

STATE OF NEW MEXICO

STATE ENGINEER OFFICE SANTA FE

S. E. REYNOLDS STATE ENGINEER

December 10, 198

ADDRESS CORRESPONDENCE TO: STATE CAPITOL SANTA FE, N. M.

Er. . L. Porter, Jr. Secretary-Director Oil Conservation Commission Santa Fe, New Mexico

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Dear Mr. Porter:

Reference is made to the application of Maradoon Oil Company which seeks to dispose of salt water by injection into a porous formation not productive of oil and gas. The water to de disposed of originates in the Lea Bone Springs and Lea Devonian formations. Generally, the mater in the Devonian contains an extremely high concentration of chlorides, while the water in the so-called Capitan Reef or Seven Rivers contains a much better chemical quality of mater. No analyses of either the brine or the water in the formation into which injection will be made was furnished with the application. A general knowledge of the quality of water in the respective zones indicates that the granting of this application would in the cause the mater in the injection zone to be so highly concentrated that it could not be economically treated for use.

There has been considerable discussion of this proposed disposal well by staff members of this office for several cocks and we have received oral comments from independent hydrologists concerning this proposed disposal well.

I cannot agree to the granting of this appli ation in view of the information I have, which is not contained in the application, and therefore must object to the granting of this application until additional information is obtained. It is a matter of record that the Capitan Reef produces water near the Texac-New Mexico State Line which contains less than 3000 parts per million of chloribes. Before this office can further consider with reaving objection to the granting of this application, we will require analyses by an

independent laboratory of the water in the Lea Bone Springs formation, the Lea Devonian formation and the Seven Rivers formation into which the injection is to be made.

Yours truly,

S. D. Reynolds State Engineer

B:: Frank E

Ecan: E. Irby **C** Chiel Later Rights Division

FEI/ma cc-John R. Barber F. H. Hennighausen



MARATHON OIL COMPANY - - Electre - Electro

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December 13 1963

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Marchhan	042 Comon				November 29. 1963
Box 220	011 Company ny Mexico		it nor any part the disclosed without f laboratory manage of regular business	ereof nor a copy light securing the ement: it may he operations by a	burton Company and neither thereof is to be published gr express written approval of wever, be used in the course my person or concern and em- rt from Halliburton Company
			-		
Well & imase	Las Unit SWD #1	· ····································	. Depth	Formation	Seven Rivers
Location		Field .	••••••		Produced
Specific gravity 60/60	1.017				
Color- filtrate	Cloudy				
pH	7.6				
Resistivity	. 319 • F				
• 7	ppm (mpl)				
Chlorides, Cl	7,600				
Sulfates, SO4	2.750				
Alkalinity, HCO3	185				
Calcium, Ca	1,120				
Magnesium, Mg	585				
Iron, Fe	Negl.				
Sodium, Na*	3,910				
Sulfides, H2S	177				
Remarks			· •·····		
	•• , •, , • • • • • •				
ppm equals Parts p • includes Potassium	er million (incorrected (as No.	or milligrams per	liter		
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LOVINGTON, NEW MEXICO

No. W1-747-63

LABORATORY REPORT

Manakhar 042 ga a		Date December 2, 1963					
TO Marathon Oil Company Box 220 Hobbs, New Mexico		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 of ployees thereof receiv	perations by an	v person or con	cern and em-	
			Date Received				
Well & Lease	a Unit SWD #1			Formation .	Seven Riv	ers	
Location		Field .		Source	roduced		
Specific gravity 60/60 °F	1.015					•	
Color- filirate	Cloudy					•	
рН	7.6						
Resistivity • 75	• 286 •F ppm (mpl)						
Chlorides, Cl	8,000						
Sulfates, SO4	2,500						
Alkalinity, HCO3	170						
Calcium, Ca	1,280				•		
Magnesium, Mg							
Iron, Fe	Negl.						
Sodium, Na*	4,278						
Sulfides. H2S	Negl,						
Remarks Appro:	ximately same as ls	t sample					

ppm equals Parts per million uncorrected or milligrams per liter • includes Potassium as Na

Respectfully submitted,
HALLIBURTON COMPANY
By Dave Sutton, División Chemist
Dave Sutton, Division Chemist

Laboratory Analyst

NOTICE

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This report is limited to the described sample tested. Any user of this report agrees that Haliburton shall not be liable for any loss or damage, whether due to act or omission, resulting from such report or its use.

		LOVINGTON. NEW M	NEXICO	No. M	-746-63
ILLEG	IBIF	LABORATORY	REPORT		
	C. CONT. Name State			Date December	<u>r 2, 1963</u>
TO Marathon 011 Box 220 Hobbs, New Ma	••••••	it nor a disclose laborate of regui	bort is the property of ny part thereof nor a c d without first secucin my management; it mu ar business operations thereof receiving such	copy thereof is to be g the express writte ay however, be used by any person or co	e published or en approval of in the course ncern and em-
4.5	M		Date Received		
		Jepth Field			
		Approx. 120 BOPD)			BOPD)
-pecific gravity 60/60 °F	1.124		1.026		
Color filtrate	 			Sample	Turbidity, ppm
pH	6.7			#1	86
Resistivity	•F ppm (mpl)			† 2 ∲ 3 ∳ 1 & †3	64 500 105
Chlorides, Cl	114,000		18,400	#1 & #3 #2 & #3	240 198
Sulfates, SO4	(1500)		(2500)		
Alkalinity_ HCG3	232		158		
Calcium, Ca	2,000		1,680		
Magnesium, Mg	<u>680</u>		730		
Iron, Fe	Negl.		Negl.		
Sodium Na*	71,000		9, 9 00		
Sulficies 1145	liegl.		Tr. (2)		
Remarks . Turtity	(Jackson Sand	lle Turbidimeter Me	thod) Seiple #1	- Bone Sprin	<u> </u>
Sau - 52 - 1	Devoniani. Sampi	e #3 - Seven River	s (Waters in mi	xtures mixed	50 :50)
pplo eques fonts per n Topolader Fonssiam as A	ullion uncorrected o	r milligrams per hter			
		Respect	ally submitted		
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MARATHON OIL COMPANY

FORMERLY THE DHID OIL COMPANY

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LEGAL DEPARTMENT

December 18, 1963

SOUTHERN NATIONAL BANK BUILDING P. O. BOX 3128 HOUSTON 1, TEXAS 77001

Mr. Dan Nutter Chief Engineer New Mexico Oil Conservation Commission P. O. Box 871 Santa Fe, New Mexico

Dear Dan:

My well-laid plans to attend the Interstate Oil Compact meeting in Santa Fe came to nothing, and I am very sorry that I was not able to be there. Having seen some of the press releases about the speech you presented at the Compact meeting I would certainly like the opportunity to read it if you have an extra copy available.

Warren Leach relayed to me the substance of your telephone conversation concerning the status of our pending application for the Lea Unit salt water disposal well. Thanks once more for your continuous attitude of reasonable and objective understanding of industry problems. When I suggested that Warren call you I felt sure that if any misunderstanding had arisen concerning our application, we would be much better able to correct it after discussing the matter with you.

If a copy of your speech is not readily available I will rely on the press releases, but if it is not an imposition I would certainly like to read the entire text.

Sincerely

J. O. TERRELL COUCH

JOTC/1



MARATHON OIL COMPANY

FORMERLY THE OHIO OIL COMPANY

F. O. Box 220 Hobbs, New Mexico

New Mexico Oil Conservation Commission P. O. Box 871 Santa Fe, New Mexico

Attention: Mr. Daniel S. Nutter

Dear Sir:

Enclosed please find water analyses on the Leb Bone Springs, Lea Devonian and Seven Rivers formations water samples. These analyses have been submitted to Mr. Frank E. Irby of the State Engineer Office, Santa Fe, New Mexico.

In that there is some doubt as to the proper designation of the Lea Devonian and Lea Bone Springs samples, additional samples will be taken under the supervision of Mr. Jim Wright of the Roswell office of the State Engineer. The results of these analyses will also be forwarded to the State Engineer Office as well as to the New Mexico Oil Conservation office in Santa Fe.

Yours very truly,

MARATHON OIL COMPANY Engineering Department

December 23, 1563

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John R. Barber Area Petroleum Engineer

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HALLIBURTO V COMPANY

LOVINGTON, NEW MEXICO

No. W1-746-63

LABORATORY REPORT

Date December 2, 1963

TO Marathon Oil Company Box 220 Hobbs, New Mexico		This report is the property of Halliburton Company and neither is nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of haboratory management; it may however, be used in the course of regular basiness operations by any person or concern and em- ployees thereof receiving such report from Halliburton Company				
Well & Lease As	Marked	Depth Formation				
	Lea Unit-Bone Springs					
	Lea Unit-Bone Springs (Water Prod 120 BOPD)		00 B0PD)			
Specific gravity 60/60 °F	1.124	1.026				
Color- filtrate			Sample	Turbidity, ppm		
pH	6.7	7.4	#1 #2	86 64		
Resistivity ø	•F		#2 #3 #1 & # 2	500 105		
Chlorides, Cl	ppm (mpl) 114,000	18,400	#1 & #3 #2 & #3	240 198		
Sulfates, SO4	(1500)	(2500)				
Alkalinity, HCO3		158				
Calcium, Ca	2,000	1,680				
Magnesium, Mg	<u>68</u> 3	730				
Iron, Fe	Negl.	Negl.				
Sođium, Na*	71,000	9,900				
Sulfides. H2S	Negl.	Tr. (20)				
RemarksTurbidity.	(Jackson Candle Turbidime	ter Method) Sample #1 -	Bone Spring	S		

Sample #2 - Devonian: Sample #3 - Seven Rivers (Waters in mixtures mixed 50:50)

ppm equals Parts per million uncorrected or milligrams per liter • includes Potassium as Na.

Respectfully submitted,
HALLIBURTON COMPANY By <u>aul Sutton</u> Dave Sutton, Division Chemist
Dave Sutton, Division Chemist

Laboratory Analyst

Brewer

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MARATHON OIL COMPANY

FORMERLY THE OHIO DIL COMPANY

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December 27, 1963

P. O. Box 220 Hobbs, New Mexico

State Engineer Office The Capitol Building Santa Fe, New Mexico

Attention: Mr. Frank E. Irby

Dear Sir:

Enclosed please find complete water analyses on the Lea Bone Springs and Lea Devonian formation water samples. These samples were caught from the respective heater-treaters under the supervision of Mr. Jim Wright of the State Engineer's Office in Roswell, New Mexico.

A copy of these analyses has been forwarded to Mr. Daniel S. Nutter of the New Mexico Oil Conservation Commission. Please advise if any further assistance can be offered in this matter.

Yours very truly,

MARATHON OIL COMPANY Engineering Department

/John R. Barber Area Petroleum Engineer

JRB:bje

cc: L. H. Shearer J. A. Grimes T. A. Steele D. V. Kitley A. A. Peters W. B. Leach Den. Research Lab

> Mr. D.S. Nutter/ NMOCC-Santa Fe

USGS-Roswell USGS-Hobbs HALLIBURTON DIVISION LABORATORY

HALLIBURTON COMPANY

LOVINGTON, NEW MEXICO

No. W1-801-63

LABORATORY REPORT

Date December 26, 1963

TO Marathon Oil Company		This report is the properties the properties the properties of the	This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or			
Box 220		cisclosed without first s	cisclosed without first securing the express written approval of laboratory management; it may however, be used in the course			
Hobbs, New	of regular business oper	ations by ar	ny person or concern a	nd em-		
		Date Received .				
Well & Lease	arathon Lea Unit Lease	epth	Formation	As Listed		
Location		. Field Pearl	Source	Heater Treater		
	Bone Springs (Wtr.Prod. 120 BOPD)	Devonian (Wtr.Prod.1000 BOPD				
Specific gravity 60/60 °F	1.125	1.027				
Color. filtrate	Slt. Cloudy	Lt. Gray		•	•	
pH	7.1	7.2				
Resistivity 🗢 84	•042 •F	.1 56				
Chlorides, C1	ppm (mpl) 117,000	18,200	•			
Sulfates, SO4	700	95 0				
Alkalinity, HCO3		183				
Calcium, Ca	2,880	1,520				
Magnesium, Mg	437	292				
Iron, Fe	Negl.	Negl.				
Sodium, Na*		10,023				
Sulfides. H2S	Negl,	26				
Total Dissolved So	olids - 195,000	39, 600				

ppm equals Parts per million uncorrected or milligrams per liter • includes Potassium as Na.

Respectfully submitted,

HALLIBURTON COMP Ву Brewer, Laboratory Technician

Laboratory Analyst

Brewer

NOTICE

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STATE OF NEW MEXICO

STATE ENGINEER OFFICE SANTA FE

S. E. REYNOLDS STATE ENGINEER

December 31, 1963

ADDRESS CORRESPONDENCE TO: STATE CAPITOL SANTA FE, N. M.

Mr. A. L. Porter, Jr. Secretary-Director Oil Conservation Commission Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Marathon Oil Company which seeks to dispose of salt water by injection into a porous formation not productive of oil and gas. Marathon has designated the well as their Lea Unit Salt Water Disposal No. 1 located in Section 12, Township 20 South, Range 34 East. Reference is also made to my letter of December 10, 1963 which was an objection to the granting of the application until additional information could be obtained.

The additional information required has been supplied to me and it now appears that no economically feasible use of the water can be made for municipal, domestic, stock or agricultural purposes.

There is no doubt, from the information obtained, that the quality of water in the disposal zone (Seven Rivers formation) will be deteriorated by this **injection**. Therefore, the statement that the Seven Rivers water cannot be economically used at this date shall not be considered a precedent which would mean that henceforth the State Engineer would agree to **future** proposals which would result in the deterioration of quality of water.

The objection of the State Engineer to the granting of the

application is hereby withdrawn provided injection is made through tubing under a packer set at approximately 3875 feet.

Yours truly,

S. E. Reynolās State Engineer

By:a Irby Frank E.

Chief Water Rights Division

FEI/ma cc-Marathon Oil Co. F. H. Hennighausen