CASE 3986: Application of BELL PETROLEUM CO. FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

Case Number

3986

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 11, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Bell Petroleum Company for salt water disposal, Lea County, New Mexico.

Case No. 3986

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3986.

MR. HATCH: Application of Bell Petroleum Company for salt water disposal, Lea County, New Mexico.

MR. MORRIS: Mr. Examiner, I am Dick Morris from Santa Fe, appearing for the Applicant, Bell Petroleum Company. We have one witness, Orhan Salman, and I ask that he be sworn.

MR. UTZ: Any other appearances in this case? You may proceed.

(Whereupon, Applicant's Exhibits Numbers 1 through 9, inclusive, were marked for identification.)

ORHAN SALMAN

called as a witness by the Applicant, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Salman, please state your name, and where you reside.

A My name is Orhan Salman, and I reside in Los Angeles, California.

Q Mr. Salman, by whom are you employed, and in what capacity?

A Bell Petroleum Company. I am Vice President of the company.

Q Mr. Salman, have you previously testified before the New Mexico Oil Conservation Commission, or one of its examiners, and have your qualifications established and accepted as a matter of record?

A Yes, it was.

MR. MORRIS: Are the witness's qualifications acceptable?

MR. UTZ: Yes, they are.

Q Mr. Salman, please refer to the Exhibits 1 through 9 that have been marked in this case, and referring to those exhibits where appropriate, please outline your presentation to the Commission with respect to the application of Bell Petroleum Company in this case.

A Bell Petroleum Company seeks approval to dispose of salt water into the San Andres formation in perforated interval from approximately 4224 feet to 4447 feet in its State "5" Well No. 3, located in Unit J of Section 5, Township 9 South, Range 32 East, located in the South Button Mesa-San Andres Field, Lea County, New Mexico.

Exhibit 1 is a contour map on top of the San Andres formation, which shows that the South Button Mesa Field is a small enclosure with an area extent of 115 acres located on the northwest shelf of the Chaves Basin. Production comes

from a fractured regular San Andres dolamite.

If you look at the cross-section on Exhibits 2 and 3, indexes are indicated on the cross sections. The most interesting one is Exhibit No. 3, and indicates how the San Andres porosity varies from well to well. Some of the wells developed excellent porosity and permeability. Others are not as permeable.

Q Do Exhibits 2 and 3 show that your proposed injection well, the interval into which you propose to inject, is structurally low to the other two producing wells in this pool, is that correct?

A This is true, expecially noticeable in this cross-section. BB prime, Exhibit No. 3, State "5" Well No. 3 is numbered No. 2, and State "5-1" is numbered No. 3, and State "2-5 is numbered 4. As you can see from the cross-section, the highest well in the field is State "5-2," and the next highest one would be, of course, State "5-1." In the porosity zone that we are planning on injecting, the lowermost is in State "5-3."

Q And these three wells that you have identified are the only three wells that have produced from the South Button Mesa-San Andres Pool?

A That is correct. If you would refer to Exhibit No. 4,

which outlines a few of the data about the reservoir. The field was discovered October 8, 1964, by the completion of the State "1-5." The well is located in Unit I, Section 5, 932. Later, State "2-5" was drilled. Exhibit No. 5, which is the bottom hole pressure survey run in this well, indicates that bottom hole pressure at that time was 1,246 PSI, at a datum of plus 334 feet.

Exhibit No. 6 is a core analysis of the interval which was cored in State "2-5." Based on this core analysis, as well as the electric logs, the average porosity is estimated to be ten percent, and average water saturation about thirty-five percent of the core space. Average gravity of the oil is about 20, 21 degrees, API. Formation volume factor calculates to be 1.025 barrels of reservoir space per barrel of tank oil. From this above data, tank oil in place is calculated to be 493 barrels per acre foot. Entire pool consisted of containing 1,133,000 barrels of tank oil in place.

Exhibit No. 7, which is the monthly production data sheet, indicates that the cumulative oil production to October 1, 1968, was 73,835 barrels. Recovery calculates to be seven percent to date, to that particular date. We estimate that ultimate recovery will be in the order of

120,000 barrels, which would be only about 10.6 percent of the oil in place.

There are now only two producing wells, which are State "1-5" and State "2-5". Production from both of these is approximately 35 barrels of oil per day, and 225 barrels of water per day. This is a recent test. Actually, the production of the wells was improved by recently treating these wells with an oil soluble **surfactant,** which improved the production.

Q Is Bell the operator of both of these offset wells?

A Yes. Both of the wells are now in a pumped off condition, that they are producing at capacity. From the above data that we presented, one can observe that it is possible to recover additional oil by returning the produced water into the reservoir. On the other hand, we are not considering this to be a secondary recovery of water injection program. The purpose is to dispose of the water produced by these two wells. For this purpose, we would like to use State "3-5".

Q Would you refer to your diagramatic sketch of this well, and explain how it would be equipped for salt water injection purposes?

A The schematic diagram, and the electric logs, and

form C-108 were submitted prior to this meeting. The schematic casing diagram is Exhibit Number 8, and on which you can observe that the fresh water formations are protected by two strings of casing. One is nine and five-eighths inch casing set at 362 feet, and enough cement was used to circulate this to the surface, and five-and-a-half inch casing was set at 4469, and 200 sacks of cement was utilized. The top of the cement is calculated to be 3119 feet.

The perforated interval, the entire interval that we would like to consider for water disposal is from 4424 to 4447, and we have a model D packer, production packer, set at 4200 feet, into which two and three-eighths inch tubing is inserted.

The injectivity of the well was tested, and it takes water under gravity. That is to say it does not require any pressure at this time.

Q How much water would you anticipate injecting into this well, initially?

A It looks like it will be about 225 barrels per day. Produced water is salty, the analysis of which is shown on Exhibit Number 9. It contains 127,600 parts per million chlorides. In view of the fact that the Commission does not approve the dumping of salt water on the surface any more,

the company would respectfully request that that application to dispose of salt water into State "3-5" be approved so there will be no waste, and that additional oil may be recovered as injection of this salt water into the reservoir or returning of the salt water into the reservoir.

Q At the present time, Mr. Salman, is your tubing plastic coated?

A I am going to have to check on that. I don't know.

Q Should the Commission require your tubing to be plastic coated, will you abide by that decision?

A Certainly.

Q Is the annular space filled with an inhibited fluid with a pressure gauge at the top?

A Yes, it is.

Q Were Exhibits 1 through 9 prepared by you or under your direction?

A Yes, sir.

MR. MORRIS: We offer into evidence Bell's Exhibits 1 through 9.

MR. UTZ: Without objection, Exhibits 1 through 9 will be entered into the record.

MR. MORRIS: That is all on direct examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Salman, is this well now producing?

A No, sir, it was idled in August, 1965. It went to water. There again, it indicates that the water table is pretty close to this well.

Q Is this well a water-driven well?

A I would say that probably it is not, in view of the fact that the wells are pumped off and there is no particular water drive. The wells do produce water now. That may be due to the fact that we opened up too much zone. I don't think it is water drive.

MR. UTZ: Any other questions of the witness? You may be excused. Any statements? The case will be taken under advisement.

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Samuel Morteletle
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3956 heard by me on Nov. 1, 1965.

Examiner
New Mexico Oil Conservation Commission

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

December 23, 1968

Mr. Richard S. Morris
Montgomery, Federici, Andrews,
Hannahs & Morris
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 3986
Order No. R-3637
Applicant:

Bell Petroleum Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of drder also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other State Engineer Office

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3986
Order No. R-3637

APPLICATION OF BELL PETROLEUM COMPANY
FOR SALT WATER DISPOSAL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 11, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 23rd day of December, 1968, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Bell Petroleum Company, is the owner and operator of the State "5" Well No. 3, located in Unit J of Section 5, Township 9 South, Range 32 East, NMPM, South Button Mesa-San Andres Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the San Andres formation, with injection into the perforated interval from approximately 4224 feet to 4447 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 4200 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should

be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Bell Petroleum Company, is hereby authorized to utilize its State "5" Well No. 3, located in Unit J of Section 5, Township 9 South, Range 32 East, NMPM, South Button Mesa-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4200 feet, with injection into the perforated interval from approximately 4224 feet to 4447 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

A. L. PORTER, Jr., Member & Secretary

esr/

Docket No. 38-68

DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 11, 1968

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before ELVIS A. UTZ, EXAMINER, or DANIEL S. NUTTER, ALTERNATE EXAMINER:

CASE 3984: Application of Gulf Oil Corporation for [illegible], Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Penrose Skelly Pool and the Paddock Pool in the well-bore of its J. N. Carson (NCT-C) Well No. 9 located in Unit I of Section 28, Township 21 South, Range 37 East, Lea County, New Mexico, with the provision that no more than one allowable will be produced from said well.

CASE 3985: Application of Midwest Oil Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4048 feet to 4218 feet in its Morgan-Federal Tract 4 Well No. 5 located in Unit I of Section 12, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 3986: Application of Bell Petroleum Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4224 feet to 4447 feet in its State "5" Well No. 3 located in Unit J of Section 5, Township 9 South, Range 32 East, South Button Mesa-San Andres Pool, Lea County, New Mexico.

CASE 3987: Application of Union Texas Petroleum Corporation for salt water injection, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject produced salt water into the Seven Rivers formation in the open-hole interval from approximately 3421 feet to 3520 feet in its Wells lease Well No. 4 located in Unit D of Section 5, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 3988: Application of Anadarko Production Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Far West Loco Hills Sand Unit Area comprising 840 acres, more or less, of Federal, State and fee lands in Sections 4, 9, and 16, of Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.

SOUTH BUTTON MESA AREA, LEA & CHAVES COUNTIES, NEW MEXICO
SEC. 5, T9S, R32E

Contours on Top of San Andres Formation	Exhibit 1
Cross Section A-A'	Exhibit 2
Cross Section B-B'	Exhibit 3
Summary of Reservoir Data	Exhibit 4
Bottom Hole Pressure Survey Report	Exhibit 5
Core Analysis	Exhibit 6
Production Data (3 pages)	Exhibit 7
Schematic Casing Program	Exhibit 8
Water Analysis	Exhibit 9

* * * * *

* * * * *

SUMMARY OF RESERVOIR DATA - SOUTH BUTTON MESA - SAN ANDRES FIELD, LEA COUNTY, NEW MEXICO

Discovery Date	10-8-64
Initial Reservoir Pressure	1246 psi at a datum of +334'
Average Porosity	10%
Average Water Saturation	35% of Pore Space
Average Oil Gravity	20° API
Formation Volume Factor	1.025 Bbls/Bbl
Tank Oil in Place	493 Bbls/Acre Foot
Tank Oil in Place	1,133,000 Bbls
Cumulative Production to 10-1-68	73,835 Bbls.
Percent Recovery to 10-1-68	7%
Estimated Ultimate Recovery	10%
Number of Producing Wells	2

Exhibit #4

JOHN W. WEST ENGINEERING COMPANY
412 NORTH DAL PASO HOBBS, NEW MEXICO

TELEPHONES 3-3942
3-6770

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR	BELL PETROLEUM CORP.		
LEASE	STATE		
WELL NO.	2-5		
FIELD			
DATE	11-9-64	TIME	3:00 P.M.
STATUS	SHUT-IN	TEST DEPTH	4100
TIME S.I.	48 HRS.	LAST TEST DATE	
CAS. PRES.		BHP LAST TEST	
TUB. PRES.	170	BHP CHANGE	
ELEV.	4434	FLUID TOP	1000
DATUM	+334	WATER TOP	
TEMP.		RUN BY	C.M.
CLOCK NO.	18971	GAUGE NO.	12434
ELEMENT NO.	16531-N		

DEPTH	PRESSURE	GRADIENT
0001	170	
1000	180	.010
2000	509	.329
3000	879	.370
4100	1246	.334

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 3986

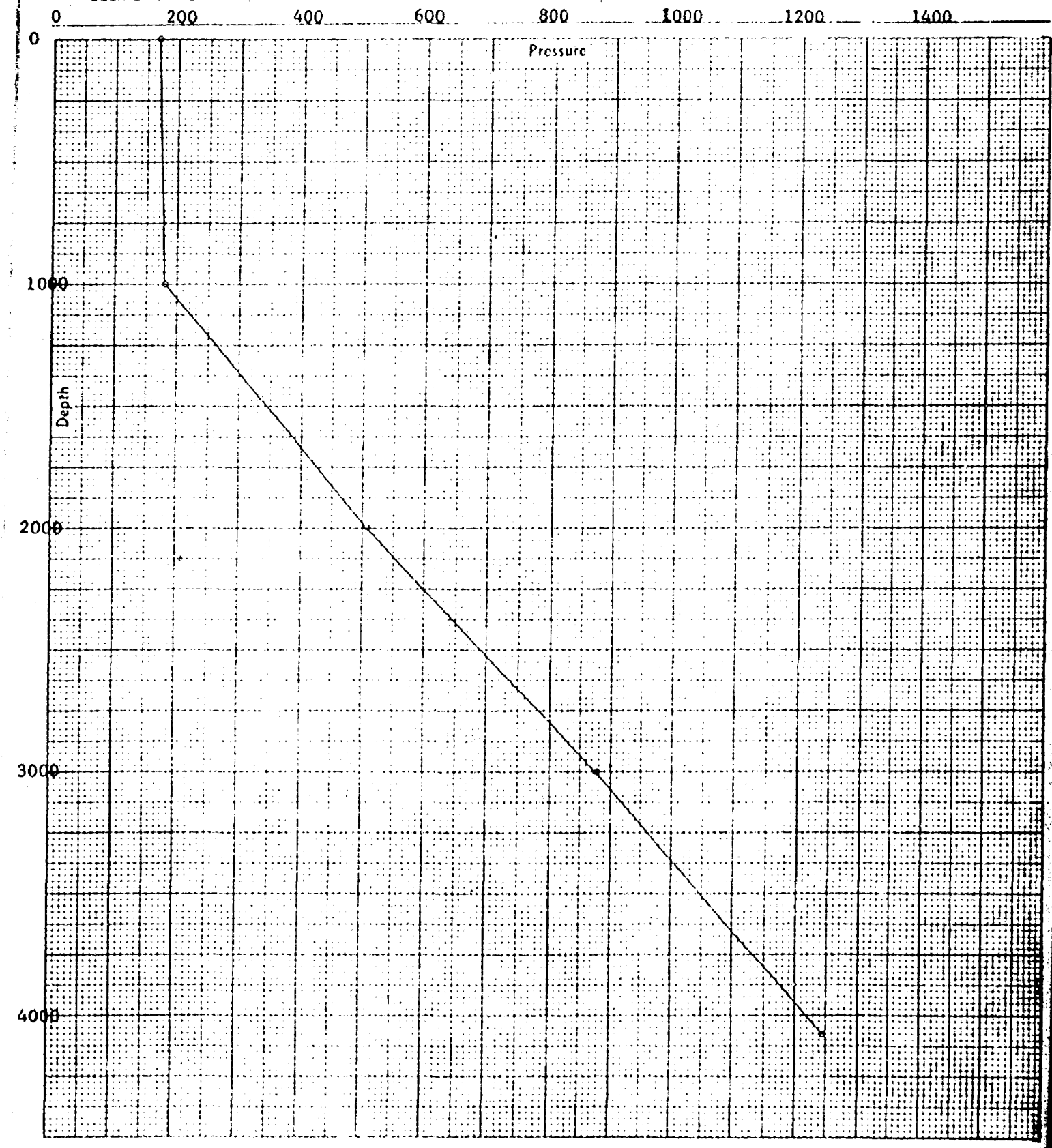

Exhibit #5

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 3986

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY [illegible] COMPANY — FILE NO [illegible]
WELL [illegible] — DATE [illegible] — ENGRS. [illegible]
FIELD [illegible] — FORMATION SAN ANDRES — ELEV. [illegible] KB
COUNTY [illegible] — STATE NEW MEXICO — DRLG FLD [illegible] — CORES [illegible]
LOCATION [illegible] — REMARKS SAMPLES AS DIRECTED BY CLIENT

COMPLETION COREGRAPH

SAND · SHALE · LIMESTONE · DOLOMITE · CONGLOMERATE · OOLITES · CHERT · ANHYDRITE

SAMPLE CHARACTERISTICS
F: Fractured L: Laminated FG; MG; CG Type Grain Size S Stylolitic V Vuggy

PROBABLE PRODUCTION
O: Oil W Water G: Gas T Transitional

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY, MD. * Horizontal Perm Plug HORIZONTAL MAX.	90°	POROSITY %	RESIDUAL SATURATION % PORE SPACE OIL	TOTAL WATER	
		WELL CORE ANALYSIS					
1	4101.0-02.3	2.6	0.1	7.1	7.6	31.1	F
2	02.3-03.3	1.1	0.1	9.6	15.3	23.5	
3	4103.3-05.0	2.3	1.3	7.4	10.2	36.5	F
4	05.0-06.3	<0.1	<0.1	5.2	9.2	21.6	F
5	4112.0-13.6	1.2	1.1	10.7	9.0	24.2	F
6	4113.6-15.2	0.3	0.1	9.1	14.2	36.7	F
7	15.2-16.2	0.3	0.1	12.7	14.2	38.6	F
8	16.2-17.2	2.6	1.3	11.1	13.0	33.3	F
9	4117.3-19.0	2.8	1.6	13.0	15.7	34.2	

PERMEABILITY MILLIDARCYS 10 5 — POROSITY X---X PERCENT 10 5

TOTAL WATER PERCENT PORE SPACE 75 50 25
OIL SATURATION X---X PERCENT PORE SPACE 25 50 75

4101 4105 4110 4115 4119

Exhibit #6

BELL PETROLEUM COMPANY

LEASE TOTAL RECAP SHEET NO.

FIELD So. Button Mesa LEASE State 5 Totals POOL SA COUNTY Lea STATE

Year & Month	NUMBER OF WELLS: Oil Prod. Only	S. I. Idle Susp.	Total Oil Wells	Gas	Prod. Well Days Oil	MONTHLY PRODUCTION: Oil Barrels	Water Barrels	Cut % Water	Gas M.C.F.	G.O.R. CF/Bbl	AVG. DAILY PROD'N: OIL Well	OIL Total	GAS Total	CUMULATIVE PRODUCTION: Oil Barrels	Water Barrels	Gas M.C.F.	Allow. Oil Barrels
1964																	
Oct			1			961	3360		163	169				961	3360	163	
Nov			2			2390	4756		440	184				3351	8116	603	
Dec			2			2422	4458		448	185				5773	12574	1051	2418
						5773	12574		1051								
1965																	
Jan			3			3175	7461		583	183				8948	20035	1634	3160
Feb			3			3214	6708		589	183				12162	26743	2222	3360
Mar			3			2797	5043		645	183				15959	34786	2917	3627
Apr			3			3202	7015		586	183				19161	41801	3503	3430
May			3			3405	7266		625	183				22566	49067	4128	3534
June			3			3086	6681		567	184				25652	55748	4695	3330
July			3			2462	4821		453	184				28114	60569	5148	3411
Aug			3			2588	5182		477	184				30702	65751	5625	3[illegible]
Sept			3			2209	4200		401	185				32911	69951	6026	[illegible]
Oct			2			1980	3440		366	185				34891	73389	6309	[illegible]
Nov			2			2025	3836		374	185				36916	77234	6773	
Dec						1914	3353		354	185				38830	80587	7127	[illegible]
						33057	68013		6076								
1966																	
Jan			2			1686	2810		312	185				40516	83397	7439	2604
Feb			2			1474	2345		272	185				41990	85742	7711	2464
Mar			2			1518	2418		281	185				43508	88160	7992	2728
Apr			2			1361	2167		252	185				44869	90327	8244	2640
May			2			1436	2285		267	186				46305	92612	8511	2728
June			2			1318	2050		244	185				47623	94662	8755	2700
July			2		62	1406	2181		259	184				49029	96843	9014	2790
Aug			2		62	1774	2760		328	185				50803	99603	9342	2790
Sept			2		60	1556	2368		288	185				52359	101971	9630	2760
Oct			2		62	1513	2304		280	185				53872	104275	9910	2914
Nov			2		60	1370	1199		363	265				55242	105474	10273	2910
Dec			2			1298	1136		344	265				56540	106610	10617	3007
						17710	26023		3490								

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 2986

Exhibit # 7-9-67

BELL PETROLEUM COMPANY

(2)

LEASE TOTAL RECAP SHEET NO.

FIELD So. Button Mesa - SA (~~Undesignated~~) LEASE State 5 Totals POOL SA COUNTY Lea STATE NM

Year & Month	NUMBER OF WELLS: Oil Prod. Only	S. I. Idle Susp.	Total Oil Wells	Gas	Prod. Well Days Oil	MONTHLY PRODUCTION: Oil Barrels	Water Barrels	Cut % Water	Gas M. C. F.	G. O. R. CF/Bbl	AVG. DAILY PROD'N: OIL Well	OIL Total	GAS Total	CUMULATIVE PRODUCTION: Oil Barrels	Water Barrels	Gas M. C. F.	Allowable Oil Barrels
1967																	
J	2				62	1375	2205		363	264				57915	108815	0980	1643
F	2				[illegible]	[illegible]	[illegible]		320	264				59125	110755	11300	[illegible]
M	2				62	1183	1897		312	264				60308	112652	11612	1643
A	2				60	1091	1716		315	264				61499	114562	11927	1590
M	2				62	1077	1732		285	265				62576	116294	12212	1550
J	2				60	1162	1475		306	263				63738	118369	12518	1500
J	2				[illegible]	[illegible]	1783		296	1699				64729	120152	12774	1550
A	2				62	995	1624		251	1700				65724	121776	13015	1550
S	2				60	1039	1766		274	264				66781	123542	13319	1500
O	2				62	1007	1713		265	263				67788	125255	13584	1550
N	2				60	544	933		144	262				68332	126188	13728	1500
D					62	460	782		121	263				68792	126970	13849	
						12257	20360		3232								
1968																	
J					62	377	1867		20	53				69174	128837	13869	1333
F	2				58	527	1342		28	53				69701	130179	13897	1247
M	2				62	797	3442		-0-					70498	134121	13897	1333
A	2				48	509	6420		-0-					71007	140541	"	1056
M	2	1	3		62	664	6727		-0-					71671	147268		1085
J	2	1	3		60	528	6203		-0-					72199	153471	"	1050
J	2	1	3		62	577	7635		-0-					72776	161106	"	1085
A	2	1	3		62	567	7362		-0-					73343	168468	"	1085
S	2	1	3		60	492	3266		-0-					73835	172128		1050
O																	
N																	
D																	
1969																	
J																	
F																	
M																	
A																	
M																	
J																	
J																	
A																	
S																	
O																	
N																	
D																	

#7

BELL PETROLEUM COMPANY

(1)

LEASE TOTAL RECAP SHEET NO.

FIELD Undesignated LEASE State - 5 Well #3 POOL _____ COUNTY Lea STATE New Mexico

Year & Month	NUMBER OF WELLS: Oil Prod Only	S.I. Idle Susp.	Total Oil Wells	Gas	Prod. Well Days Oil	MONTHLY PRODUCTION: Oil Barrels	Water Barrels	Cut % Water	Gas M.C.F.	G.O.R. CF/Bbl	AVG. DAILY PROD'N: OIL Well	OIL Total	GAS Total	CUMULATIVE PRODUCTION: Oil Barrels	Water Barrels	Gas M.C.F.	Allowable Oil Barrels
1965																	
Jan					17	692	3114		124	179				692	3114	124	680
Feb					28	1163	3082		209	179				1855	6196	333	1120
Mar		2			31	1286	3795		231	179				3141	9691	564	1209
Apr					30	1040	2962		187	179				4181	12653	751	1140
May					25	1349	2526		139	180				5230	15579	940	1178
June					24	866	2481		156	180				6096	18060	1096	1110
July					31	168	451		30	179				6264	18541	1126	1147
Aug					10	294	842		53	180				6558	19383	1179	1145
Sept*																	
Oct																	
Nov																	
Dec																	
						6558	19383		1179								
1966																	
Jan						-											
Feb						-											
Mar						-											
Apr						-											
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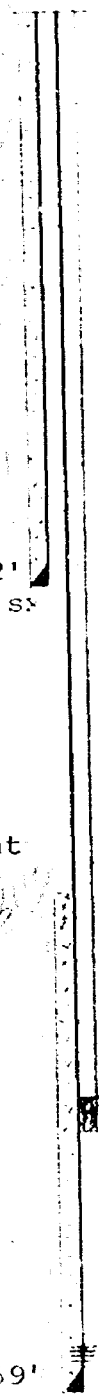
Apr																	
May																	
June																	
July																	
Aug																	
Sept																	
Oct																	
Nov																	
Dec																	

* WELL HAS BEEN ABANDONED

SCHEMATIC CASING PROGRAM

Bell Petroleum Company
State-5 [illegible], location "J"
Sec.5, T9S, R32E
Lea County, New Mexico

Elevation: 4448' K. B.



9-5/8" csg.362'
cemented w/362 sx

Top of cement
@ 3119'

2-3/8" tubing set into Baker Model "D" Production Packer @ 4200'.

4224-28, 4307-4447'.

5-1/2" csg.4469'
cemented w/200 sx

BEFORE EXAMINER UTZ
OIL CONSERVATION DIVISION
EXHIBIT NO. 8
CASE NO. 3986

Exhibit # 8

HALLIBURTON DIVISION LABORATORY

HALLIBURTON COMPANY
LOVINGTON, NEW MEXICO

No. 23-123-2

LABORATORY REPORT

Date December 11, 1962

To Mobil Oil Company

Box 1538

Midland, Texas

Date Received

Well & Lease State #2 Depth Formation San Andres

Location Field Obar Source Swabbed

Specific gravity 60/60 °F		1.116
Color, filtrate		Colorless
pH		6.2
Resistivity	@ °F	ND
Chlorides, Cl	ppm (mpl)	127,600
Sulfates, SO_4		3,900
Alkalinity, HCO_3		900
Calcium, Ca		9,480
Magnesium, Mg		1,970
Iron, Fe		Nil
Sodium, Na*		71,730
Sulfides, H_2S		40

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 9
CASE NO. 3786

Remarks

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

Respectfully submitted,
HALLIBURTON COMPANY

By Dave Sutton
Dave Sutton, Division Chemist

Laboratory Analyst

Brewer

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

Exhibit #9

Bell Petroleum Company
SUITE 400
700 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA 90017

November 14, 1968

(213) 629-3143

Case 3986

Mr. Joe D. Ramey
Supervisor, District 1
New Mexico Oil Conservation Commission
Post Office Box 1980
Hobbs, New Mexico

Re: Salt Water Disposal
Application, South Button
Mesa San Andres Field,
Sect. 5, T9S, R32E,
Lea County, New Mexico

Dear Mr. Ramey:

Please be advised that Bell Petroleum Company would like to convert their State #3-5 into a water disposal well in the San Andres formation. This well was originally completed as a San Andres producer, however only produced water. Bell's intention is to return the water produced by the only two* producing wells from this field back into the reservoir.

Attached please find:

1. Application to dispose of Salt Water by injection into a porous formation (Form C-108) (three copies)
2. A plat showing the location of the proposed injection well and location of all other wells within a radius of two miles from the proposed injection well
3. List of lesses or operators within two miles
4. A land plat of the area and well diagram
5. The log of the proposed injection well
6. Water analysis of water produced from San Andres (State #1-5 and State #3-5).

Secretary-Director, Mr. A. L. Porter, Jr., has been provided with the above information and all the offset operators on the above list have been furnished with a copy of form C-108.

Yours very truly,
BELL PETROLEUM COMPANY

O. M. Salman,
Vice President

DOCKET MAILED
Date 11-26-68

OMS/h
Encl.

* Bell Petroleum Co.State #1-5,perfs: 4177-4207, daily production of 7 bbls of oil, 62 bbls of water
Bell Petroleum Co.State #2-5,perfs: 4090-4123, daily production of 12 bbls of oil, 94 bbls of water.

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

Case 3986

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

OPERATOR: Bell Petroleum Company		ADDRESS: P. O. Box 1538, Midland, Texas 79701	
LEASE NAME: State - 5	WELL NO.: 3	FIELD: So. Button Mesa San Andres	COUNTY: Lea

LOCATION: UNIT LETTER J ; WELL IS LOCATED 1980 FEET FROM THE E LINE AND 1980 FEET FROM THE S LINE, SECTION 5 TOWNSHIP 9 RANGE 32 NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	9-5/8"	362'	225	Surface	Circulated
INTERMEDIATE					
LONG STRING	5-1/2"	4469'	200	3119'	Calculated
TUBING	2-3/8"	4200'	NAME, MODEL AND DEPTH OF TUBING PACKER: Baker"D" Production Packer set @ 4200'.		

NAME OF PROPOSED INJECTION FORMATION: San Andres Porosity Zone	TOP OF FORMATION: 4032'	BOTTOM OF FORMATION: 4447'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing	PERFORATIONS OR OPEN HOLE? Perforations	PROPOSED INTERVAL(S) OF INJECTION: 4224-28, 4307-4447'.
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No.	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Drilled as a San Andres Well	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? All perfs.in S. A.

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA: 300	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA: None	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA: None

ANTICIPATED DAILY INJECTION VOLUME (BBLS.): 200	MINIMUM: 100	MAXIMUM: 400	OPEN OR CLOSED TYPE SYSTEM: Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity	APPROX. PRESSURE (PSI)

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 – No	WATER TO BE DISPOSED OF: San Andres	NATURAL WATER IN DISPOSAL ZONE: Yes	ARE WATER ANALYSES ATTACHED? Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND): State

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL: Only Bell Petroleum Company

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER: Yes	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL: Yes	THE NEW MEXICO STATE ENGINEER: Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA: Yes	ELECTRICAL LOG: Yes	DIAGRAMMATIC SKETCH OF WELL: Yes

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

O. M. Salmon — Vice President — 11/13/68

O. M. Salmon (Signature) — (Title) — (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.

PUTTON MESA

PENNZOIL
$13.12
6

Bell Petroleum Co
State
Proposed injection
well 5

Cities Service

OFFSET OPERATORS
SOUTH BUTTON MESA AREA
SEC.5,T9S,R32E
LEA COUNTY, NEW MEXICO

Adobe Oil Company
1223 Petroleum Life Building
Midland, Texas 79701

Gulf Oil Company
Gulf Building
306 W. Wall Street (P.O. Box 1150)
Midland, Texas 79701

Great Western Drilling Company
509 N. Loraine
Midland, Texas 79701

Pan American Petroleum Corporation
P. O. Box 1540
Midland, Texas 79701

Pennzoil Company
1007 Midland Savings Building
Midland, Texas 79701

Reading & Bates, Inc.,
201 Black Building
825 Maple Street
Odessa, Texas 79760

Sinclair Oil & Gas Company
Post Office Box 1470
Midland, Texas 79701

Southern Minerals
323 W. Missouri St. (P.O. Box 1816)
Midland, Texas 79701

Sun Oil Company
Midland Towers
Midland, Texas 79701

Sunray DX Oil Company
1101 Wilco Building
Midland, Texas 79701

Texas Crude Oil Company
3612 Wall Street
Midland, Texas 79701

RECEIVED
SEP 1 1964
L. A. OFFICE

HALLIBURTON DIVISION LABORATORY

HALLIBURTON COMPANY
LOVINGTON, NEW MEXICO

No. W3-653-64

LABORATORY REPORT

Date August 28, 1964

To Bell Petroleum Company
Box 1538
Midland, Texas

Date Received 8-28-64

Well & Lease State 1-5 Depth Formation San Andres

Location Field Source

Specific gravity 60/60 °F		1.136
Color, filtrate		Colorless
pH		5.6
Resistivity	Ω @ °F	ND
		ppm (mpl)
Chlorides, Cl		124,400
Sulfates, SO_4		2,250
Alkalinity, HCO_3		300
Calcium, Ca		8,950
Magnesium, Mg		1,750
Iron, Fe		200
Sodium, Na*		68,000
Sulfides, H_2S		Nil

Remarks

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

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

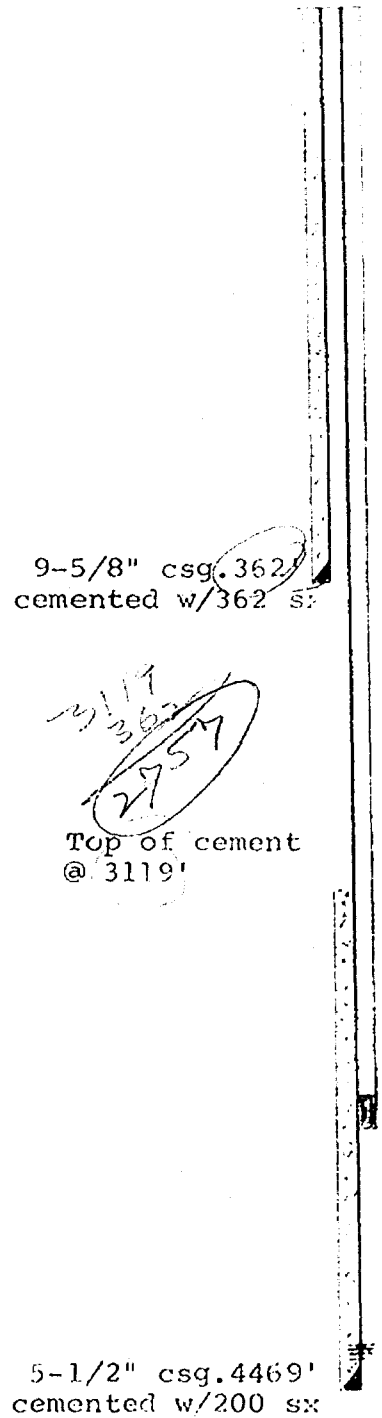
Laboratory Analyst
Brewer

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

SCHEMATIC CASING PROGRAM

Bell Petroleum Company
State-5 #1, location "J"
Sec.5, T9S,R32E
Lea County, New Mexico

Elevation: 4448' K. B.



9-5/8" csg.362'
cemented w/362 sx

Top of cement
@ 3119'

2-3/8" tubing set into Baker Model "D" Production Packer @ 4200'.

4224-28' 4307-4447'.

5-1/2" csg.4469'
cemented w/200 sx

Case 3986

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3986

Order No. R- 3633

APPLICATION OF BELL PETROLEUM COMPANY
FOR SALT WATER DISPOSAL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 11 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of December, 1968, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Bell Petroleum Company, is the owner and operator of the State "5" Well No. 3, located in Unit J of Section 5, Township 9 South, Range 32 East, NMPM, South Button Mesa-San Andres Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the San Andres formation, with injection into the perforated interval from approximately 4224 feet to 4447 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at

approximately 4200 feet, that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Bell Petroleum Company, is hereby authorized to utilize its State "5" Well No. 3, located in Unit J of Section 5, Townsnip 9 South, Range 32 East, NMPM, South Button Mesa-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4200 feet, with injection into the perforated interval from approximately 4224 feet to 4447 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.