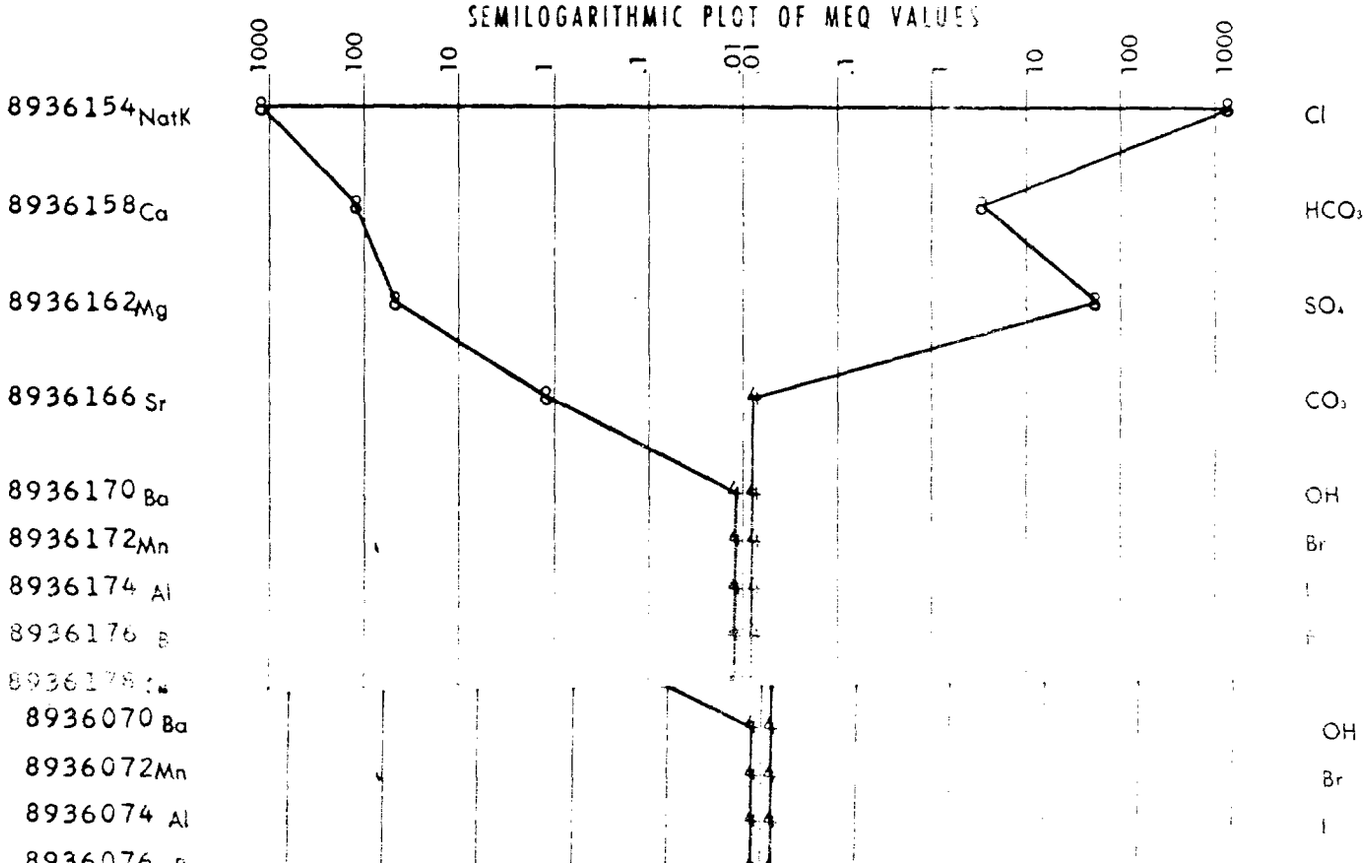
CODE NO.						St. No.
8936101	Company	SINCLAIR OIL AND GAS CO.	Date	08 22 62	Report No. S 9361	29
8936102	Well No.	1	Location	S22 T15SR38E		29
8936103	Lease Name	REED ESTATE	Formation	DEVONIAN		29
8936104	Field	MEDICINE ROCK DEVONIAN	Depths	12736 46		29
8936105	County	LEA	Type of Sample	PRODUCED		29
8936106	State	NEW MEXICO	Analyst	SRI GMS		29
8936107	Description of Sample	SAMPLED 8 3 62 DILUTED SLIGHTLY		P62 267		29

	CONSTITUENTS	MPL	MEQ	%MEQ	%TS
8936111	ALKALIES				% TS
8936112	Potassium	400	10.23	.53	.72
8936113	Sodium	18243	793.22	41.36	32.62
8936114	Lithium	6	.86	.04	.01
8936115		N.A.	.	.	.
8936116		N.A.	.	.	.
8936117					
8936118	ALKALINE EARTHS				
8936119	Calcium	2160	107.78	5.62	3.86
8936120	Magnesium	559	45.97	2.40	1.
8936121	Barium	N.A.	.	.	.
8936122	Strontium	43	.98	.05	.08
8936123	Manganese	N.A.	.	.	.
8936124	Iron	N.A.	.	.	.
8936125	Aluminum	N.A.	.	.	.
8936126	Boron	N.A.	.	.	.
8936127		N.A.	.	.	.
8936128					
8936129	WEAK ACIDS				
8936130	Carbonate	.	.	.	.
8936131	Bicarbonate	155	2.54	.13	.28
8936132	Hydroxide	.	.	.	.
8936133		N.A.	.	.	.
8936134		N.A.	.	.	.
8936135	STRONG ACIDS				
8936136	Sulphate	1699	35.49	1.85	3.04
8936137	Chloride	32660	921.01	48.02	58.40
8936138	Bromide	N.A.	.	.	.
8936139	Iodide	N.A.	.	.	.
8936140	Flouride	N.A.	.	.	.
8936141	Phosphate	N.A.	.	.	.
8936142		N.A.	.	.	.
8936143	TOTAL SOLIDS	55925			
8936144					
8936145	Sodium Chloride Equivalent	55365			
8936146	Chloride Salinity as NaCl	53843			
8936147					

PROPERTIES of REACTION	
Primary Salinity	83.860
Secondary Salinity	15.880
Primary Alkalinity	.
Secondary Alkalinity	.260
Chloride Salinity	96.290
Sulphate Salinity	3.710
Tertiary Salinity	.
HYPOTHETICAL COMBINATION	MPL
$Mg(OH)_2$	.
$Ca(OH)_2$	.
NaOH	.
$MgCO_3$	.
$CaCO_3$	.
$Mg(HCO_3)_2$	185.890
$Ca(HCO_3)_2$	.
$MgSO_4$	2129 119
$CaSO_4$	.
Na_2SO_4	.
Na_2CO_3	.
$NaHCO_3$	.
$MgCl_2$	383.720
$CaCl_2$	5981.710
NaCl	47071.467
	.
pH	6.790
Resistivity: Ohm-meters	.122
at °F	76.
Resistivity: Ohm-meters	.
at °F	.
Resistivity: Calculated	.122
Specific Gravity	1.040
at °F	60.
$\frac{Ca^{++} + Mg^{++}}{Na^{+} + K^{+}}$	.146

WATER ANALYSIS PATTERN

SEMILOGARITHMIC PLOT OF MEQ VALUES



FORMATION WATER ANALYSIS

SINCLAIR RESEARCH, INC.
TULSA, OKLAHOMA

Form SRI-3026 25M Sets Rev. 5

CODE NO.					St. No.
8936001	Company	SINCLAIR OIL AND GAS CO.	Date	08 22 62 Report No. S 9360	29
8936002	Well No.	2	Location	S22 T15SR38E	29
8936003	Lease Name	REED ESTATE	Formation	DEVONIAN	29
8936004	Field	MEDICINE ROCK DEVONIAN	Depths	12762 79	29
8936005	County	LEA	Type of Sample	PRODUCED	29
8936006	State	NEW MEXICO	Analyst	SRI GMS	29
8936007	Description of Sample	SAMPLED 8 3 62		P62 265	29

	CONSTITUENTS	MPL	MEQ	%MEQ	%TS
8936011	ALKALIES				% TS
8936012	Potassium	512	13.10	.52	.70
8936013	Sodium	24525	1066.33	42.67	33.53
8936014	Lithium	8	1.15	.05	.01
8936015		N.A.	.	.	.
8936016		N.A.	.	.	.
8936017	ALKALINE EARTHS				
8936018	Calcium	2440	121.76	4.87	3.34
8936019	Magnesium	559	45.97	1.84	.76
8936020	Barium	N.A.	.	.	.
8936021	Strontium	56	1.28	.05	.08
8936022	Manganese	N.A.	.	.	.
8936023	Iron	N.A.	.	.	.
8936024	Aluminum	N.A.	.	.	.
8936025	Boron	N.A.	.	.	.
8936026		N.A.	.	.	.
8936027	WEAK ACIDS				
8936028	Carbonate		.	.	.
8936029	Bicarbonate	472	7.74	.32	.65
8936030	Hydroxide		.	.	.
8936031		N.A.	.	.	.
8936032		N.A.	.	.	.
8936033	STRONG ACIDS				
8936034	Sulphate	2075	43.35	1.79	2.84
8936035	Chloride	42500	1198.50	47.96	58.10
8936036	Bromide	N.A.	.	.	.
8936037	Iodide	N.A.	.	.	.
8936038	Flouride	N.A.	.	.	.
8936039	Phosphate	N.A.	.	.	.
8936040		N.A.	.	.	.
8936041	TOTAL SOLIDS	73147			
8936042	Sodium Chloride Equivalent	72138			
8936043	Chloride Salinity as NaCl	70065			

PROPERTIES of REACTION	
Primary Salinity	86.480
Secondary Salinity	12.900
Primary Alkalinity	.
Secondary Alkalinity	.620
Chloride Salinity	96.518
Sulphate Salinity	3.482
Tertiary Salinity	.

HYPOTHETICAL COMBINATION	MPL
$Mg(OH)_2$	.
$Ca(OH)_2$	.
NaOH	.
$MgCO_3$	.
$CaCO_3$	.
$Mg(HCO_3)_2$	566.065
$Ca(HCO_3)_2$	.
$MgSO_4$	2301.465
$CaSO_4$	337.962
Na_2SO_4	.
Na_2CO_3	.
$NaHCO_3$	.
$MgCl_2$	.
$CaCl_2$	6481.592
NaCl	63238.125
pH	.
Resistivity: Ohm-meters at °F	7.290
Resistivity: Ohm-meters at °F	.105
Resistivity: Calculated	76.
Specific Gravity at °F	.
$\frac{Ca^{++} + Mg^{++}}{Na^{+} + K^{+}}$	.099
	1.051
	60.
	.120

WATER ANALYSIS PATTERN

SEMILOGARITHMIC PLOT OF MEQ VALUES