March 2, 1988

P.O. BOX 633 MIDLAND, TEXAS 79702

MIDLAND DIVISION

MAR

Oil Conservation Division .P. 0. Box 2088 Sante Fe, New Mexico, 87501

Fase 9337

ALCENTD.

WATER DISPOSAL WELL WATER DISPOSAL WELL STATE SEC. 27 LEASE WELL NO. 2 VACUUM DEVONIAN, SOUTH FIELD LEA COUNTY, NEW MEXICO

OIL CONSERVATION DIVESSION

Gentlemen:

Mobil Exploration & Producing U.S. Inc., as agent for Mobil Producing Texas & New Mexico, Inc. (MPTM), respectfully requests authority to dispose of produced water into the Devonian formation in the subject well.

Conversion of this well to a water disposal well is necessary to economically dispose of lease and off lease water.

The supporting information for this application is organized in accordance with Form C-108.

If any further information is needed concerning this application, please call C. A. Moore at (915) 688-1772.

Yours very truly,

A & Surring

M. E. Sweeney Environmental & Regulatory Manager

Mobil Exploration & Producing U.S. Inc. as Agent for Mobil Producing Texas & New Mexico, Inc.

CAM/jlt

attachments

cc: w/attach **Offset** Operators Surface Owner New Mexico State Land Office Distist Director OCD - Hobbs

A:M804749E.CAM (3)

ENERCY	STATE OF NEW MEXICO AND MINERALS DEPARTMENT	OIL CONSERVATION DIVISION POST OFFICE BOX 2018 STATE LAND OFFICE BUX DWG SANTA FC, New MEXICO 8/301	FORM C-108 Revised 7-1-81
APPLICAT	ION FOR AUTHORIZATION TO IN	IJECT	Case 9337
Ι.	Purpose: Decondary Rec Application qualifies fo	overy Pressure Maintenance pr administrative approval?y	🛛 Disposal 🔲 Storage es 🕅 no
п.	Operator: <u>Mobil Producin</u>	ng Texas & New Mexico, Inc	0 Box 622
	Address: <u>c/o Mobil Explor</u>	ation & Producing U.S. Inc., Mi	dland, Texas 79702
	Contact party: C. A. Moor	e Phone	: <u>(915) 688-1772</u>
111.	Well data: Complete the da proposed for in	ita required on the reverse side o ejection. Additional sheets may b	f this form for each well e attached if necessary.
IV.	Is this an expansion of an If yes, give the Division o	existing project? yes [rder number authorizing the proje	x no ct
v.	Attach a map that identifie injection well with a one-h well. This circle identifi	es all wells and leases within two alf mile radius circle drawn arou es the well's area of review.	miles of any proposed nd each proposed injection
+ VI.	Attach a tabulation of data penetrate the proposed inje well's type, construction, a schematic of any plugged	on all wells of public record wi ction zone. Such data shall incl date drilled, location, depth, re well illustrating all plugging de	thin the area of review which ude a description of each cord of completion, and tail.
VII.	Attach data on the proposed	operation, including:	
	 Proposed average an Whether the system Proposed average an Sources and an appr the receiving for If injection is for at or within one the disposal zone literature, studi 	d maximum daily rate and volume o is open or closed; d maximum injection pressure; opriate analysis of injection flu mation if other than reinjected p disposal purposes into a zone no mile of the proposed well, attach formation water (may be measured es, nearby wells, etc.).	f fluids to be injected; id and compatibility with roduced water; and t productive of oil or gas a chemical analysis of or inferred from existing
VIII.	Attach appropriate geologic detail, geological name, th bottom of all underground s total dissolved solids conc injection zone as well as a injection interval.	al data on the injection zone inc ickness, and depth. Give the geo ources of drinking water (aquifer entrations of 10,000 mg/l or less ny such source known to be immedia	luding appropriate lithologic logic name, and depth to s containing waters with) overlying the proposed ately underlying the
IX.	Describe the proposed stimu	lation program, if any.	
×.	Attach appropriate logging with the Division they need	and test data on the well. (If we not be resubmitted.)	ell logs have been filed
XI.	Attach a chemical analysis avai≀able and producing) wi location of wells and dates	of fresh water from two or more f thin one mile of any injection or samples were taken.	resh water wells (if disposal well showing
XII.	Applicants for disposal wel examined available geologic or any other hydrologic con source of drinking water.	ls must make an affirmative state and engineering data and find no nection between the disposal zone	ment that they have evidence of open faults and any underground
XIII.	Applicants must complete th	e "Proof of Notice" section on the	e reverse side of this form.
XIV.	Certification		
	I hereby certify that the i to the best of my knowledge	nformation submitted with this app and belief.	plication is true and correct
1	Name: <u>M. E. Sweeney</u>	Title En	vironmental & Regulatory,Manage
!	Signature: <u>MG</u>	Juning Date:	March 2, 1988
* If the submit of the	information required under ted, it need not be duplica earlier submittal.	Sections VI, VIII, X, and XI aboved ted and resubmitted. Please show	ve has been previously the date and circumstance
DISTRI distri	BUTION: Original and one c ct office.	opy to Santa Fe with one copy to t	the appropriate Division

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
 - Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
 - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
 - (3) A description of the tubing to be used including its size, lining material, and setting depth.
 - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
 - (1) The name of the injection formation and, if applicable, the field or pool name.
 - (2) The injection interval and whether it is perforated or open-hole.
 - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
 - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
 - (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



· · ·

Α.

- 1. State Sec. 27 #2, 660' FEL & 1980' FNL, Sec. 27, T-18-S, R-35-E
- 13-3/8" Csg. @ 422' cemented with 465 sx. of cmt did not circulate but calculates to surface in a 17-1/2" hole.

9-5/8" Csg. @ 3900' cemented with 2270 sx. in a 12-1/4" hole. Top of cmt @ 308' as determined by temperature survey.

7" Csg. @ 11,950' cmt with 476 sx. of cmt in a 8-3/8" hole. Top of cmt @ 3850' as determined by temperature survey.

- 3. 4-1/2" lined with Douline 20 and set @ 11,875'.
- 4. 7" permanent packer & seal assembly set $0 \pm 11,875'$.

Β.

- 1. Devonian, South Vacuum
- 2. Open hole interval from 11,950' to 13,708'.
- 3. Well originally drilled as a Devonian producer.
- 4. Bone Spring perfs. @ 8823'-8968' sqz w/100 sx. cement; Devonian Perfs @ 11,570'-11,600' and 11,473'-11,513' sqz'd w/300 sx. cmt. each.
- 5. The next higher zone is the Bone Spring @ 8850'; there is no zone below the Devonian that is productive.
- V. Map attached, Exhibit "A"
- VI. There are no wells within the area of review that penetrate the injection interval.

VII.

- 1. Average rate: 9,000 Maximum rate: 12,000
- 2. Closed system
- Avg. injection pressure: 0 (We are hopeful that this well will operate on vacuum.)
 Maximum injection pressure: 2390PSI
- 4. Attached, EXHIBIT "B", chemical analysis of source waters and statement from Reservoir Engineer;
- 5. Attached, "EXHIBIT "C", chemical analysis of disposal zone formation water and compatibility statement from N. L. Treating Chemical Co.

A:M804749F.CAM (3)

III.

VIII.

- 1. Lithologic detail
 - a. Composition Devonian, white to tan, medium to coarse crystalline with muggy to cavernous porosity;
 - b. Type structure Faulted anticline;
 - c. Average porosity 13%;
 - d. Average of Permeability 5 to 30 md;
- 2. Geological Name Devonian;
- 3. Thickness Average 500';
- 4. Depth Average to top of pay 12,000';
- Overlying fresh water zones; (10,000 ml/l or less TDS)
 - a. Ogalalla @ 300'
 - b. Santa Rosa @ 1400'
- 6. There are no fresh waters immediately underlying the injection zone.
- IX. Acidize the Lower Devonian (11,950'-13,708') w/10,000 gals. of 15% HCL + 5,000 lbs. of rock salt as follows:
 - (a) Load the backside w/fresh water and pressure up to 300 psi.
 - (b) Pump 10,000 gals. of 15% HCL w/1/2 lb./gal rock salt;
 - (c) Flush to 11,950' w/fresh water (106 BBLS);
 - (d) Obtain Maximum rate without exceeding 5000 psi.
 - (e) SI the well for 1 Hr.
 - (f) Flow/Swab back 200 bbls. of fluid if possible.
- X. Logs already submitted to District NMOCD w/original drill & completion, September, 1959.
- XI. Analyses attached, EXHIBIT "D";
- XII. MPTM has examined the available geological and engineering data and finds no evidence of open faults or any other hydrological connection between the Delaware zone and any underground source of drinking water.

XIII.Proof of Notice attached, EXHIBITS "E" AND "F"

A:M804749F.CAM (3)

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Exhibit "B"

INTEROFFICE CORRESPONDENCE

DATE: Feb. 15, 1988

TO: Ann Moore

CC:

With regards to the water capatability test conducted on fluids to be injected into the State 27 well #2 SWDW, the following statement can be made :

A composite of produced water which represents the typical injection fluid consists of Abo (46%), San Andres (48%), Glorieta (2%), Pennsylvania (3%), and Blinebry (1%). This water was combined with Devonian produced water in varying amounts. In summary, the Devonian water alone, and mixtures of Devonian from 0 to 50% with the proposed injection fluid formed carbonate scale. Calcium sulfate becomes evident in the high percent composite range of 80 - 100%. Thus a scale prevention program is needed and chemical treatment of the well will be done as required to control both types of scale.

Ann, attached is a copy of the analysis performed by NL Treating Chemicals. If you have any questions, please give me a call at ext. 2076.

Thanks

Jack Hamner RM - 240 Project Reservoir Engineer

Water Analysis Report

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Calcium, Ca + +	F					50)			-			1,	00	0			(Dxyg	șen,	02			-						_			_ n	- ng/l			
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odium, Na ⁺ (C	alc.)				_	<u>_7</u> !	5.1						1,	72	7_	_		E	Eh (F	Redo	ox F	ote	entia	al)						_			_ N	1V			
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NIONS													,					٦	Turb	idity	, F	TU	Uni	ts									-				
Chloride, Cl						169	<u>. 0</u>			-			<u>6</u> ,	00	0			٦	lota	l Dis	soi	vec	d Sc	olids	(Ca	ilc.))			11	يما	<u>161</u>	_ n	ng/l			
Sulfate, SO ₄ =						30).7			-			1,	47	5			5	Stab	ility	Ind	ex	(@	80	_°F	-			<u>+(</u>	<u>).8</u>	31	-				
Jarbonate, CO3	=											-											Q	<u>@1</u>	00	_°F	-			<u>+(</u>	<u>).3</u>	<u>}0</u>	-				
Bicarbonate, HC	×03 [–]						3.4			•				20	7								(@ <u>1</u>	20	_°F				<u>+(</u>	<u>), L</u>	<u>+5</u> _	_				
iydroxyl, OH										-							-	C	CaS	D₄ S	Solu	ilidi	ty (<u>@</u>		_°F	:			-			_ n	ng/l			
ulfide, S =										•							_						4	<u>@</u>		_°F							_ m	ng/l			
								_		•			<u></u>		··			Ņ	Лах.	Cas	SO,	4 Pc	ossi	ib:e	(Ca	lc.)							_ m	ng/l			
																		ŀ	lax.	Bas	SO,	4 Pc	ossi	ble	(Ca	lc.)							- m	ng/l			
				,					·					·				F	Resid	dual	Hy	dro	cal	rbor	าร								- PI	pm	Vol	ol)	

USPENDED SOLIDS (QUALITATIVE)

on Sulfide I Iron Oxide Calcium Carbonate Calcium Sulfate Acid Insoluble EMARKS AND RECOMMENDATIONS:

TCENGINEER Dickerson/Siyker	DIST. NO. 821	ADDRESS		OFFICE PHONE	HOME PHONE
ALYZED BY	DATE	DISTRIBUTION	I CUSTOMER	E REGION	I DISTRICT
1.45	10/10/21	. ;	E. Y. TO US, ES EN OWIEED		ж.

Water Analysis Report

					SHEET NUMBER
					1
COMPANY					DATE
Mobil Producing Texa	as & New Mexico				
FIELD		COUI	NTY OR PARISH		STATE
Vacuum		Le	ea		New Mexico
LEASE OR UNIT	SAMPLE SOURCE			WATER SOURCE (FOR	MATION)
Bridges-State Leases	s #193			San Andres	
DEPTH. FT. BHT, *F	SAMPLE SOURCE	TEMP, *F WATE	ER, BBL/DAY OIL, E	BL/DAY	GAS, MMCF/DAY
				VATER DISPOSAL	<u></u>
	TYPE OF PRODUCTION:	ARY U WATERFLOOD			STEAMELOOD
12-16-8/1					
	WAT (NUMBER BESIDE I	ER ANALYSIS PA	TTERN TES me/I SCALE UNIT)	
+ 20 15	10 5	0	5	10 15	20 a. –
Na + 20	TTTTTTTTT	1 1 1 1 1 1 1		111111	
		l l			
Ca ⁺ +	┶┶┶┶┶┶┶┶	╶╪╾┽╌╄╶╄╌┽╼┽		╺┼╍┼╶┽╶┽╶┽	
			1 1 1 1 1 1	1,,,,1	
Fe ⁺⁺⁺					co ₃ =
DISSOLVED SOLIDS			DISSOLVED GAS	ES	
2 ATIONS	mell	mo/l	Hydrogen Sulfide H	105	mo/l
	282	rigit	Carbon Dioxide CO		mo/l
otal Hardness	156	3,120			mg/l
	126	1.537	0,79011, 02	-	11g/1
				TIFS	
			nн (Field)		6 63
Barium, Ba	974.7	22,418	Eh (Redox Potential	. –	MV
Sodium, Na (Calc.)	······································		Specific Gravity		
			Turbidity FTU Units	-	
NIONS	1.183.1	42.000	Total Dissolved Soli	ds (Calc.) 7	2 634 mp/
	57.3	2.750	Stability Index @	80 °F +	0.21
			@	100 °F +	0.35
	12.2	744	e A	120 °F +	0,52
			CaSO₄ Solubility @	•F	ma/l
	4.1	65	n	•F	mo/l
			Max. CaSO Possib	le (Calc.)	mall
			Max BaSO4 Possib	le (Calc.)	mo/i
			Residual Hydrocarb	ions -	

USPENDED SOLIDS (QUALITATIVE)

on Sulfide I Iron Oxide C Calcium Carbonate C Calcium Sulfate Acid Insoluble *EMARKS AND RECOMMENDATIONS:*

TCENGINEER	DIST. NO.	ADDRESS	OFFICE PHONE	HOME PHONE
Dickerson/Slyker	821			
ALYZED BY	DATE	DISTRIBUTION CUSTOMER	T REGION T	0.070.07



Water Analysis Report

						SHEET NUMBER
COMPANY				······································		DATE
Mobil Pro	ducing Texa	s & New Mexico				
FIELD			COL	INTY OR PARISH		STATE
Vacuum			L	ea		New Mexico
LEASE OR UNIT		SAMPLE SOURCE			WATER SOURCE (F	ORMATION)
Bridges-	State Lease	s #114			Glorieta	
DEPTH. FT.	BHT, *F	SAMPLE SOURCE	TEMP, °F WAT 53	ER, BBL/DAY OIL.	BBL/DAY	GAS, MMCF/DAY
DATE SAMPLED		TYPE OF WATER: D PRODUCE	D D SUPPLY D WA	TERFLOOD D SALT	WATER DISPOSAL	
12-16-87	,	TYPE OF PRODUCTION:	MARY D WATERFLOO		POLYMER FLOOD	D STEAMFLOOD
		WA (NUMBER BESID	ATER ANALYSIS PA E ION SYMBOL INDICA	ATTERN TES me/I SCALE UNI	Т)	
Na ⁺ 20				5		
Ca ^{+ +}	┼┼┼┼┽┽	~~~~~	+ + + + + + + + + + + + + + + + + + +	$\left - \left - \right \right + \left - \right \right $		
Mg ^{+ +}	+++++			+ + + + + + + + + + + + + + + + + + + +		so ₄ =
Fe ⁺ ++						co ₃ =
DISSOLVED SC	DLIDS			DISSOLVED GAS	SES	
CATIONS Total Hardness Calcium, Ca + + Magnesium, Mg ron (Total) Fe +	+ + + +	me/l 276 188 88	mg/l 3,760 107	Hydrogen Sulfide, Hydrogen Sulfide, C Carbon Dioxide, C Oxygen, O ₂ PHYSICAL PROPE	H ₂ S D ₂ RTIES	mg/l mg/l mg/l
Barium, Ba + + Sodium, Na + (Ca	alc.)	3,698.9	85,075	pH (Field) Eh (Redox Potentia Specific Gravity	!)	<u> </u>
ANIONS Chloride, Cl ^{$-$} Sulfate, SO ₄ = Carbonate, CO ₃ ³ Bicarbonate, HCO	= 03	<u>3,915.5</u> <u>47.4</u> 7.5	<u>139,000</u> <u>2,275</u> <u>458</u>	Turbidity, FTU Unit Total Dissolved Sol Stability Index @ CaSO₄ Solubility @	s lids (Calc.) 280 °F 2100 °F 3120 °F 3 °F	231,712 mg/l +0.77 +0.96 +1.21
Sulfide, S=		4.5	72	(Lav Caso - Door	••F	mg/l
		·····		Max. Dabug Possil		mg/l
				Max. DabUg PUSSI		
				nesioual Hydrocari	DUIIS	ppm(voi/voi)

SUSPENDED SOLIDS (QUALITATIVE)

on Sulfide I Iron Oxide C Calcium Carbonate C Calcium Sulfate Acid Insoluble REMARKS AND RECOMMENDATIONS:

TCENGINEER Dickerson/Slyker	DIST. NO. 821	ADDRESS		OFFICE PHONE	HOME PHONE
NALYZED BY	DATE	DISTRIBUTION	C CUSTOMER		I DISTRICT
· -	• ~ * • • • •	· _			

Water Analysis Report

141,813 mg/l

mg/l

mg/l

mg/l

mg/i

ppm(Vol/Vol)

+0_13

+0_03

+0.22

																										IS	HEE	TNUN	ABER		
																											5				
OMPANY																										D	ATE				
Mobil F	roducing	Texas	3	New	Me>	cic	0																								
IELD														COL	INTY	ORI	PARI	SH								s	TATE	Ξ			
Vacuum														Le	ea											1	New Mexico				
EASE OR UNIT				S	AMPL	E SOI	JRCE														WAT	ERS	SOU	RCE (FOR	MAT	TION)			
Bridges	s-State Lea	ases			#120)															lυ	סס	e٣	Pe	nn						
EPTH. FT.	внт, • ғ		SAMP	LE SO	URCE				Γ	TE	MP,	•F		WAT	ER, E	BBUI	DAY		101	L. B	BUDA	Y				G	AS, I	AMCF	DAY		
									1	7	2																				
ATE SAMPLED)		TYPE	OF W.	ATER:		PRO	DUC	ED		SUP	PLY		WA	TERF	LOC	D		SAL	TW	ATER	DIS	POS	AL							
12-16-8	37	ſ	TYPE	OF PF	RODUC	TION	1: C) PR	IMA	RY	D	WAT	ERF	FLOC	DC	0	02 F	LOC	D	Ē	POL	ME	RFL	000) ST	EAN	FLOC	D		
								W/	ATE	ER /	AN/		SI	S P/		ERM	1														
					(NL	мв	ER B	ESIL	EIC	JN S	ΥM	BOL	INI	DICP	IES	me/	ISC	ALI	- 01	N11)	I										
Na + 2	20	15		1()			5	_	<u> </u>		0	<u> </u>			5					10				15				20 CI ~		
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Mg ^{+ +}			┟═┽╴			+-+	-+-		+		-+		+-					+	+	+	<u> </u>	_!			1	+	<u>+</u>	-	_ so₄ =		
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Fe ⁺⁺⁺		<u> </u>	11		_1_	11	1						1	1_	11		1	1	1	1		_1				1	1_!				
ISSOLVED	SOLIDS		<u> </u>												D	ISS	OLV	 /EC	G	ASE	ES			<u> </u>							
ATIONS					me	:/!					n	na/l			Н	vdro	aen	Sul	fide	. н	s							m	a/l		
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alcium Ca +	+				13	2		•	-	2	2.6	40			O ₂	waa	n 0	2 20		2	-				-			m	a/i		
accium, oa	4n + +				11	4	_	•		1	.3	91			0,	.) 40	, O	2							-				2		
agrication, M	+ + +							•	-	·					PL	175	CAI	P		EB-	TIES										
prium Pott	+		·					•	-						 	4 (Fie	- ' ' - .	4)							6.	16				
Silum No +				7	. 19	7		•		50	5	31			Би	· ·	 	р., . Р.,	n j Lont	/lei					-			- 14	V		
Domini, Mai Li	(Calc.)				لمشك	<u> </u>	· · · · · · · · ·	•			-	<u></u>			C 1	i (ne	JUX	r U	CHI	(a)					-			- f¥I	*		

84.000

3.225

732

294

Specific Gravity

Turbidity, FTU Units

Total Dissolved Solics (Calc.)

Stability Index @___80°F

CaSO₄ Solubility @_____°F

Max. CaSO₄ Possible (Calc.)

Max. BaSC₄ Possible (Calc.)

Residual Hydrocarbons

@_100°F

@_120°F

@____•F

JSPENDED SOLIDS (QUALITATIVE)

NIONS

nloride, Cl

ilfate, SO4 =

Jdroxyl, OH

.Ifide, S =

proonate, CO3=

carbonate, HCO3

n Sulfide I Iron Oxide I Calcium Carbonate I Calcium Sulfate Acid Insoluble *EMARKS AND RECOMMENDATIONS:*

2,366.2

46.4

18.4

12

CENGINEER	DIST, NO.	ADDRESS		OFFICE PHONE	HOME PHONE
ickerson/Slyker	821				
ALYZED BY	DATE	DISTRIBUTION	C CUSTOMER	C REGION	E DISTRICT
2 F	12/17/87		Z INUTO SALES ENGINEER		Ξ



Water Analysis Report

						7
COMPANY						DATE
Mobil Pr	oducing Texa	s & New Mexico				
FIELD		······································		COUNTY OR PARISH		STATE
Vacuum				Lea		New Mexico
LEASE OR UNIT		SAMPLE SOURCE			WATER SOURCE (FO	RMATION)
Bridges-	State Leases	#165			Middle Penn	
DEPTH. FT.	BHT, *F	SAMPLE SOURCE	TEMP, °F	WATER, BBUDAY OIL.	BBUDAY	GAS, MMCF/DAY
DATE SAMPLED		TYPE OF WATER: D PRODUCED	D D SUPPLY D	WATERFLOOD D SALT	WATER DISPOSAL	
12-16-87		TYPE OF PRODUCTION: D PRIN	ARY D WATERF	LOOD D CO2 FLOOD D	POLYMER FLOOD	STEAMFLOOD
		WA	TER ANALYSIS	PATTERN		
		(NUMBER BESIDE	ION SYMBOL INE	DICATES me/I SCALE UNI	T)	
Na + 20	15	10 5	0	5	10 15	20 ci -
Γ	11111					
o. + +						
La				┼╌┟╴┼╌╁╴┧		1 1 1 1 1 1 1 1 2 3
Ma++				1 1 1 1 1 1 1		1 1 1 1 50 =
	+ + + + + + + + + + + + + + + + + + + +			+ + + + + + + + + + + + + + + + + + + +		
Fe ^{+ +} +						co ₃ =
DISSOLVED S	OLIDS			DISSOLVED GAS	SES	
CATIONS Total Hardness Calcium, Ca + +		172 100	mg/l	Hydrogen Sulfide, I Carbon Dioxide, CC Oxygen, O2	H ₂ S D ₂	mg/l mg/l
Jagnesium, Mg	+ +	72	878			
ron (Total) Fe +	+ +		<u> </u>	PHYSICAL PROPE	RTIES	
Barium, Ba++				рн (Lab)		7.7
∍odium, Na ⁺ (Ca	alc.)			Eh (Redox Potentia	l} .	MV
	· •	<u></u>		Specific Gravity		
NIONS		647 9	23 000	Turbidity, FTU Unit	S	
Chloride, Cl		33 9	1 625	I otal Dissolved Sol	ios (Calc.)	mg/i
ultate, $SO_4 =$	_			Stability index @	· • · · · ·	····
vientenate, CO3	- 			@	· ۲ .	······
indrovel OH	.03		<u> </u>	CaSO4 Solubility @	•F	
					•F	mg/l
					le (Calc.)	mg/l
· · · · · · · · · · · · · · · · · · ·				Max. BaSO ₄ Possit	ole (Calc.)	mg/i
				Residual Hydrocart	oons	ppm(Vol/Vol)

USPENDED SOLIDS (QUALITATIVE)

on Sulfide D Iron Oxide D Calcium Carbonate D Calcium Sulfate D Acid Insoluble D CEMARKS AND RECOMMENDATIONS:

Note: Small sample of water obtained.

TC ENGINEER	DIST. NO.	ADDRESS	······	OFFICE PHONE	HOME PHONE
Jickérson/Slyker	821	}			
ALYZED BY	DATE	DISTRIBUTION	C CUSTOMER	I REGION	
45					

B-5



Water Analysis Report

_____ mg/l

_____ ppm(Vol/Vol)

_____ mg/!

					SHEET NUMBER 4
COMPANY Mobil Pro	oducing Texa	as & New Mexico			DATE
FIELD Vacuum			COUNT	Y OR PARISH	STATE New Mexico
LEASE OR UNIT Bridges-S	State Leases	s #27	······································	WATER SOL Blineb	JRCE (FORMATION)
DEPTH. FT.	BHT, *F	SAMPLE SOURCE	TEMP, °F WATER 52	, BBUDAY OIL, BBUDAY	GAS, MMCF/DAY
DATE SAMPLED 12-16-87		TYPE OF WATER: D PRODUCED TYPE OF PRODUCTION: PRIM	D C SUPPLY C WATER	RFLOOD D SALT WATER DISPO	SAL LOOD 🗆 STEAMFLOOD
		WA (NUMBER BESIDE	TER ANALYSIS PAT	TERN S me/I SCALE UNIT)	
Na + 20	15	10 . 5	0	5 10	15 20 CI -
Ca ⁺ +	┼┼┼┼┤┤				
Mg ⁺ +	+ + + + + + + + + + + + + + + + + + + +		+++++++++++++++++++++++++++++++++++++++		so ₄ =
				DISSOLVED GASES	<u> </u>
CATIONS Total Hardness Calcium, Ca + + Magnesium, Mg +	+ +	me/I 734 546 188	mg/l 10,920 2,294	Hydrogen Sulfide, H2S Carbon Dioxide, CO2 Oxygen, O2	mg/i mg/i mg/i
ron (Total) Fe ⁺⁺ Barium, Ba ⁺⁺ Sodium, Na ⁺ (Ca	aic.)	2,665,7	61,311	pHTSICAL PROPERTIES pH (Field) Eh (Redox Potential) Specific Gravity	MV
NIONS Chloride, Cl ⁻ Julfate, SO ₄ = Carbonate, CO ₃ =	=	<u> </u>	 	Turbidity, FTU Units Total Dissolved Solids (Calc.) Stability Index @ <u>80</u> °F @ <u>100</u> °F	195,885 mg/l +1.55 +1.74
sicarbonate, HCC Hydroxyl, OH ulfide, S =	03	5.y	360	@ <u>120</u> °F CaSO₄ Solubility @°F °F	+ <u>1.97.</u> mg/i mg/i

USPENDED SOLIDS (QUALITATIVE)

on Sulfide I Iron Oxide Calcium Carbonate Calcium Sulfate Acid Insoluble *EMARKS AND RECOMMENDATIONS:*

TCENGINEER	DIST. NO.	ADDRESS		OFFICE PHONE		HOME PHONE	
Dickerson/Slvker	821	l					
ALYZED BY	DATE	DISTRIBUTION	C CUSTOMER			DISTRICT	
۵ <u>۶</u>	12/17/97		DI INLTO SALES EN GINEEP		-		

Max. CaSO₄ Possible (Calc.)

Residual Hydrocarbons

Max. BaSO₄ Possible (Calc.)

Exhibit "C"



January 20, 1988

Mr. David Howell Mobil Producing Texas & New Mexico P. O. Box 1800 Hobbs, New Mexico 88240

Subject: Vacuum Area Waters - Compatibility Study with Devonian Brine

Dear Mr. Howell:

Appended are individual produced water analyses pertaining to those Mr. Dickerson and I took with you on December 16, 1987. Also included is the Union's Devonian water analysis.

A mixture of your produced water was made as follows:

Abo	46%
San Andres	48%
Glorieta	2%
Pennsylvania	3%
Blinebry	1%

That mixture was blended with Devonian water in 10% increments. Samples were placed in an oven for 5 days at 100°.

The "Compatibility" appendage describes how samples reacted. Brief general summary comments are these:

- No major initial incompatibility was seen at the time of mixing.
- 2. Moderate calcium carbonate deposition was found in the Devonian by itself (100%).
- 3. Mixtures were stable and stayed clear in the 90%-60% Devonian range.
- Calcium carbonate deposition was seen in all samples from 50% Devonian to 0% (or 100% composite produced water mixture).
- 5. Calcium sulfate deposition was observed in the 80%-100% composite produced water ratios.

Mobil Producing Texas & New Mexico Page Two

In summary, the Devonian alone, and mixtures of Devonian from 50% to 0% formed carbonate scale. Calcium sulfate becomes a known in the high percent composite mixture range.

In other words, scale prevention treatment is advisable throughout most of the mixing range. One treatment can handle both kinds of scale.

. We would be pleased to discuss this report with you at a mutually agreeable time.

Very truly yours,

Janne Nickerson John U. Sh Wayne Dickerson John V. Slyker War

Sales Engineer Sales Representative

/cg

W. Reeves cc: D. Seale

С-1.



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• :

NL Treating Chemicals/NL Industries, Inc. P. O. Box 4305 Houston. Texas 77210

REPORT OF TEST

					SHEET NUMBER
COMPANY	······································				DATE
Mobil Prod	ucing Texas & New	Mexico			12-16-87
FIELD OR PLANT			COUNT	TY OR PARISH	STATE
Vacuum Are	a Leases		Lea	B	New Mexico
LEASE OR UNIT		WELL(S) NAME & NO.	SAMPL	E SOURCE	
		l	See	e_Below	
TYPE SAMPLE			TYPE	TEST	
				<u>npatibility of Devoni</u>	<u>an with Mix</u>
REASON FOR TEST					
Possible	Salt Water Disposa	<u>a l</u>			
RESULTS:					
Compati	bility Mixture %	Observations	(100	0 [°] F)	
p	Composite	Initial			
Devonian	Produced Waters	Appearance		<u>5 days</u>	
100	0	Clear		Moderate calcium ca	rbonate Deposition
90	10	Clear		No deposition	
80	20	Clear		No deposition	
70	30	Clear		No deposition	
60	40	Slightly hazy		No deposition	
50	50	Slightly hazy		Moderate calcium ca	rbonate deposition
40	60	Slightly hazy; sli	ght	Slight calcium carb	onate deposition
		gray cast		-	•
30	70	Slightly hazy, sli	ght	Slight calcium carbo	onate deposition
		gray cast		-	·
20	80	Slightly hazy, sli	ght	Moderate calcium su	lfate & slight
		gray cast		calcium carbonate de	epositions; slight
				iron compounds prec	ipitated.
10	90	Slightly hazy; sli	ght	Heavy calcium sulfa	te deposition;
		gray cast		moderate calcium ca	rbonate formed.
				+ moderate iron com	bounds deposited.
0	100	Slightly hazy, sli	ght	Heavy calcium sulfat	te deposited;
		gray cast		moderate calcium ca	rbonate precipitation
				moderate amount of	insoluble iron
				compounds formed	

REMARKS & RECOMMENDATIONS:

Source	<u>Mixture %</u>			
АЬО	46			
San Andres	48			
Glorieta	2			
Pennsylvania	3			
Blinebry	1			
LES ENGINEER	DIST NO.	ADDRESS	OFFICE PHONE	HOME PHONE
Dickerson	821			1



Water Analysis Report

																SHEE		ABEH	
COMPANY								<u> </u>	<u> </u>	<u> </u>				<u></u>		DATE			
Mobil Pr	roducing Tex	ac E Now	Mexico														-	•	
FIELD		35 6 HCH						COUNT	TY OR P	ARISH						STAT	E		
Vacuum								Lea								New	/ Mex	xico	
LEASE OR UNIT	Union Oil C	0.	SAMPLE SOURCE									WAT	ERSC	URCE	(FORM	ATION	v)		
_Bridges-	State Lease	5	Lee "J" St	ate	#1							Dev	/on	ian					
DEPTH. FT.	BHT, *F	SAMPLE SC	OURCE		TEN 26	4P, •F		WATEF	R, BBL/D	AY		BBL/DA	NÝ			GAS,	MMCF	DAY	
DATE SAMPLED		TYPE OF W	VATER: D PRODU	CED	0.8	SUPPL	ΥD	WATE	RFLOOD		SALTY	VATER	DISP	OSAL		b	· ·		
_12-16-87	7	TYPE OF P	RODUCTION:	RIM	ARY	D W	ATERF	LOOD		2 FLO	a ac	POLY	MER	FLOOD		STEAN	MFLOO	D	
			V (NUMBER BES	VAT	ER A	NAL		S PAT	TERN S me/l	SCALI	Ε υΝΠ)							
No + 2	0 15	1	10 5			C)		5			10	_		15		:	20 _{Cl} –	
(12			1 1	T			T	1 1		17	1 1	T	1	1 1	T	1	1-1-		
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:				•	• •	•			·	• •			•	• •	1	•	•••		
Mg ^{+ +}	++++	$\left \begin{array}{c} + \\ + \\ + \\ \end{array} \right $	<u>┤</u> ┼┼┤┼┤	+	++	+			╉╋	++		++	+	+-+-	++		+	_ SO ₄ =	
Fe ⁺⁺⁺					11			1_1_		11	1.1		_1_	1.1.		1	1_1_	_ ₀₀₃ =	·
DISSOLVED	SOLIDS		<u> </u>	<u> </u>					DISSC		GAS	ES							
0470010							n		Ludron		Kido L	-6						a 7	
CATIONS		•	142			ng	1		Carbon	Diovi	nue, n de CO	20					10	an An	
Coloirm Co	5 +		68	-	1	.360)	}	Oxvoer	: Oo	ue, 00	2					09 m	yn α/l`	
Magnesium M	n++		74	-		903	}	`	UNJ901									â.	
Iron (Total) Fe	¥ + + +								PHYSIC	CAL PR	ROPER	TIES							
Barium. Ba + 1	+							1	рн (Fiei	ld)				6.	32			
Sodium, Na + (Calc.)		405.8	-	9	,333	}		Eh (Rec	lox Po	tential)					М	٧	
								{	Specific	c Grav	rity				•••••				
ANIONS					. 0	000		•	Turbidit	ty, FTL	J Units						~		
Chloride, Cl			27.1	•	18	<u>,000</u>)]	Total D	issolve	ed Soli	ds (Ca	lc.)		31	<u>-54</u>	<u>2</u> mg	g/l	
Sulfate, SO4 =	_		2/.1	-		300	,	'	Stability	/ Index	× @.	100	L*F			0.4	<u> </u>		
Carbonate, CO	3=		9 5	-		580					<u></u>	120				0 1	2		
Hicarbonate, H				-		500	<u> </u>	,	<u></u>	Solub	Q. Ility C		• =			<u>v.</u> !.	÷	o /i	
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3011108, 5-			<u> </u>	-					Max C	sou	₩- PaseiN	e /Cel	- " c \				103 m/	en n∄	
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<u> </u>				-		•••••••			Residue	al Hvd	rocart	-, 0fis	<i></i> ,				רייי — חת	יי הוו∕עוו∕ע	0))
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SUSPENDED SOLIDS (QUALITATIVE)

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tron Sulfide I Iron Oxide Calcium Carbonate Calcium Sulfate Acid Insoluble REMARKS AND RECOMMENDATIONS:

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NLTCENGINEER	DIST. NO.	ADDRESS	•	OFFICE PHONE	HOME PHONE
Dickerson/Slyker= 😒 👾	821	22	· · · · ·		
ANALYZED BY	DATE	DISTRIBUTION	C CUSTOMER		DISTRICT

NL Treating Chemicals/NL Industries, Inc.

Tel. (713) 987-5400 Telex: 4620243 NLOS UI

SHEET NUMBER 9 COMPANY DATE Mobil Producing Texas & New Mexico FIE! D COUNTY OR PARISH STATE Vacuum Lea New Mexico SAMPLE SOURCE LEASE OR UNIT WATER SOURCE (FORMATION) Simulated Production Water Mixture Bridges-State Leases WATER, BEL/DAY DEPTH. FT. BHT. *F SAMPLE SOURCE TEMP, *F OIL BBL/DAY GAS, MMCF/DAY DATE SAMPLED TYPE OF WATER: D PRODUCED C SUPPLY WATERFLOOD SALT WATER DISPOSAL TYPE OF PRODUCTION: D PRIMARY D WATERFLOOD D CO2 FLOOD D POLYMER FLOOD D STEAMFLOOD 12-WATER ANALYSIS PATTERN (NUMBER BESIDE ION SYMBOL INDICATES me/I SCALE UNIT) ²⁰ Cl 15 10 5 0 5 10 15 20 Na+ .Ca++ HCC .Mg⁺ + Fe⁺⁺ CO_3 **DISSOLVED GASES** DISSOLVED SOLIDS 188^{me/l} mg/i Hydrogen Sulfide, H₂S CATIONS mg/l Carbon Dioxide, CO2 ma/l **Total Hardness** 104 ,080 2 Calcium, Ca + + 84 1,024 Magnesium, Mg + + Iron (Total) Fe + + + Barium, Ba++ 654.4 15.051 Sodium, Na + (Calc.) ANIONS

28,000

45.8 2.200 Sulfate, SOA = 96 3.2 Carbonate, CO3= 4.7 286 Bicarbonate, HCO3 Hydroxyl, OH Sullide, S=

788.7

SUSPENDED SOLIDS (QUALITATIVE)

Chloride, CI

run Suffide 🗊 Iron Oxide 🔲 Calcium Carbonate 🖾 Calcium Sulfate 🖾 Acid Insoluble 🗔 REMARKS AND RECOMMENDATIONS:

Source	Mix 2
Abo	46
San Andres	48
Glorieta	2
Blinebry	1
Pennsvlvania	۲

_		
	Oxygen, O ₂	mg/i
_		
	PHYSICAL PROPERTIES	-
_	рн (Lab)	80
_	Eh (Redox Potential)	
	Specific Gravity	
	Turbidity, FTU Units	
_	Total Dissolved Solids (Calc.)	<u>48,739</u> mg/l
	Stability Index @°F	
-	@°F	
_	<i>@</i> •F	
-	CaSO₄ Solubility @°F	mg/l
	@°F	mg/i
	Max. CaSO ₄ Possible (Calc.)	mg/l
_	Max. BaSO ₄ Possible (Calc.)	mg/l
_	Residual Hydrocarbons	ppm(Vol/Vol

P.O. Box 60020, Houston, Texas 77205

Treating -Chemicals ...



Water Analysis Rej

			SHEET NUMBER
COMPANY Mabil PA	oducing Les	Es & M. W.	DATE
FIELD		COUNTY OR PARISH	STATE
		Le.i.	Mhr
LEASE OH UNIT	Care Comple Source	ater hell WATER SOUR	ICE (FORMATION)
DEPTH. FT. BHT, •F	SAMPLE SOURCE	TEMP, "F WATER, BBL/DAY OIL, BBL/DAY	GAS, MMCF/DAY
DATE SAMPLED	TYPE OF WATER: PRODUC TYPE OF PRODUCTION: PR	ED SUPPLY WATERFLOOD SALT WATER DISPOSA	AL DOD D STEAMFLOOD
	(NUMBER BESID	ATER ANALYSIS PATTERN DE ION SYMBOL INDICATES me/I SCALE UNIT)	
Na + 20 15	10 5	0 5 10	15 20 cu ⁻
Ca++	╶╂╼╡╼╏╏┫┥╋┥	╎╎┥┥╎┤┥╎╎╎╎╎╎╎╎╎	
Mg ⁺ +	<u>╶┨╌┨╼┨╼┨╶┨╶┨╶┨╶</u> ┨╴┥	<u>╷╷╷╷╷╷╷╷╷╷╷╷</u>	
Fe ⁺⁺⁺			
DISSOLVED SOLIDS		DISSOLVED GASES	
CATIONS	me/l	mg/l Hydrogen Sulfide, H ₂ S	mg/l
Total Hardness	<u> </u>	Carbon Dioxide, CO2	mg/l
Calcium, Ca + + Magnesium, Ma + +		Oxygen, 02	mg/l
Iron (Total) Fe + + +	0.2		D 1
Barium, Ba + +		pH	
Sodium, Na ⁺ (Calc.)		Eh (Redox Potential)	MV
		Turbid:ty, FTU Units	
Chloride, Cl	16.9	Total Dissolved Solids (Calc.)	1425. 6mg1
Sulfate, SO4 =		GSStability Index @•F	
Carbonate, CO3=		•F	
Bicarbonate, HCO3			
nyaroxyi, UM Sulfide SE	~/	F	mg//
Sumue, S		Max. CaSO/ Possible (Calc.)	10y//
	· ····································	Max. B: SOA Possible (Calc.)	m o/i
	······································	Residua: Hydrocarbons	ppm(Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide I Iron Oxide I Calcium Carbonate Calcium Sulfate Acid Insoluble REMARKS AND RECOMMENDATIONS:

Complete 1720 Fe

	<i>t</i>					
NUTCENGINEER		DIST NO	ADDRESS	. 1111	OFFICE PHONE	HOME PHONE
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	1 . Val	1		1-1-12-		1
- 11/200	Achelion	4	1	10000		1
ANALYZET QV	1	10.175	0			
- MINLIZED 01 / /						

NL TREATING CHEMICALS NL INDUSTRIES. INC.

SCALING TENDENCIES OF WATERS

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COMPANY: MOBIL PRODUCING TEXAS& N.M. SAMPLE POINT: WATER WELL LOCATION: SNYDER RANCH DATE: 1/13/89

WATER ANALYSIS (MG/L):

SODIUM	400.2
CALCIUM	84.0
MAGNESIUM	9.8
CHLORIDE	600.0
SULFATE	65.0
BICARBONATE	262.3
IRON	4.3
BARIUM	0.0
STRONTIUM	0.0
PH:	7.1
IONIC STRENGTH =	0.0260

INDEX VALUES GREATER THAN ZERO INDICATE SCALING CONDITIONS INDEX VALUES OF ZERO OR LESS INDICATE A STABLE WATER

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TEMP.	CALCITE INDEX	GYFSUM INDEX	ANHYDRITE INDEX	BARITE INDEX	STRONTIUM INDEX
80	-0.27	-1.97	-2.11	-40.79	-1.00
100	-0.15	-1.99	-2.04	-40.91	-1.00
120	-0.04	-1.99	-1.95	-41.00	-1.00
140	0.09	-1.97	-1.85	-41.07	-1.00
160	0.22	-1.95	-1.74	-41.11	-1.00
180	0.35	-1.92	-1.61	-41.14	-1.00
200	0.49	-1.88	-1.48	-41.16	-1.00
220	0.64	-1.83	-1.33	-41.16	-1.00
240	0.79	-1.79	-1.17	-41.15	-1.00
26Ø	0.95	-1.74	-1.00	-41.13	-1.00

Affidavit of Publication

) ss.

)

Exhibit "E"

STATE OF NEW MEXICO

COUNTY OF LEA

۰.

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Application For Authorization

'l'o inject
and numbered in the
Court of Lea
County, New Mexico, was published in a regular and
entire issue of THE LOVINGTON DAILY LEADER and
not in any supplement thereof, once each week on the
same day of the week, for
consecutive weeks, beginning with the issue of
December 29
and ending with the issue of
December 29 19 ⁸⁷

And that the cost of publishing said notice is the 9.10 sum of \$......

which sum has been (Paid) (Assessed) as Court Costs

Subscribed and sworn to before me this

December day of 120. ener AM Nótary Public, Lea County, New Mexico

LEGAL NOTICE APPLICATION FOR AUTHORIZA-TION TO INJECT 1. Mobil Producing TX & NM Inc., P.O. Box 633, Midland, Texas 79702 M.E. Sweeney, Attention: (915)688-1772 will apply for permission to inject produced water into the following well/wells for the purpose of Disposal. 2. Well Name and Number: State Sec. 27 No. 2 Location: 660' FEL & 1980' FNL of Sec. 27 Section: 27, T 18-S, R 35-E n jiri County: Lea 3. Formation Name: Devonian Injection Interval: 11,950 to 13,708'. Marihum, Injection Rate: 12,000 BWPD Maximum Pressure: 2390 PSI 1. manufactor parties, who can show 4. Interestical parties, who can show that they are adversely affected by this application, must file objections or requests for hearing with the Energy and Minerals Department, Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 97501 within 15 days after tills publication. Published in the Lovington Daily

Leader December 29, 1987.

RECEIVED

JAN 1 1 1988 ENV. & REG.

MOBIL PRODUCING TEXAS & NEW MEXICO, INC. STATE SEC. 27, WELL #2 SOUTH VACUUM (DEVONIAN) FIELD LEA COUNTY, TEXAS

EXHIBIT "F"

OFFSET OPERATORS

Arco Oil & Gas Co. P. O. Box 1710 1515 Caller Service Hobbs, New Mexico 88240

Hanley Petroleum 1500 Wilco Bldg. Midland, Tx. 79701

. . .

UNOCAL Corporation P. O. Box 671 Midland, Texas 79702 Exxon Company, USA P. O. Box 1600 Midland, Texas 79702

Hondo Oil & Gas P. O. Box 2819 Dallas, Tx.

Yates Energy Southwest Centre, Ste 1010 Roswell, N.M. 88201

SURFACE OWNER

SNYDER RANCHES, INC. P. O. BOX 726 Lovington, New Mexico 88260

A:M804749G.CCS (3)

March 2, 1988

P.O. BOX 633 MIDLAND, TEXAS 79702

MIDLAND DIVISION

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Śnyder Ranches, Inc. P. O. Box 726 Lovington, New Mexico 88260

> 7.01 NOTICE OF APPLICATION FOR WATER DISPOSAL WELL STATE SEC. 27 LEASE, WELL NO. 2 VACUUM DEVONIAN, SOUTH FIELD LEA COUNTY, NEW MEXICO

Gentlemen:

Mobil Exploration & Producing U.S. Inc., as agent for Mobil Producing Texas & New Mexico, Inc., (MPTM), has made application to the Oil Conservation Division of New Mexico for authority to dispose of produced water into a reservoir not productive of oil or gas in the above captioned well.

A copy of this application is furnished to you for your information.

Yours very truly,

ME Sunney

M. E. Sweeney Environmental & Regulatory Manager

Mobil Exploration & Producing U. S. Inc. as Agent for Mobil Producing Texas & New Mexico, Inc.

CAM/jlt

attachments

cc: Oil Conservation Division



March 2, 1988

P.O. BOX 633 MIDLAND, TEXAS 79702

MIDLAND DIVISION

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Hondo Oil & Gas P. O. Box 2819 Dallas, Texas

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M. E. Sweeney Environmental & Regulatory Manager

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CAM/jlt

attachments

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March 2, 1988

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MIDLAND DIVISION

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Yates Energy Southwest Centre Suite 1010 Roswell, New Mexico 88201

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M. E. Sweeney Environmental & Regulatory Manager

Mobil Exploration & Producing U. S. Inc. as Agent for Mobil Producing Texas & New Mexico, Inc.

CAM/jlt

attachments

cc: Oil Conservation Division



March 2, 1988

P.O. BOX 633 MIDLAND, TEXAS 79702

MIDLAND DIVISION

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Exxon Company, USA P. O. Box 1600 Midland, Texas 79702

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M. E. Sweeney Environmental & Regulatory Manager

Mobil Exploration & Producing U. S. Inc. as Agent for Mobil Producing Texas & New Mexico, Inc.

CAM/jlt

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attachments

cc: Oil Conservation Division



March 2, 1988

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MIDLAND DIVISION

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ÚNOCAL Corporation P. O. Box 671 Midland, Texas 79702

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M. E. Sweeney Environmental & Regulatory Manager

Mobil Exploration & Producing U. S. Inc. as Agent for Mobil Producing Texas & New Mexico, Inc.

CAM/jlt

attachments

cc: Oil Conservation Division



March 2, 1988

P.O. BOX 633 MIDLAND, TEXAS 79702

MIDLAND DIVISION

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Hanley Petroleum 1500 Wilco Bldg. Midland, Texas 79701

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CAM/jlt

attachments

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March 2, 1988

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attachments

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