CASE 5787: BOYD OPERATING CO. FOR A WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO.

CASE No.

5287

Application,

Transcripts,

Small Exhibits

ETC.

OPERATOR LEASE & WELL #	LOCATION	COMPLETION DATE	INITIRAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK TOTAL DEPTH	ORIGINAL COMPLETION	SUBSEQUENT OR WORKOVER
BOYD OPERATING COMPANY									
Robinson #1	K-25-16-31	July,1927	20 BOPD	15 1/2" @ 413' 12 1/2" @ 940' w/40 sx. 10" @ 2133'	8 1/4" @ 3307 w/60 sx. 6 1/4" @ 3715 w/150 sx.	3885	-	O.H. 3715-3885 No Treatment	7/34 Deep 4365; Oil Tested 15
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J. D. HANCOCK									
Con't.State #1	C-36-16-31 660 FNL, 1980 FWL	8-6-55	P&A	8 5/8" @ 927' 2/250 sx.	5 1/2" @ 4083 w/175 sx.	4085	3912	6-9-55 to 7-4-55 Perforate 3805 4058. Treat w/11,600 gals acid. 9000 gals crude and 12,500# sand 4 zones.	8 o 2 2 o @ s s

EXHIBIT 4-E
Supplement

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8-6-55	P&A	8 5/8" @ 927' 2/250 sx.	5 1/2" @ 4083 w/175 sx.	4085	3912	6-9-55 to 7-4-55 Perforate 3805-4058. Treat w/11,600 gals acid. 9000 gals crude and 12,500# sand 4 zones.	8/55 Pulled 2878' of 5 1/2. Plugs - 20 sx. @ 4085, 20 sx. @ 2250 base of salt, 20 sx. @ 1075 top of salt, 10 sx. @ surface.

EXHIBIT 4-E
Supplement after hearing

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EXHIBIT 4-E
Supplement to hearing

OPERATOR LEASE & WELL #	LOCATION	COMPLETION DATE	INITIRAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK TOTAL DEPTH	ORIGINAL COMPLETION	SUBSEQUE OR WORKO
BOYD OPERATING COMPANY									
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EXHIBIT 4-E
Supplement

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1	5-4-51	P&A	8 5/8" @ 1007 w/50 sx.	7" @ 3705 w/100 sx.	4681	4610	P&A 5-4-51 Pulled 2868' of 7", No 8 5/8"	Spot 20 sx. plug @ 4600'. 10 sx. 2870' (top of 7") 10 sx plug @ 1000'. Base of 8 5/8" Put 8 5/8" X 4 1/2" swage in 8 5/8".
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EXHIBIT 4-E
Supplement to hearing

BOYD OPERATING CO.
PRODUCTION HISTORY
BRINSON STATE LEASE

	WELL # 1	WELL # 2	WELL # 3	LEASE TOTAL
TOTAL 1974	0	112	31	143
1-1-75 CUMULATIVE	109,262	7,048	24,125	140,435
JANUARY, 1975	0	16	0	16
FEBRUARY	9	5	0	14
MARCH	0	16	0	16
APRIL	0	16	0	16
MAY	0	13	0	13
JUNE	0	17	0	17
JULY	0	11	0	11
AUGUST	0	4	0	4
SEPTEMBER	0	15	17	32
OCTOBER	0	12	34	46
NOVEMBER	30	38	38	106
DECEMBER	15	15	15	45
TOTAL 1975	54	178	104	336
1-1-76 CUMULATIVE	109,316	7,226	24,229	140,771
JANUARY, 1976	15	14	14	43
FEBRUARY	10	0	0	10
MARCH	3	0	0	3
APRIL	43	0	0	43
MAY	53	0	0	53
JUNE	62	0	0	62
JULY	81	0	0	81
AUGUST	66	0	0	66
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				
TOTAL 1976 (8 Mos)	333	14	14	361
9-1-76 CUMULATIVE	109,649	7,240	24,243	141,132

EXHIBIT 5-A

BOYD OPERATING CO.
PRODUCTION HISTORY
CARPER FEDERAL # 1

	WELL # 1
TOTAL 1974	614
1-1-75 CUMULATIVE	26,498
JANUARY, 1975	48
FEBRUARY	49
MARCH	55
APRIL	52
MAY	48
JUNE	41
JULY	57
AUGUST	57
SEPTEMBER	53
OCTOBER	49
NOVEMBER	47
DECEMBER	53
TOTAL 1975	609
1-1-76 CUMULATIVE	27,107
JANUARY, 1976	56
FEBRUARY	54
MARCH	45
APRIL	61
MAY	54
JUNE	59
JULY	52
AUGUST	51
SEPTEMBER	
OCTOBER	
NOVEMBER	
DECEMBER	
TOTAL 1976 (8 Mos)	432
9-1-76 CUMULATIVE	27,539

EXHIBIT 5-B

BOYD OPERATING CO.
PRODUCTION HISTORY
ROBINSON LEASE

	WELL # 1	WELL # 2	WELL # 8	LEASE TOTAL
TOTAL 1974	165	17	-	182
1-1-75 CUMULATIVE	71,940	32,066	-	275,537
JANUARY, 1975	0	8	-	8
FEBRUARY	0	8	-	8
MARCH	0	37	-	37
APRIL	0	52	-	52
MAY	0	81	-	81
JUNE	0	74	-	74
JULY	0	49	-	49
AUGUST	0	42	97	139
SEPTEMBER	0	29	23	52
OCTOBER	0	20	76	96
NOVEMBER	0	3	34	37
DECEMBER	0	36	48	84
TOTAL 1975	0	439	278	717
1-1-76 CUMULATIVE	71,940	32,505	278	276,254
JANUARY, 1976	0	15	45	60
FEBRUARY	0	21	71	92
MARCH	0	21	41	62
APRIL	0	8	48	56
MAY	0	20	31	51
JUNE	23	0	16	39
JULY	23	26	20	69
AUGUST	7	0	20	27
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				
TOTAL 1976 (8 Mos)	53	111	292	456
9-1-76 CUMULATIVE	71,993	32,616	570	276,710

EXHIBIT 5-C

BOYD OPERATING CO.
PRODUCTION HISTORY
TAYLOR LEASE

	WELL # 1	WELL # 2	WELL # 3	LEASE TOTAL
TOTAL 1974	-	554	1,302	1,856
1-1-75 CUMULATIVE	2,876	20,625	28,118	51,619
JANUARY, 1975		0	107	107
FEBRUARY		0	91	91
MARCH		24	76	100
APRIL		29	94	123
MAY		32	85	117
JUNE		11	81	92
JULY		0	77	77
AUGUST		8	81	89
SEPTEMBER		26	85	111
OCTOBER		36	71	107
NOVEMBER		54	67	121
DECEMBER		36	62	98
TOTAL 1975		256	977	1,233
1-1-76 CUMULATIVE	2,876	20,881	29,095	52,852
JANUARY, 1976		13	82	95
FEBRUARY		5	89	94
MARCH		4	78	82
APRIL		27	73	100
MAY		24	103	127
JUNE		44	119	163
JULY		41	105	146
AUGUST		41	98	139
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				
TOTAL 1976 (8 Mos)	0	199	747	946
9-1-76 CUMULATIVE	2,876	21,080	29,842	53,798

EXHIBIT 5-D

BOYD OPERATING CO.
PRODUCTION HISTORY

	BRINSON	CARPER	ROBINSON	TAYLOR	PROJECT
TOTAL 1974	143	614	182	1856	2,795
1-1-75 CUMULATIVE	140,435	26,498	275,537	51619	494,089
JANUARY, 1975	16	48	8	107	
FEBRUARY	14	49	8	91	
MARCH	16	55	37	100	
APRIL	16	52	52	123	
MAY	13	48	81	117	
JUNE	17	41	74	92	
JULY	11	57	49	77	
AUGUST	4	57	139	89	
SEPTEMBER	32	53	52	111	
OCTOBER	46	49	96	107	
NOVEMBER	106	47	37	121	
DECEMBER	45	53	84	98	
TOTAL 1975	336	609	717	1233	2,895
1-1-76 CUMULATIVE	140,771	27,107	276,254	52852	496,984
JANUARY, 1976	43	56	60	95	
FEBRUARY	10	54	92	94	
MARCH	3	45	62	82	
APRIL	43	61	56	100	
MAY	53	54	51	127	
JUNE	62	59	39	163	
JULY	81	52	69	146	
AUGUST	66	51	27	139	
SEPTEMBER					
OCTOBER					
NOVEMBER					
DECEMBER					
TOTAL 1976	361	432	456	946	2,195
9-1-76 CUMULATIVE	141,132	27,539	276,710	537798	499,179

EXHIBIT 5-E

Case 5787
order 5318

United States Department of the Interior

GEOLOGICAL SURVEY
P.O. Drawer U
Artesia, New Mexico 88210

January 12, 1977

Boyd Operating Company
Petroleum Building/Tower Suite
Roswell, New Mexico 88201

Gentlemen:

Your letter of October 19, 1976 requests approval to operate a waterflood of the Grayburg-San Andres formation in the Grayburg-Jackson Field on that portion of Federal oil and gas lease Las Cruces 029492(a) described as follows:

T.16S., R.31E., N.M.P.M., Eddy County, New Mexico
Sec. 25: SW¼, W½SE¼, SW¼NE¼,
S½NW¼, NW¼NW¼

The plan for operating the above described waterflood project proposed in the application is satisfactory to this office. It is hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.

2. Prior approval will be obtained for any change or deviation from the original plans or revision thereof.

3. The usual notice and reports of workover, conversions, injection commencement, or suspension, etc. of all wells involved will be timely submitted.

4. Duplicate copies of a monthly progress report (N.M.O.C.C. form C-120 acceptable) are to be submitted to this office showing the volume of water injected, the average pressure for the injection wells, and production for the producing wells in the project area.

(ORIG. SGD.) ROBERT L. BEEKMAN

Robert L. Beekman
Assistant District Engineer

RLB/ke

cc: Roswell/attachments
N.M.O.C.C., Artesia/attachments
N.M.O.C.C., Santa Fe
B.L.M., Roswell

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 13, 1976

EXAMINER HEARING

IN THE MATTER OF:

Application of Boyd Operating Company for a waterflood project, Eddy County, New Mexico.

CASE 5787

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Lynn Teschendorf
Law Clerk for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant: Jason W. Kellahin, Esq.
KELLAHIN & FOX
Attorneys at Law
500 Don Gaspar
Santa Fe, New Mexico

I N D E X

EXHIBIT INDEX

EXHIBIT INDEX (Cont'd.)

	Offered	Admitted
Applicant's Exhibit Five-D, Prod. Figures	10	15
Applicant's Exhibit Five-E, Prod. Figures	10	15
Applicant's Exhibit Six, Map	11	15

MR. STAMETS: We will call next Case 5786.

MS. TESCHENDORF: Case 5786, application of Texaco, Incorporated for a waterflood project, Lea County, New Mexico.

(THEREUPON, a discussion was held off the record.

MR. STAMETS: We will skip over Case 5786 and proceed at this time with Case 5787.

MS. TESCHENDORF: Case 5787, application of Boyd Operating Company for a waterflood project, Eddy County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, appearing for the applicant. We have one witness to be sworn.

(THEREUPON, the witness was duly sworn.)

TOM BOYD

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you state your name, please?

A. Tom Boyd.

Q. Mr. Boyd, what is your connection with Boyd Operating Company?

A. I'm the owner of the company.

Q. And are you an engineer?

A. A petroleum engineer.

Q. Have you ever testified before the Oil Conservation Commission?

A. Yes, sir.

Q. And made your qualifications a matter of record?

A. Yes.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q. (Mr. Kellahin continuing.) Mr. Boyd, what is proposed by Boyd Operating Company in Case 5787?

A. We propose to institute a waterflood project for secondary recovery on portions of Section 25 and 36, 16, 31 and a portion of Section 30, 16, 32. This is Eddy and Lea Counties, New Mexico.

Q. Now, referring to what has been marked as the Applicant's Exhibit Number One, would you identify that exhibit, please?

A. This is all of the existing wells, proposed injection wells and future injection wells.

Q. How are they designated on this exhibit?

A. The three proposed initial injectors are set out in red. The future injectors are set out in green.

Q. Now, in connection with your application, you do ask for an administrative procedure for expansion of the project by approval of additional injection and production wells at orthodox and unorthodox locations, do you not?

A. That is correct and that is the reason for the red and the green on the map. Red is the existing area and we hope to expand into the -- or ask for administrative approval to move into the land set out in green.

Q. So such a provision in your opinion is essential to the operation of this waterflood project?

A. Yes, sir.

Q. Now, referring to what has been marked as Exhibits Two-A, Two-B and Two-C, would you discuss those exhibits, please?

A. Two-A, B and C are logs of the three initial water injection wells, the Brinson No. 2 and 3 and the Robinson No. 8.

Q. And you have marked on those exhibits the area of interest in each instance?

A. We have. The top of the Premier zone and the base of it, which is the top of the San Andres, marked on each log.

Q. I believe I overlooked Exhibit Number Two.

A. Exhibit Two is the same area as set out in Exhibit One with all of the productive horizons coded by symbols. For example, in Sections 25 and 36, most of the wells have been

dual completed or completed in the Premier and Lovington. However, there is Queen, Penrose, Loco Hills and Metex also in the area.

Q. Now, in connection with your Exhibits Two-A, B and C, is that the zone you intend to flood?

A. That is the only zone we intend to flood.

Q. Now, referring to Exhibits Three-A, B, C and D, would you identify those exhibits?

A. These are schematics or diagrammatic sketches of the wellbores in the three wells to be used for water injection, that's Three-A, B and C and our next well we propose will be a reentry into the Robinson No. 6 and I have included what we plan to do on that well on Exhibit Three-D.

Q. Would you discuss the completion of these wells, the cement tops to the best of your knowledge and how you propose to make your completion in each instance?

A. Well, I believe I can cover Three-A and Three-B at the same time. Both of these wells were drilled in '48 or '50. I've got another exhibit here we can check that on. Eight-and-five-eighths-inch surface casing was run to approximately a thousand feet, cemented with fifty sacks. Seven inch was run to approximately thirty-seven hundred feet on both of the wells, thirty-six, forty on the Brinson No. 3, thirty-seven, ten on the Brinson No. 2. The wells were then open hole completed below the seven inch. We have since gone

in, this last February, and run four-and-a-half-inch liners, cemented the liners in place after cleaning out and testing the wells. We ran temperature surveys on both wells on the top of the cement. On the Brinson No. 2, is thirty-six, fifty. The top of the cement on the Brinson No. 3 is at thirty-six, forty.

The zone that we will be injecting into will be isolated below a packer and inhibited fluid in the annulus and plastic-coated tubing.

Q. Now, will you set a pressure gauge at the surface or leave it open?

A. I would prefer -- we are going to use fresh water -- I prefer to leave it open.

Q. But if the Commission requires it you will set a pressure gauge?

A. We will.

Q. Now, do you have any comments on Exhibit Three-C?

A. Three-C, this well was drilled in August of 1975, four hundred and fifty feet of eight-and-five-eighths-inch surface pipe cemented in and circulated. We ran four-and-a-half-inch casing to TD, cemented it with three hundred and thirty-five sacks of cement, the top was at twenty-nine hundred feet. The well was perforated and treated in both the Lovington and Premier and prior to water injection we will set a bridge plug above or between the Premier and Lovington zones,

a cement cap and then set our tubing with packer and isolate the Premier for water injection.

Q. Now, on Exhibit Three-D you mentioned that as being a proposed completion, is that correct?

A. Right. Referring back to Exhibit One, this well is essentially northeast of the Robinson No. 8. The well was drilled and no completion attempt made. We feel certain that it would have been a commercial well. We have had a reentry approved on this in the name of Murphy Minerals, the previous operator. I will be preparing a new approval for reentry to go back in the well. Eight-and-five-eighths-inch surface pipe was set at a thousand, forty-eight feet, cemented with fifty sacks. We set seven-inch at thirty-seven, sixty-nine, however, it was not cemented and was pulled when they decided to abandon the well. We will go back in and tie back into the eight-and-five-eighths, cement back to the surface, which will protect all of the surface string, run a string of four-and-a-half inch to approximately forty-one hundred feet and perforate our Premier for water injection and run a tubing packer as shown on the other wells.

Q. This will be one of the wells for which you will seek administrative approval?

A. Right, it will be the next well.

Q. Now, referring to what has been marked as Exhibits Four-A through Four-D, would you discuss the information shown

on those exhibits?

A. I have Four-A and Four-B and a portion of Four-C, all of the wells in the project area in which I operate are shown as far as lease and well name, location, date of completion, initial potential, surface casing, production casing, the original TD, plug-back TD where applicable, the original completion or treatment and any subsequent treatments or workovers and I've also shown all of the offset wells operated by Anadarko, Arwood and one well operated by Mercury Production Company.

Q. Would that cover all of the wells within the immediate vicinity of your proposed waterflood project?

A. All of the wells within approximately two locations of the proposed water injection well.

Q. Now, referring to Exhibits Five-A through Five-E, would you discuss those exhibits?

A. Okay, I've shown on these exhibits the 1974 production, just the total, and the 1-1-75 cumulative production, all of 1975 and the first eight months of 1976 production with cumulative production 1-1-76 and 9-1-76, Exhibit A being on the Brinson lease, Five-A. Five-B would be on the Carper Federal Well, Five-C on the Robinson lease and Five-D on the Taylor lease and Five-E, a summary of all of these leases combined, everything we operate in the immediate area or that will be in the waterflood project.

Q. Now, referring to what has been marked as Exhibit Number Six would you identify that exhibit?

A. Exhibit Number Six is a map showing the cumulative production within the immediate area, approximately a mile or a mile-and-a-half from the project area on each and every well in this area.

Q. Regardless of the zone from which it is producing?

A. That is correct.

Q. So by referring back to your Exhibit Number Two you can identify the zone of production of each of those wells?

A. That is correct. We are not always sure which zone has produced all of the oil but we can get fairly close.

Q. In your opinion has the area that you propose to waterflood reached an advanced stage of depletion?

A. Very much so.

Q. A stripper operation?

A. We drilled the Robinson No. 8 last August expecting to drain an area that hadn't been drained before and it is essentially a stripper well at this point.

MR. STAMETS: Which well was that, sir?

A. The Robinson No. 8.

Q. (Mr. Kellahin continuing.) Now, what's the source of the water that you are going to utilize?

A. The Ogalala water. Water Associates, Incorporated has a six-and-five-eighths-inch water line from the Caprock

down through Loco Hills and it runs sixty feet north of our plant site so we will just tap that line and it will all be fresh water.

Q. What volume of water will you propose to inject?

A. Initially approximately four hundred barrels a day. We don't expect any pressure for the first three to six months.

Q. What ultimate pressure do you anticipate?

A. We feel like to effectively flood this area and looking at adjacent areas, eighteen hundred to two thousand pounds is going to be necessary.

Q. Are you familiar with the policy of the Commission in regard to injection pressures being four tenths of a pound per foot?

A. Yes.

Q. Would that give you an adequate pressure to flood this area?

A. I don't feel that it would.

Q. In your opinion will exceeding that pressure create any danger of water leakage or water flows?

A. By exceeding it?

Q. Yes, sir.

A. No, the way our wells will be, our water injection wells are completed, and either left open to the atmosphere or checked with pressure gauges, I don't feel like there is

any danger at all.

Q. Now, there have been other water floods in the vicinity of the proposed flood, have there not?

A. Right.

Q. To your knowledge have they had any problems?

A. No, not to my knowledge.

Q. Do you know what pressures they have utilized?

A. Aztec to the southeast and this I have not seen personally but it has been told, twenty-two to twenty-six hundred pounds at one time. That flood is now basically plugged out, they have one water injection well, it's Tract Four, the Robinson No. 12 Well. For example, in August they injected -- no, in July -- they injected a hundred barrels of water in this well in a month, that's approximately three barrels a day and they were still at sixteen hundred pounds, just putting away produced water.

To the southwest of this area, the leases we operate, the Carper Johnson 1-Y which is in the southwest of the northeast of Section 35, we disposed of approximately fifty barrels of water per day in August and we're still at a thousand pounds pressure to get rid of fifty barrels of water a day. A limitation of four tenths of a psi is one of the reasons we are not attempting to flood the Lovington because we know from history that it's going to be over two thousand pounds to adequately displace or put in an effective

waterflood in the Lovington formation. That is the reason we have made the final decision just to waterflood the Premier, because of pressure limitations.

Q. Would the pressure you propose to utilize fracture the formation, break it down?

A. Not at eighteen hundred to two thousand pounds.

Q. What is the depth of the formation to be flooded?

A. Approximately thirty-eight, fifty, thirty-nine hundred.

Q. So that would on the four-tenths psi per foot, that would be about fifteen hundred pounds, approximately?

A. Fifteen, sixty, seventy-five, depending on what depth we finally arrive in.

Q. Now, in your opinion are the higher pressures necessary in order to have a successful flood?

A. Well, it does make a big difference, particularly in the economics of the flood. Also you get to the point where you are just not putting any water away at the reduced pressures.

Q. And that would affect the production from the flood?

A. Yes, sir.

Q. In your opinion will approval of this application result in the production of oil that would not otherwise be recovered?

A. Yes, sir.

Q. The application then, is in the interest of conservation and the prevention of waste?

A. Yes, sir, we feel that three hundred and seventy-five thousand to five hundred thousand barrels of additional oil will be produced just on the properties that I operate.

Q. And will it have any adverse effect on any offsetting properties?

A. No. I have letters from all of the offset operators agreeing to the flood.

Q. Were the Exhibits One Through Six, including the sub-exhibits in each exhibit prepared by you or under your supervision?

A. Yes, sir.

Q. You did not spell "cumulative" on Exhibit Six, did you?

A. No, I didn't spell that.

MR. KELLAHIN: At this time we would like to offer Exhibits One through Six.

MR. STAMETS: These exhibits will be admitted.

(THEREUPON, Applicant's Exhibits One through Six were admitted into evidence.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Boyd, on the Commission's limit, Mr. Kellahin,

that's two-tenths of a pound, not four-tenths, that's the surface pressure which at thirty-nine hundred feet would calculate about seven hundred and eighty pounds. That's not going to make any difference to your witness' answer but --

MR. KELLAHIN: Two-tenths?

Q. (Mr. Stamets continuing.) Let me rephrase it then. What we have been looking at is a bottom-hole pressure of no more than seven-tenths of a pound per foot of depth and the surface pressure, of course, would vary with the weight of the water, whether you are using fresh water, salt water and so on.

Mr. Boyd, are you aware of the Federal underground injection control regulations that states may have to adopt in the near future. Either the states will adopt them or the Federals will enforce them?

A. I'm not completely familiar with all of them but I have heard a lot of talk and conversation but I am fairly aware of what they are attempting to do.

Q. Are you aware that one of the proposed regulations will limit the injection pressure to a point where it will not fracture the confining strata?

A. That is their intent.

Q. So if that went into effect, no matter who was in charge of the thing, the Commission or the Federals, you would probably be bound by that regulation?

A. Yes, sir.

Q. So it is something that an operator should consider when putting in waterflood.

A. We have, particularly in this area. That's one of the reasons I mentioned we had forgotten about the Lovington. Initially we were going to flood both the Lovington and the Premier.

Q. Now, are there tests which can be taken as the flood progresses, such as step rate tests that would indicate what the fracture pressure is and what an appropriate injection rate would be in this flood?

A. Yes, sir.

Q. A recent Commission order limited the surface injection pressure to this two-tenths of a pound or seven-tenths, whichever you prefer, with an administrative procedure whereby the Secretary-Director can up that limit on the furnishing of proof by the applicant that he was not fracturing the confining strata. Would this be an agreeable provision in your order?

A. Yes, sir.

Q. Have you tested or will you test the annulus in the injection wells for integrity so that you will know that they are not leaking?

A. We have, I feel, sufficiently tested the Robinson No. 8. We had a bad completion initially and if you will

notice on the exhibit, I believe it's Three-C, I have two sets of perforations, the initial and the subsequent perforations and we ran tracer surveys on both of them and on the water going into the zone was going in through the existing perforations which is shown on the exhibit. We will because of these Brinson No. 2 and 3, they are old wells and open hole completed and shot with nitroglycerine. We have since run liners and there is a fairly large washed out section, particularly on the Brinson No. 2. We will perforate and run an injectivity test on both wells.

Q. What I'm concerned about though, is the annular space between the tubing and the production casing, whether that has been or will be tested to insure that any water that could happen to leak into this area, would come out --

A. Are you saying pressure tested?

Q. Yes.

A. In the process of completing these wells, we will pressure test both the annulus and down hole.

Q. Okay. Now, referring to Exhibit Four-A through Four-D, Four-A first, at the bottom of the page we had a Robinson No. 1 and show a string of eight-and-five-eighths and a string of seven-inch casing and no cement on that. To your knowledge is that well cemented?

A. Yes, it is. I can explain what happened there. There were five strings of pipe run on the well, no record of

any of the fifteen-and-a-half, twelve-and-a-half, ten inch or eight-and-five-eighths pulled but the seven inch was run and cemented and I just neglected to getting all those five casing strings to get the cement on them.

Q. Okay. How about the Robinson No. 2?

A. The same thing, an oversight on my part.

Q. I presume you can furnish us with that information or a revised copy of that page?

A. Yes, sir.

Q. On the next page, Four-B, come down to the Robinson No. 6 and in the far right-hand column that shows, to be plugged with fifteen-sack plug, ten-sack plug, another ten-sack.

Q. This will be the well that we will be reentering. It was shown on Exhibit Four-D, I believe, no, Three-D.

Q. That is one of your second-stage injectors?

A. Yes, sir.

Q. And as far as you know right now you will be reentering that well?

A. Yes, sir.

Q. So this perhaps inadequate plugging will not be a problem?

A. No, we plan immediately after we get the first three wells on injection, filing for administrative approval to go back and reenter this well. We need the fourth well to

complete our pattern.

Q. And what about the Taylor No. 1 Well at the bottom of that page. It's not exactly clear what the status of that well is.

A. That is all the records we have on the well.

Q. Is that a plugged hole?

A. Yes.

Q. Now, this exhibit shows that there was a cement plug set at thirty-seven hundred feet and unknown volume.

A. Right.

Q. And then a ten-sack plug at twenty-two fifty.

A. Sometime between 1939 and 1947 there was a plug set at thirty-seven hundred feet to plug back, apparently because of water production, we're not sure. The records are incomplete but it was plugged and abandoned in June of '47 with three plugs as indicated on the Exhibit Four-B.

Q. Will there be any way to monitor this well to determine if any water is leaking through those plugs?

A. Not without reentering it.

Q. There again, referring back to the Federal regulations, if I read them properly, when these would go into effect if we administer the program, we couldn't approve this well and we couldn't approve injection around this well because there is insufficient evidence to indicate that it is or is not properly plugged. To your knowledge this well may be properly

plugged or it may not be?

A. We're not sure.

Q. Okay. On Exhibit Number One there are three more dry holes. I'm not sure if they are reflected on Exhibit Number Four or not. In the southwest corner of the northeast quarter of Section 25 there is a Well No. 5, is that reflected on Exhibit Four?

A. Could you repeat that location again?

Q. The southwest of the northwest of 25.

A. Okay, that's the Robinson No. 5 and, no, I did not pick it up on Exhibit Four.

Q. And then in Section 35, the northeast-northeast there is a dry hole?

A. Right, that well was drilled and plugged and no completion attempt was made.

Q. That's not reflected on Exhibit Number Four?

A. No.

Q. And in Section 36, the northeast of the northwest, there is a plugged and abandoned well, is that reflected on Exhibit Number Four?

A. No, it's not.

Q. Now, the northwest of the northwest of 36 there is one that indicates temporarily abandoned. Is that well on Exhibit Number Four?

A. The northwest-northwest of --

Q. Of 36?

A. Okay, yes, sir, it is.

Q. That well is on Exhibit Number Four?

A. Yes.

Q. It would be the Con State No. 1?

A. The Mercury Production Con State No. 1, it is on Exhibit Four-D, the last well, I believe, on the exhibit.

Q. Very good. Mr. Boyd, the Examiner would like to have the similar data on the three dry holes that I have mentioned.

A. Yes, sir.

Q. At some stage subsequent to the hearing.

MR. STAMETS: Are there any other questions of the witness? He may be excused.

(THEREUPON, the witness was excused.)

MR. STAMETS: Is there anything further in this case?

MR. KELLAHIN: That's all, Mr. Examiner, thank you.

MR. STAMETS: We will take the case under advisement.

REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5787, heard by me on 10-13, 1976.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

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. 5787
Order No. R-5318

APPLICATION OF BOYD OPERATING COMPANY
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 13, 1976, at Santa Fe, New Mexico, before Examiner, Richard L. Stamets.

NOW, on this 4th day of November, 1976, 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, Boyd Operating Company, seeks authority to institute a waterflood project on its Robinson and Brinson Leases, Grayburg-Jackson Pool, by the injection of water into the Grayburg formation through its Robinson Well No. 8 located in Unit N of Section 25 and its Brinson Wells Nos. 2 and 3 located, respectively, in Units A and G of Section 36, all in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the Robinson Well No. 6 in Unit J of said Section 25 and the Carper Drilling Company Taylor Well No. 1 in Unit M of Section 30, Township 16 South, Range 32 East, NMPM, are two plugged and abandoned wells which offset proposed injection wells and are not plugged and abandoned in such a manner as to assure

that they will not serve as channels for injected water to migrate from the Grayburg formation to other formations or the surface.

(6) That to prevent the migration of water from the Grayburg formation through said Robinson Well No. 6 and said Taylor Well No. 1, said wells should be recompleted as producing or injection wells in the Grayburg formation or replugged in accordance with Commission approved programs within one year after initiation of injection under pressure within the project.

(7) That the wells within the project should be equipped to facilitate periodic testing of the annular space between strings of production and surface casing.

(8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(9) That an administrative procedure should be established whereby additional injection and producing wells at orthodox and unorthodox locations in the project area may be approved without notice and hearing.

(10) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Boyd Operating Company, is hereby authorized to institute a waterflood project on its Robinson, Brinson and Taylor Leases in Sections 25 and 36, Township 16 South, Range 31 East, and Section 30, Township 16 South, Range 32 East, NMPM, Grayburg-Jackson Pool, by the injection of water into the Grayburg formation through the following-described wells all in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico:

LEASE NAME	WELL NO.	UNIT	SECTION
Robinson	8	N	25
Brinson	2	A	36
Brinson	3	G	36

(2) That injection into each of said wells should be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of each injection well shall be tested for leaks, be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device, and that the injection wells or system shall be equipped in such a manner as to limit wellhead pressure to no more than 1050 psi.

(3) That the Secretary-Director of the Commission may administratively authorize a pressure limitation in excess of 1050 psi upon a showing by the operator that such higher pressure will not result in fracturing of the confining strata.

(4) That the wells within the project area shall be equipped with risers or in another acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(5) That the operator shall immediately notify the supervisor of the appropriate Commission district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, the leakage of water or oil from any plugged and abandoned well within the project area or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(6) That within one year after initiation of injection under pressure greater than hydrostatic pressure into injection wells within the project directly or diagonally offsetting the wells listed below, such wells must be recompleted as producing or injection wells or be replugged in accordance with a Commission approved program:

LEASE	WELL NO.	UNIT	SECTION-TOWNSHIP-RANGE
Robinson	6	J	25-16S-31E
Taylor	1	M	30-16S-32E

(7) That the subject waterflood project is hereby designated the Boyd Operating Company Robinson Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(8) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(9) The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of applicant's Robinson, Brinson, or Taylor leases in said Sections 25, 36, and 30 as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to any lease line nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

(a) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.

(b) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, depth, and a demonstration that any proposed injection well will meet construction, pressure, and monitoring provisions of Order (2), (3), and (4) of this Order or the equivalent.

(c) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director of the Commission may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(10) 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

PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

jr/

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

November 5, 1976

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 5787
ORDER NO. R-5318

Applicant:

Boyd Operating Company

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

Boyd Operating Company

PETROLEUM BUILDING — TOWER SUITE
ROSWELL, NEW MEXICO 88201
TELEPHONE 505 / 623-6044

ENERGY

October 19, 1976

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

Re: Case 5787
October 13, 1976

Dear Mr. Stamets:

With reference to the above hearing and your request for additional information pertaining to Exhibit 4, we have prepared Exhibit 4-E as a supplement.

I might note that the Robinson #1 and #2 were listed on Exhibit 4-A and the additional information you requested is set out on Exhibit 4-E. There is no record on either one of these wells of the intermediate casing being pulled, however I feel certain that most of this casing was recovered. The cementing and plugging records of the five wells is set out on this exhibit.

Should you require any additional information, please advise.

Yours truly,

BOYD OPERATING COMPANY

T. M. Boyd

Enclosure

xc: Mr. Jason Kellahin
Mr. Ray Graham, Commissioner of Public Lands

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF BOYD OPERATING COMPANY FOR
APPROVAL OF A WATER-FLOOD PROJECT,
EDDY AND LEA COUNTIES, NEW MEXICO

APPLICATION

Comes now Boyd Operating Company and applies to the New Mexico Oil Conservation Commission for approval of its Robinson Water-Flood project, Eddy and Lea Counties, New Mexico, and in support thereof would show the Commission:

1. Applicant proposes to institute a water-flood project for secondary recovery on the following-described land:

Township 31 East, Range 16 South

Section 25 - SW/4, E/2 SE/4, NE/4 SE/4
Section 36 - NE/4

Township 32 East, Range 16 South

Section 30 - S/2 SW/4

2. Initial injection will be in applicant's Robinson No. 8 well, located in Unit N of Section 25, and the Brinson No. 2, located in Unit A and Brinson No. 3, located in Unit G of Section 36. Injection will be unto the Grayburg-San Andres formation at a depth of approximately 4,000 feet.

3. Initial injection rates will be 400 barrels of water per day for each well. It is anticipated that initially the wells will take water on a vacuum, with pressures increasing during the life of the flood.

4. Injection will be through tubing and under a packer. New liners have been run in two of the older wells, and cemented

in place. Fresh water from the Ogalla formation will be utilized for injection purposes.

5. The proposed project is offset to the Southeast by a water-flood project initiated by Aztec Oil & Gas Company, and presently operated by applicant. It is also offset to the West by a waterflood that has reached depletion, and is no longer operating.

6. Approval of this application will result in the production of oil that would not otherwise be recovered. Waste will be prevented, and correlative rights of all interest owners, including offsetting owners, will be fully protected.

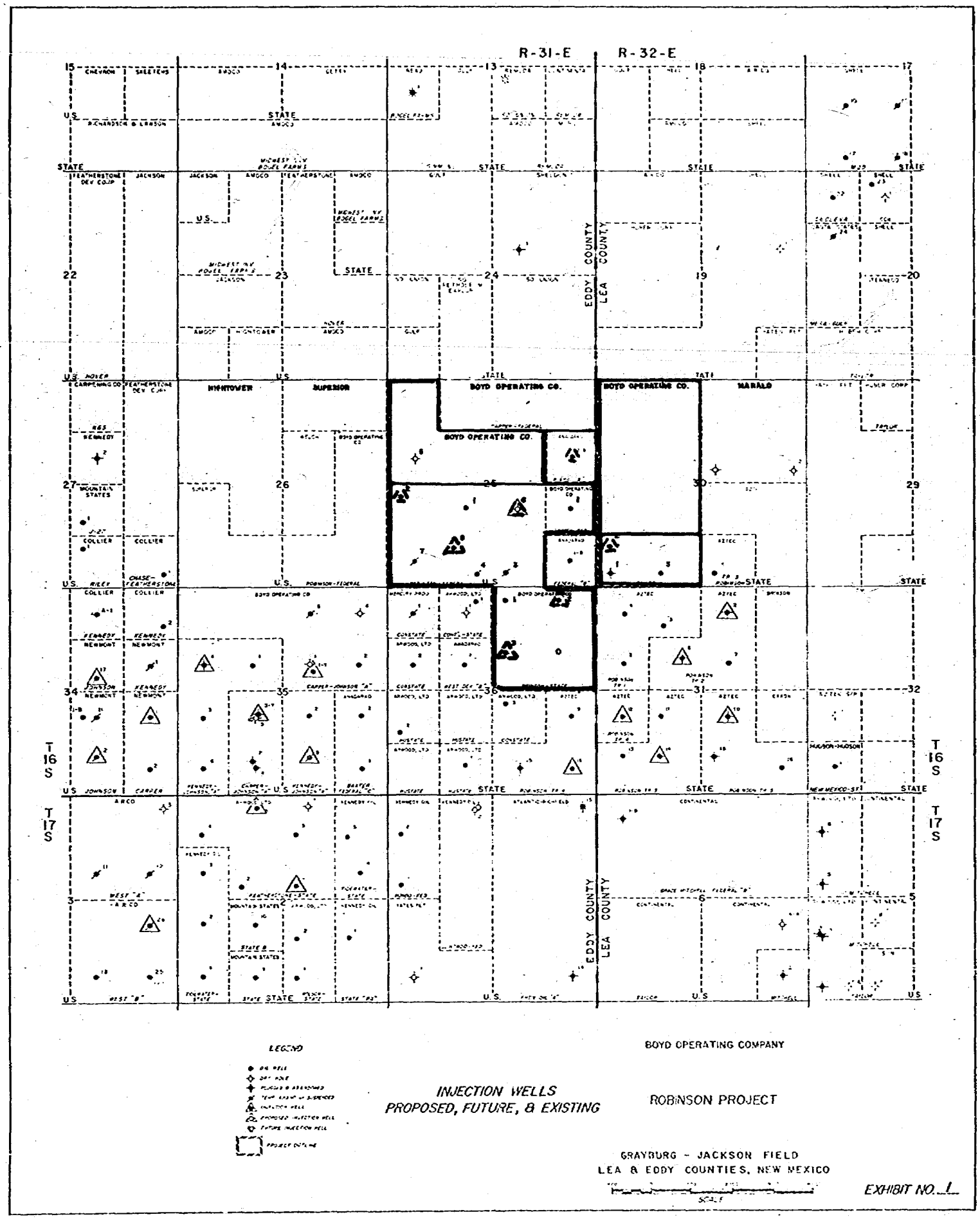
WHEREFORE applicant prays that this application be set for hearing before the Commission's examiner at the October 13th hearing of the Commission, and that after notice and hearing as required by law the water-flood project be approved, together with an administrative procedure for adding additional injection wells, or producing wells, at orthodox or unorthodox locations, and for such other and further provisions as may be proper.

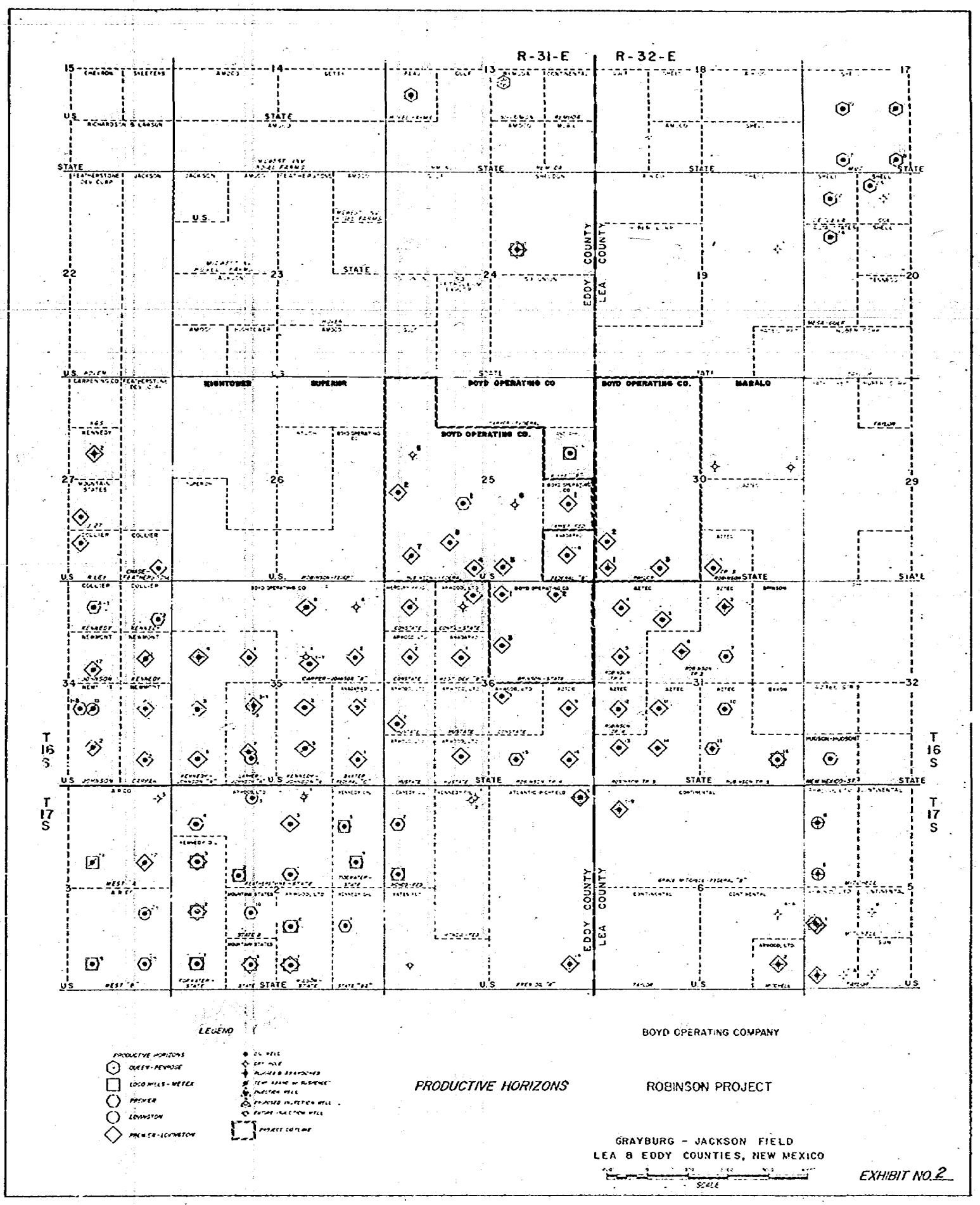
Respectfully submitted,

BOYD OPERATING COMPANY

By _____
Kellahin & Fox
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT


R-31-E
R-32-E
EDDY COUNTY
LEA COUNTY
BOYD OPERATING CO.
NIGHTOWER
SUPERIOR
MARALO
T 16 S
T 17 S
LEGEND
INJECTION WELLS
PROPOSED, FUTURE, & EXISTING
BOYD OPERATING COMPANY
ROBINSON PROJECT
GRAYBURG - JACKSON FIELD
LEA & EDDY COUNTIES, NEW MEXICO
SCALE
EXHIBIT NO. 1


R-31-E
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T 16 S
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EDDY COUNTY
LEA COUNTY
RIGHTOWER
SUPERIOR
BOYD OPERATING CO
BOYD OPERATING CO.
MARALO
LEGEND
PRODUCTIVE HORIZONS
QUEEN-PENROSE
LOCO HILLS - METEX
PREMIER
LEXINGTON
PREMIER-LEXINGTON
PRODUCTIVE HORIZONS
BOYD OPERATING COMPANY
ROBINSON PROJECT
GRAYBURG - JACKSON FIELD
LEA & EDDY COUNTIES, NEW MEXICO
SCALE
EXHIBIT NO. 2

Dresser Atlas

BHC Acoustilog®

FILE NO.

COMPANY MURPHY MINERALS CORPORATION

WELL BRINSON STATE NO. 2

FIELD GRAYBURG JACKSON

COUNTY EDDY STATE NEW MEXICO

LOCATION:
330' FNL & 990' FEL

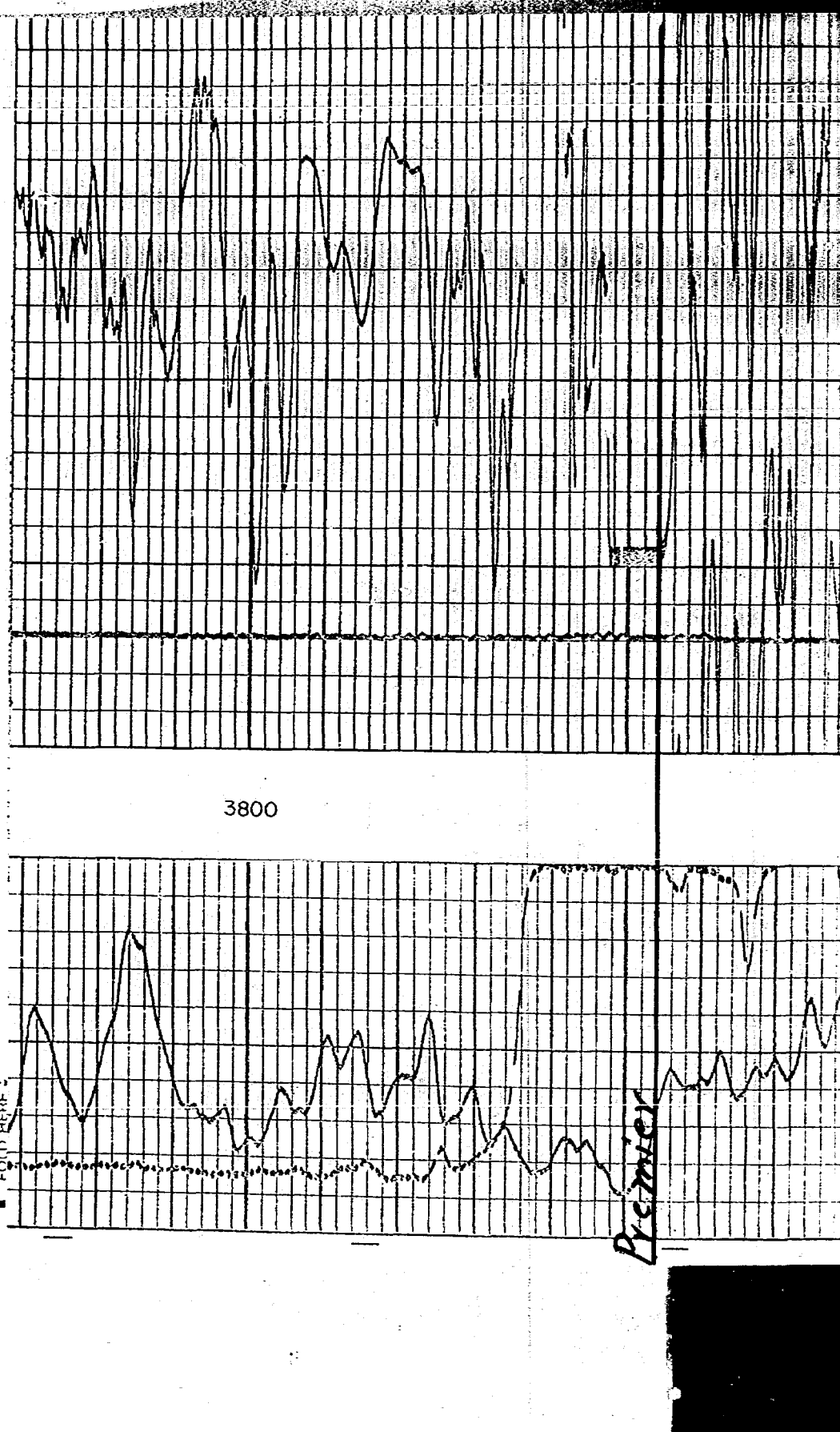
SEC 36 TWP 16-S RGE 31-E

Other Services

Permanent Datum GROUND LEVEL Elev. 4165
Log Measured from G.L. 0 Ft. Above Permanent Datum
Drilling Measured from G.L.

Elevations:
KB -
DF -
GL 4165

Date	10/27/75			
Run No.	ONE			
Depth—Driller	4019			
Depth—Logger	4016			
Bottom Logged Interval	4010			
Top Logged Interval	3200			
Casing—Driller	7" @ 3599	@	@	@
Casing—Logger	3707			
Bit Size	6 1/4"			
Type Fluid in Hole	WATER			
	@	@	@	@
Density and Viscosity	- -			
pH and Fluid Loss	- - cc	cc	cc	cc
Source of Sample	-			
Rm @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Source of Rmf and Rmc	- -			
Rm @ BHT	- @ - °F	@ °F	@ °F	@ °F
Time Since Circ.	-			
Max. Rec. Temp. Deg. F.	- °F	°F	°F	°F
Equip. No. and Location	6123 HOBBS			
Recorded By	MCATEE			
Witnessed By	MR. HOPE			



Dresser Atlas

BHC Acoustilog®

FILE NO.

COMPANY MURPHY MINERALS CORPORATION

WELL BRINSON STATE NO. 2

FIELD GRAYBURG JACKSON

COUNTY EDDY STATE NEW MEXICO

LOCATION:
330' FNL & 990' FEL

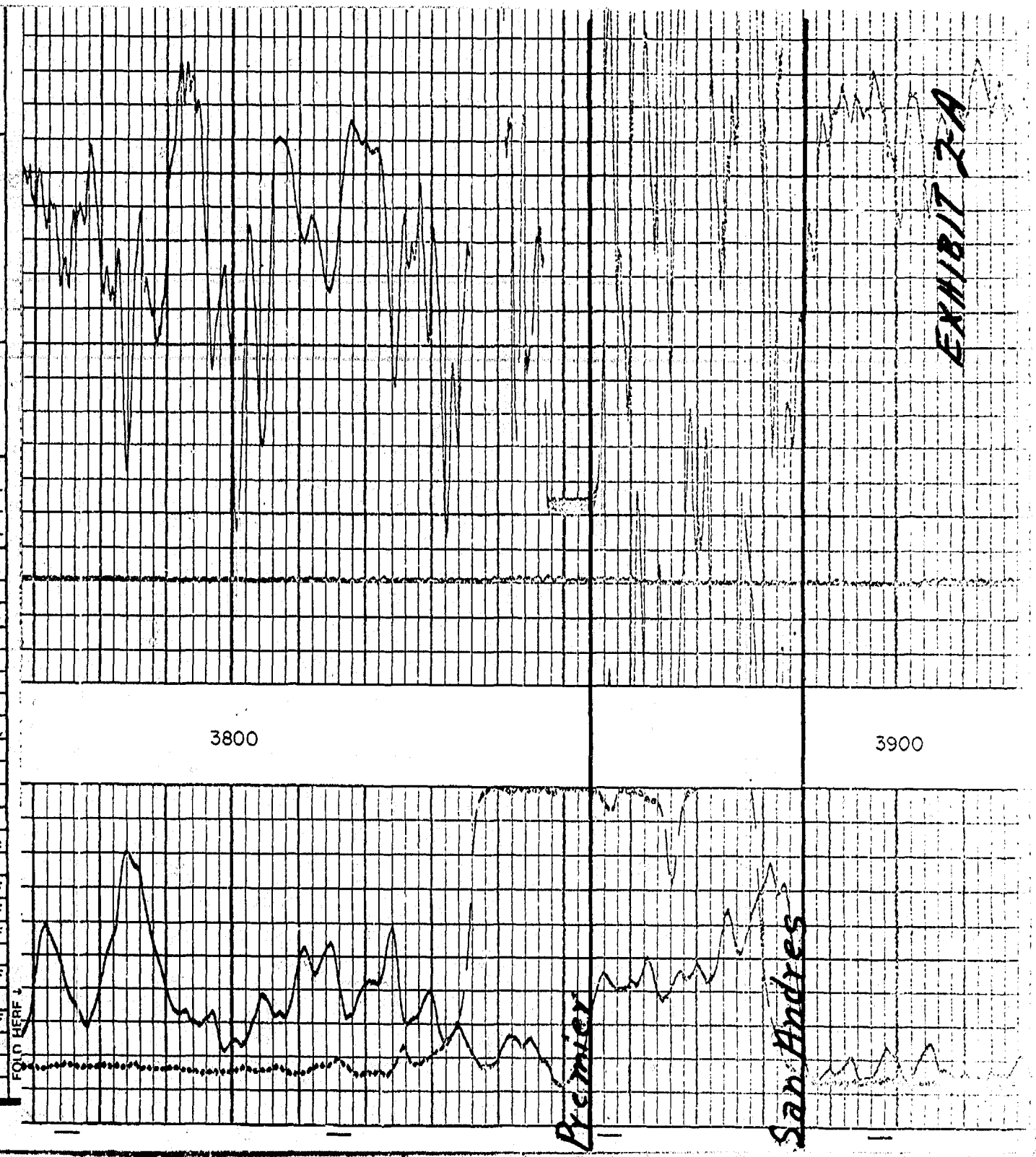
SEC 36 TWP 16-S RGE 31-E

Other Services

Permanent Datum GROUND LEVEL Elev. 4165
Log Measured from G.L. 0 Ft. Above Permanent Datum
Drilling Measured from G.L.

Elevations:
KB -
DF -
GL 4165

Date	10/27/75			
Run No.	ONE			
Depth—Driller	4019			
Depth—Logger	4016			
Bottom Logged Interval	4010			
Top Logged Interval	3200			
Casing—Driller	7" @ 3599	@	@	@
Casing—Logger	3707			
Bit Size	6 1/4"			
Type Fluid in Hole	WATER			
	@	@	@	@
Density and Viscosity	- -			
pH and Fluid Loss	- - cc	cc	cc	cc
Source of Sample	-			
Rm @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Source of Rmf and Rmc	- -			
Rm @ BHT	- @ - °F	@ °F	@ °F	@ °F
Time Since Circ.	-			
Max. Rec. Temp. Deg. F.	- °F	°F	°F	°F
Equip. No. and Location	6123 HOBBS			
Recorded By	MCATEE			
Witnessed By	MR. HOPE			



Dresser Atlas

BHC Acoustilog®

FILE NO.

COMPANY MURPHY MINERALS CORPORATION

WELL BRINSON STATE NO. 3

FIELD GRAYBURG JACKSON

COUNTY EDDY STATE NEW MEXICO

LOCATION:

1650'FNL & 2310'FEL

SEC 36 TWP 16-S RGE 31-E

Other Services

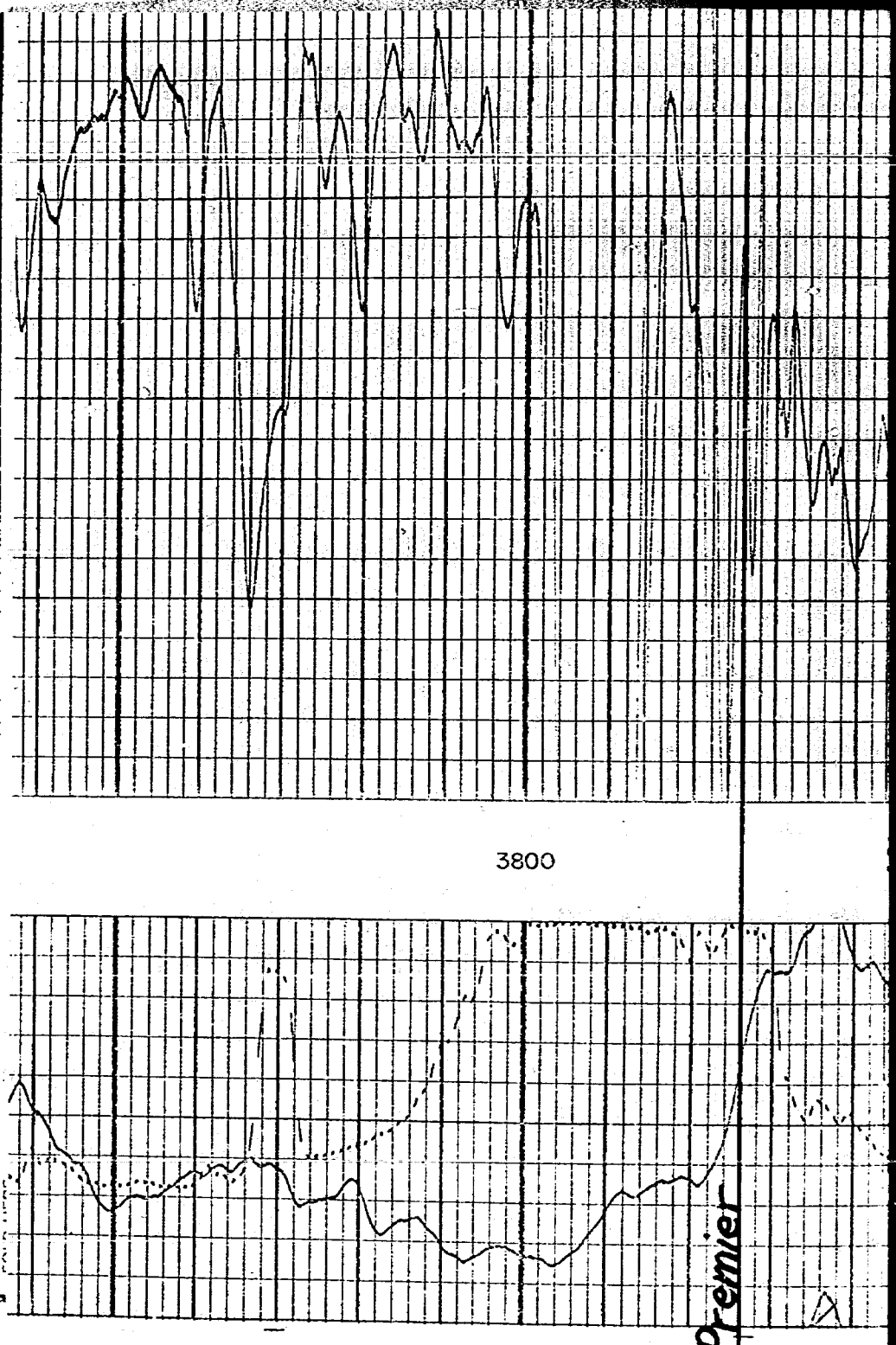
Permanent Datum GROUND LEVEL Elev. 4129'

Log Measured from G. L. 0 Ft. Above Permanent Datum

Drilling Measured from G. L.

Elevations: KB ____ DF ____ GL 4129'

Date	10-31-75			
Run No.	ONE			
Depth—Driller	3960' PBTD			
Depth—Logger	3958'			
Bottom Logged Interval	3956'			
Top Logged Interval	2420'			
Casing—Driller	7" @ 3640'	@	@	@
Casing—Logger	3640'			
Bit Size	6 1/2			
Type Fluid in Hole	WATER			
	@	@	@	@
Density and Viscosity	-			
pH and Fluid Loss	- cc	cc	cc	cc
Source of Sample	-			
Rm @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Source of Rmf and Rmc	-			
Rm @ BHT	- @ °F	@ °F	@ °F	@ °F
Time Since Circ.	-			
Max. Rec. Temp. Deg. F.	- °F	°F	°F	°F
Equip. No. and Location	6124 HOBBS			
Recorded By	HOWARD			
Witnessed By	MR. LAYTON			



DresserAtlas

BHC Acoustilog®

FILE NO.

COMPANY MURPHY MINERALS CORPORATION

WELL BRINSON STATE NO. 3

FIELD GRAYBURG JACKSON

COUNTY EDDY STATE NEW MEXICO

LOCATION:

1650'FNL & 2310'FEL

SEC 36 TWP 16-S RGE 31-E

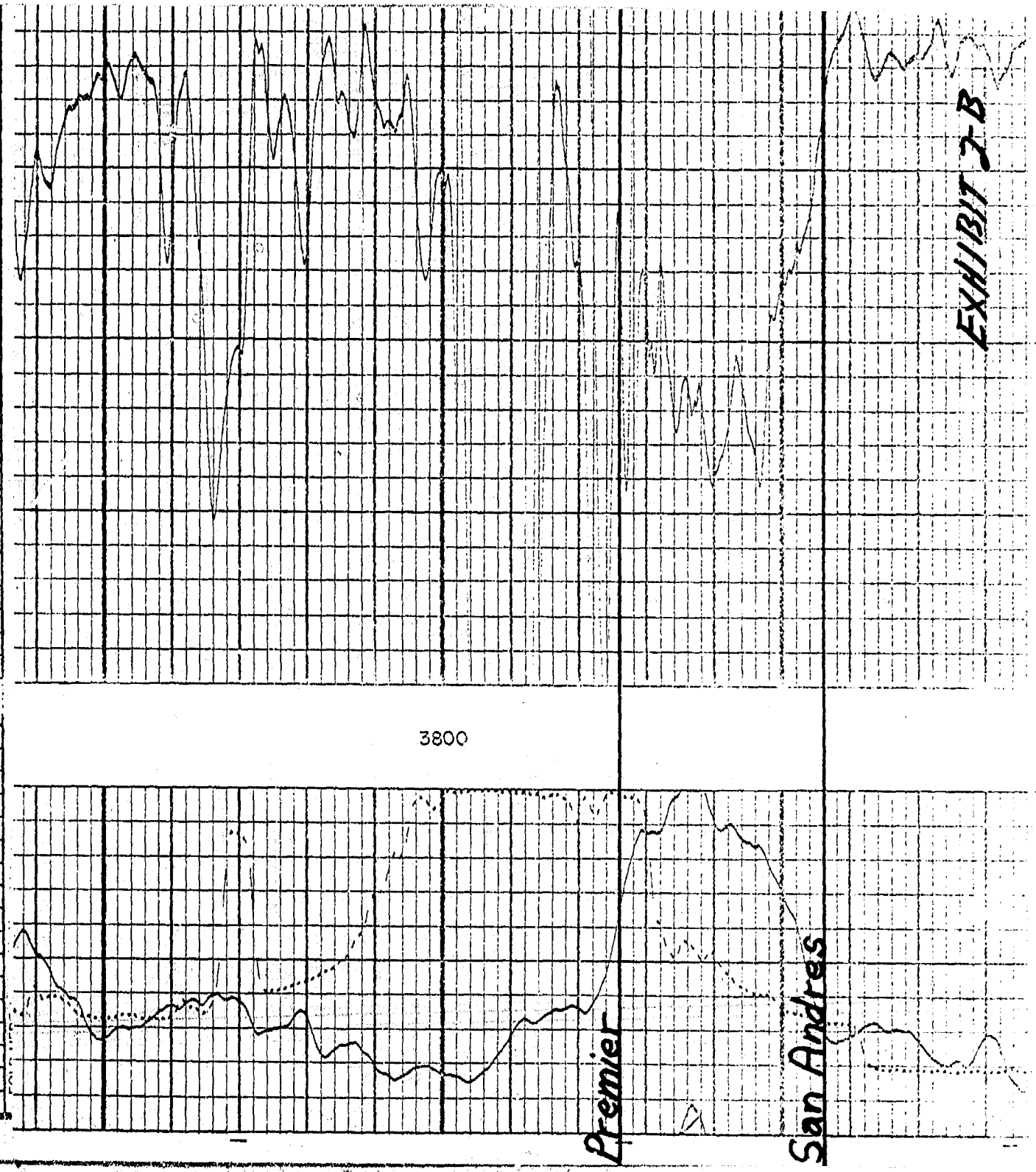
Other Services

Permanent Datum GROUND LEVEL Elev. 4129' Elevations: KB

Log Measured from G. L. 0 Ft. Above Permanent Datum DF

Drilling Measured from G. L. GL 4129'

Date	10-31-75			
Run No.	ONE			
Depth—Driller	3960' PBTD			
Depth—Logger	3958'			
Bottom Logged Interval	3956'			
Top Logged Interval	2[illegible]			
Casing—Driller	7" @ 3640'	@	@	@
Casing—Logger	3640'			
Bit Size	6 1/2			
Type Fluid in Hole	WATER			
	@	@	@	@
Density and Viscosity	-			
pH and Fluid Loss	- cc	cc	cc	cc
Source of Sample	-			
Rm @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Source of Rmf and Rmc	-			
Rm @ BHT	- @ °F	@ °F	@ °F	@ °F
ime Since Circ.	-			
lax. Rec. Temp. Deg. F.	- °F	°F	°F	°F
quip. No. and Location	6124 HOBBS			
ecorded By	HOWARD			
itnessed By	MR. LAYTON			



Schlumberger

COMPENSATED NEUTRON FORMATION DENSITY

COUNTY EDDY
FIELD ROBINSON
LOCATION ROBINSON FEDERAL #8
WELL ROBINSON FEDERAL #8
COMPANY MURPHY MINERALS CORP

COMPANY MURPHY MINERALS CORPORATION

WELL ROBINSON FEDERAL #8

FIELD ROBINSON

COUNTY EDDY STATE NEW MEXICO

LOCATION 990' FSL & 1650' FWL

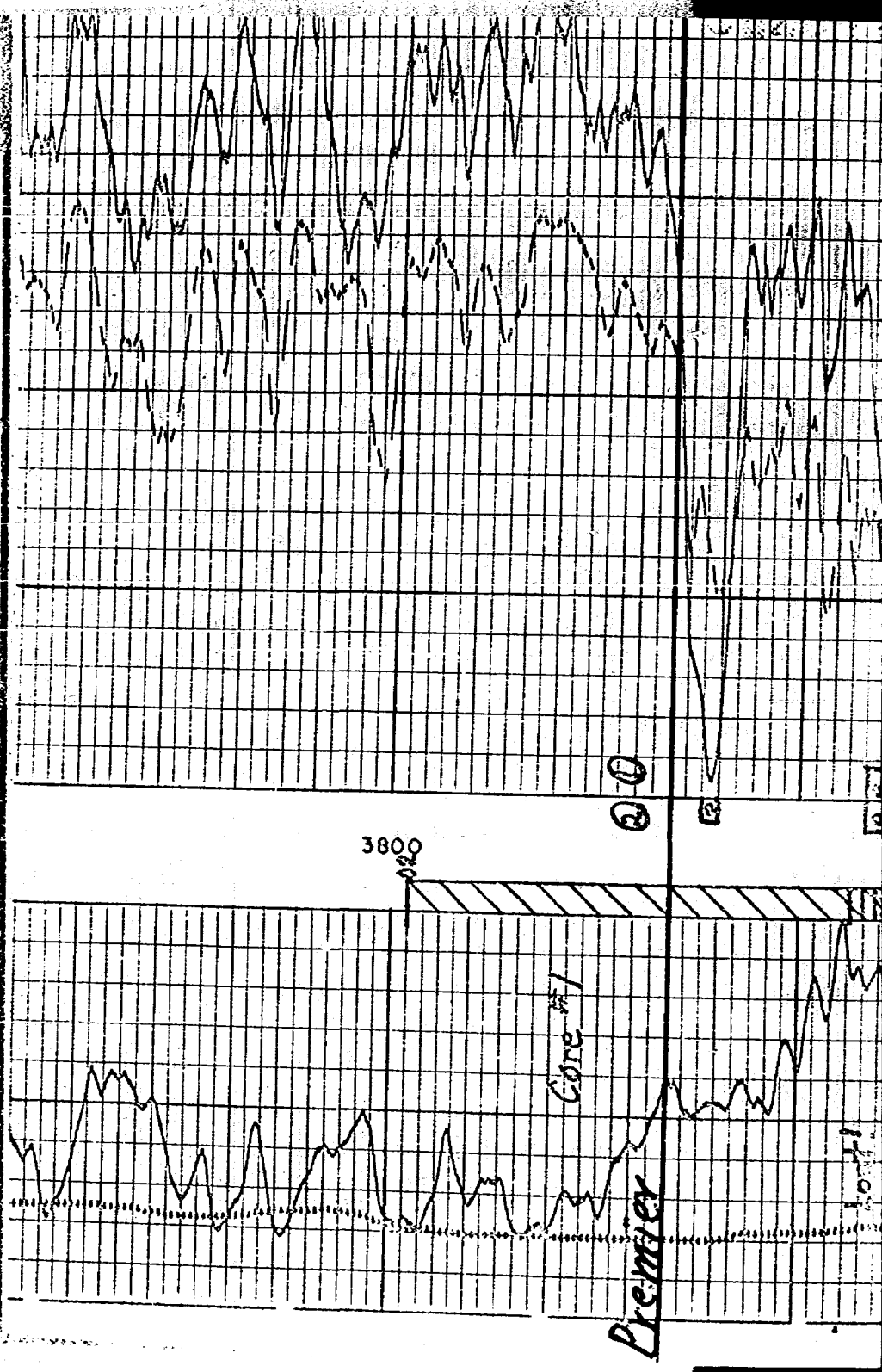
Other Services: DLL

API SERIAL NO	SEC.	TWP	RANGE
	25	16-S	31-E

Permanent Datum: G.L. ; Elev.: 4168
Log Measured From K.B. , 9 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 4177
D.F. 4176
G.L. 4168

Date	8-11-75			
Run No.	ONE			
Depth—Driller	4050			
Depth—Logger	4049			
Btm. Log Interval	4048			
Top Log Interval	SURFACE			
Casing—Driller	8 5/8@450	@	@	@
Casing—Logger	449			
Bit Size	7 7/8			
Type Fluid in Hole	BRINE-GEL.-STARCH			
Dens. / Visc.	10.2 / 34	/	/	/
pH / Fluid Loss	/ 10 ml	/ ml	/ ml	/ ml
Source of Sample	CIRCULATED			
Rm @ Meas. Temp.	.044 @ 78F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	.040 @ 84°F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	.057 @ 78F	@ °F	@ °F	@ °F
Source: Rmf / Rmc	M / C	/	/	/
Rm @ BHT	.037 @ 95F	@ °F	@ °F	@ °F
TIME Circulation Stopped	0800			
TIME Logger on Bottom	1030			
Max. Rec. Temp.	95 °F	°F	°F	°F
Equip. / Location	7679 / HOBBS	/	/	/
Recorded By	WALLS			
Witnessed By Mr.	HOPE, HARRINGTON			



Schlumberger

COMPENSATED NEUTRON-FORMATION DENSITY

COMPANY MURPHY MINERALS CORPORATION

WELL ROBINSON FEDERAL #8

FIELD ROBINSON

COUNTY EDDY STATE NEW MEXICO

LOCATION 990' FSL & 1650' FWL

API SERIAL NO	SEC.	TWP	RANGE
	25	16-S	31-E

Other Services:
DLL

COUNTY EDDY
FIELD ROBINSON
LOCATION
WELL ROBINSON FEDERAL #8
COMPANY MURPHY MINERALS CORP.

Permanent Datum: G.L. ; Elev.: 4168
Log Measured From K.B. , 9 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 4177
D.F. 4176
G.L. 4168

Date	8-11-75			
Run No.	ONE			
Depth—Driller	4050			
Depth—Logger	4049			
Btm. Log Interval	4048			
Top Log Interval	SURFACE			
Casing—Driller	8 5/8@450	@	@	@
Casing—Logger	449			
Bit Size	7 7/8			
Type Fluid in Hole	BRINE-GEL-STARCH			
Dens. | Visc.	10.2 | 34			
pH | Fluid Loss	10 ml	ml	ml	ml
Source of Sample	CIRCULATED			
Rm @ Meas. Temp.	.044 @ 78F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	.040 @ 84F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	.057 @ 78F	@ °F	@ °F	@ °F
Source: Rmf | Rmc	M | C			
Rm @ SHT	.037 @ 95F	@ °F	@ °F	@ °F
Circulation Stopped	0800			
Logger on Bottom	1030			
Max. Rec. Temp.	95 °F	°F	°F	°F
Equip. | Location	7679 | HOBBS			
Recorded By	WALLS			
Witnessed By Mr.	HOPE, HARRINGTON			

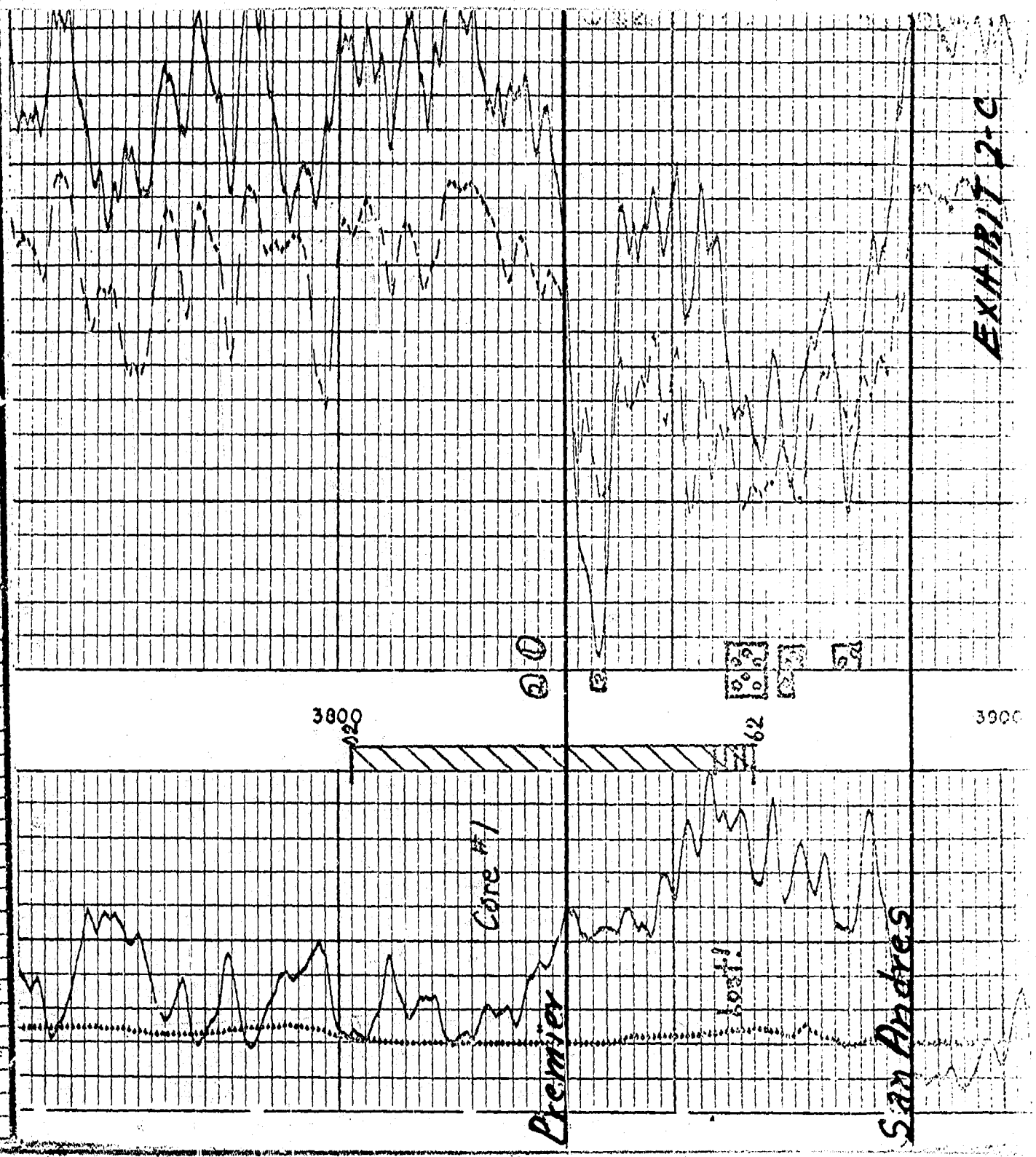
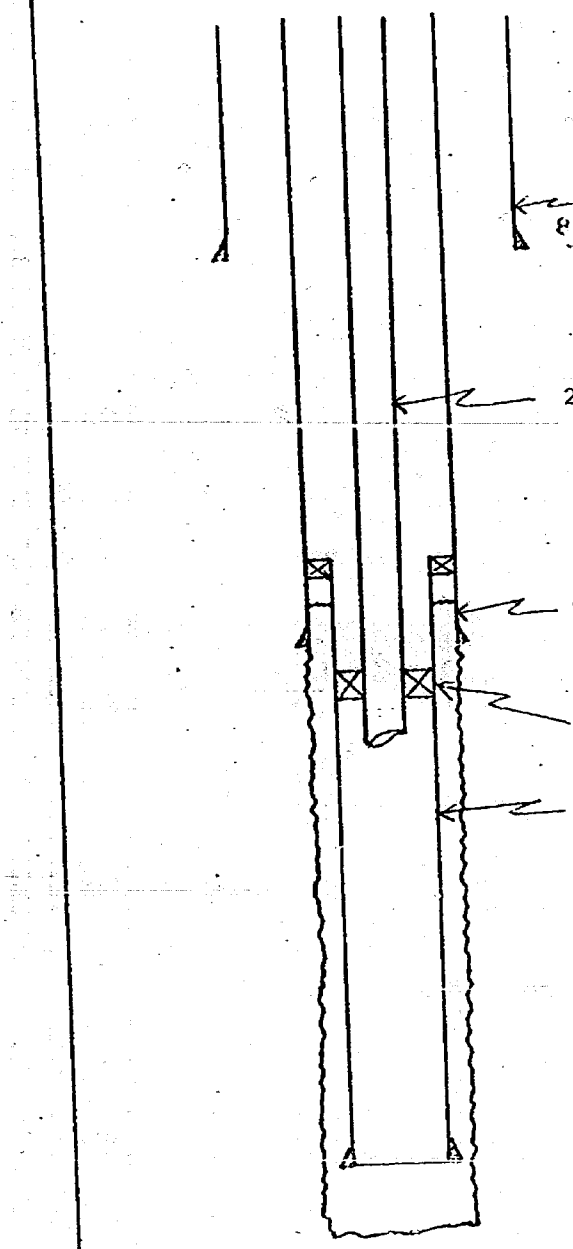


EXHIBIT 2-C

EXHIBIT 3-A

BOYD OPERATING CO.

KB Elev. _____
DF Elev. _____
GL Elev. 4165*
* Datum



8 5/8" O.D., - WT, - GRADE, LANDED AT 964, CMT'D. WITH 50 SX.

2 3/8" O.D. Tubing, 4,716/ft, J-55 Plastic Coated

7" O.D., 20 WT, J-55 GRADE, LANDED AT 3710, CMT'D. WITH 100 SX.

4" Tension Packer at 3775'.

4 1/2" O.D. Liner, 10.5lb/ft, K-55. Set from 3630 to 4008. Cemented with 200 sx. Cement top at 3650.

GRAYBURG ZONE

PREMIER - Perforate for injection 3854'-3886'.

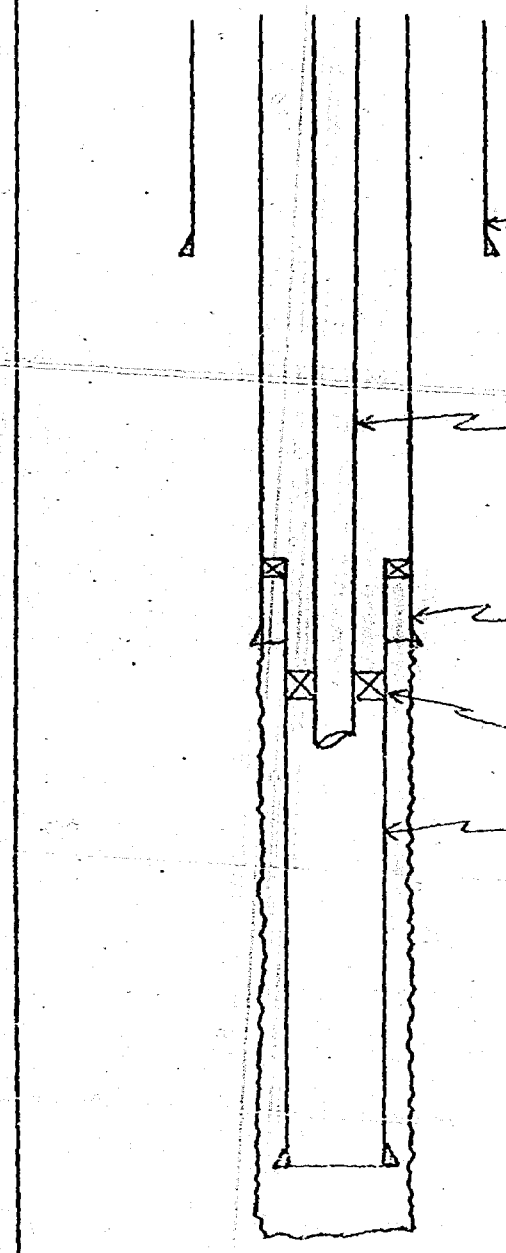
PBTD 4025
TD 4232

WELL NAME & NO. Brinson #2
FIELD Grayburg, Jackson, Queen, San Andres
COUNTY Eddy STATE New Mexico
LOCATION 330 FNL, 990 FEL
Section 36, T16S, R31E

EXHIBIT 3-B

BOYD OPERATING CO.

KB Elev. _____
DF Elev. _____
GL Elev. 4129*
* Datum



8 5/8" O.D., _____ WT, _____ GRADE, LANDED AT 1015, CMT'D. WITH 50 SX.

2 3/8" O.D. Tubing, 4.7 lb/ft. J-55, Plastic Coated

7" O.D., 20 WT, _____ GRADE, LANDED AT 3640, CMT'D. WITH 100 SX.

4" Tension Packer at 3775.

4 1/2" O.D., 10.5 lb/ft., K-55 Liner. Set from 3580-3945'. Cemented with 175 sx. Cement top @ 3640.

GRAYBURG ZONE

PREMIER - Perforate for injection 3826'-3856'.

PBTD 3980

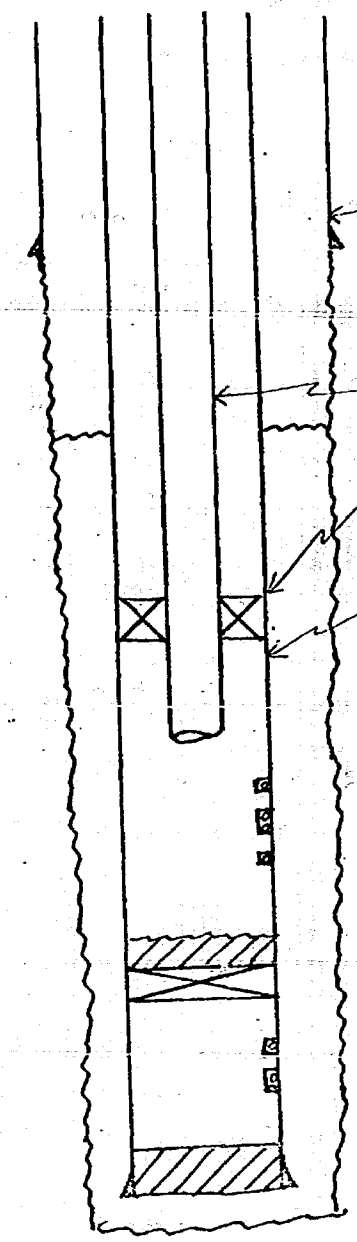
TD 4020

WELL NAME & NO. Brinson #3-B
FIELD Grayburg, Jackson, Queen, San Andres
COUNTY Eddy STATE New Mexico
LOCATION 1650 FNL, 2310 FEL
Section 36, T16S, R31E

EXHIBIT 3-C

BOYD OPERATING CO.

KB Elev. 4177*
DF Elev.
GL Elev. 4168
* Datum



8 5/8" O.D., 28 WT, J-55 GRADE, LANDED AT 450, CMT'D. WITH 175 SX.

2 3/8" O.D., 4.7 lb/ft., J-55, Plastic Coated

4" Tension Packer at 3775'.

4 1/2 O.D., 10.5 WT, K-55 GRADE, LANDED AT 4050, CMT'D. WITH 335 SX.
Cement at 2,900'.

GRAYBURG ZONE

PREMIER Perforated 3838-40, 3858-64
3866-68

SAN ANDRES ZONE

LOVINGTON Perforated 3992-96, 4000-06.

TO RECOMPLETE

Set B.P. at 3950' with cement plug and isolate Lovington Perforations.

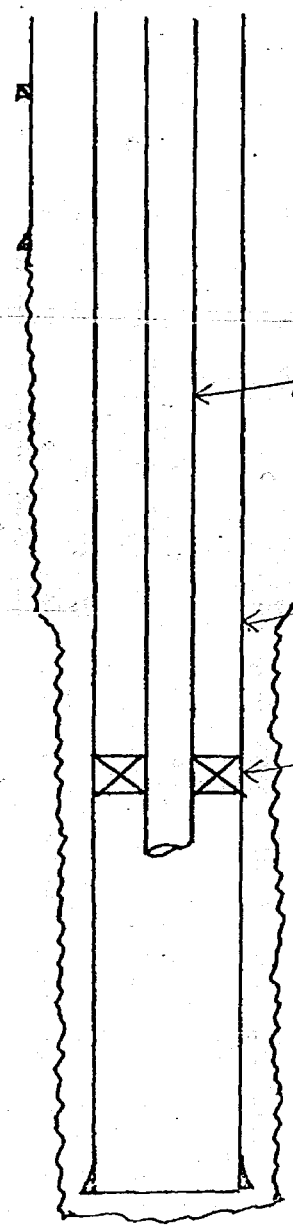
PBTD 4036
TD 4050

WELL NAME & NO. Robinson #8
FIELD Grayburg Jackson, Queen San Andres
COUNTY Eddy STATE New Mexico
LOCATION 990 FSL, 1650 FWL
Section 25, T16S, R31E.

EXHIBIT 3-D

BOYD OPERATING CO.

KB Elev. _____
DF Elev. _____
GL Elev. 4265*
* Datum



Tie back in to 8 5/8" @ 380'.

8 5/8" O.D., 28 WT, _____ GRADE, LANDED AT 1048, CMT'D. WITH 50 SX.

2 3/8" O.D., 4.7# J-55 Tubing, Plastic Coated

4 1/2" O.D., 10.5 WT, K-55 GRADE, LANDED AT +/- 4100, CMT'D. WITH +/- 300 SX.

4" Tension Packer at approximately 3800'.

GRAYBURG ZONE

PREMIER- Will perforate from log evaluation.

PBTD _____

TD 4058

WELL NAME & NO. Robinson #6
FIELD Grayburg Jackson, Queen, San Andres
COUNTY Eddy STATE New Mexico
LOCATION 1920 FSL, 2070 FEL
Section 25, T16S, R31E.

OPERATOR Lease & Well #	LOCATION	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUB OR
BOYD OPERATING COMPANY					Short on cement but OH in zone of, inte				
Brinson #1	B-36-16-31	9-15-38	80 B.O.,O-W	8 1/4" @1070' w/30 sx.	7" @ 3599 w/35 sx.	4009	4000	O.H. 3599 to 4000 Shot w/120 qts. 3965 to 3966.	10/ 400 Aco
Brinson #2	A-36-16-31	3-15-45	25 B.O.; O-W	8 5/8" @ 964' w/30 sx.	7" @ 3710 w/100 sx.	4232	4025	O.H. 3710-4025. Shot w/120 qts.3986 to 4017 and 180 qts. 3842-3887.	10/ to Pul 378 lin 400 sx. cem
Brinson #3	G-36-16-31	5-13-49	24 BO; O-W	8 5/8"@ 1015 w/50 sx.	7" @ 3640 w/100 sx.	4020	3980	O.H. 3640-3980 Shot w/100 qts. 3903-3980 w/160 qts.3780-3821.	10/ 396 Ran 10. 358 w/1 Top
Carper Fed. #1	I-25-16-31	9-5-51	8 B.O.; O-W	8 5/8" @1058 w/50 sx.	7" @ 3748 w/100 sx.	4212	4125	O.H. 3748-4212 Shot w/100 qts. 3910-50	2/5 418 3/5
Robinson #1	K-25-16-31	1926	20 B.O.	15 1/2" @ 415 12 1/2" @ 941 10" @ 2133	8 5/8 @ 3302' 7" @ 3715	3885	OH 2I	O.H. 3715-3885 No Treatment.	
Robinson #2	L-25-16-31	1927	120 B.O.	20" @ 101'. 15 1/2" @ 410' 12 1/2 @ 915	10" @ 2295' 8 5/8 @ 3692'	4100	d.H.	O.H. 3692-4100 No Treatment.	

EX

ON	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSEQUENT TREATMENTS OR WORKOVERS
				Short on cement but OH in zone of interest				
6-31	9-15-38	80 B.O.,O-W	8 1/4" @1070' w/30 sx.	7" @ 3599 w/35 sx.	4009	4000	O.H. 3599 to 4000 Shot w/120 qts. 3965 to 3966.	10/75 Cleaned out to 4009. Ran GR-BHC Acoustic-Caliper
6-31	3-15-45	25 B.O.; O-W	8 5/8" @ 964' w/30 sx.	7" @ 3710 w/100 sx.	4232	4025	O.H. 3710-4025. Shot w/120 qts. 3986 to 4017 and 180 qts. 3842-3887.	10/75 Cleaned out to 4016'. 2/76 Pulled tbg. Ran 378' of 4 1/2" 10.5# liner. Set @ 3630 to 4002. Cemented w/200 sx. Class "C". Top of cement @ 3650'.
6-31	5-13-49	24 BO; O-W	8 5/8"@ 1015 w/50 sx.	7" @ 3640 w/100 sx.	4020	3980	O.H. 3640-3980 Shot w/100 qts. 3903-3980 w/160 qts. 3780-3821.	10/75 Cleaned out to 3961. Pulled tubing. Ran 365' of 4 1/2", 10.5# liner. Set @ 3580-3945. Cemented w/175 sx. Class "C" Top of Cement @ 3640'.
6-31	9-5-51	8 B.O.; O-W	8 5/8" @1058 w/50 sx.	7" @ 3748 w/100 sx.	4212	4125	O.H. 3748-4212 Shot w/100 qts. 3910-50	2/52 Cleaned out to 4180. 3/59 Cleaned out to 4125
6-31	1926	20 B.O.	15 1/2" @ 415 12 1/2" @ 941 10" @ 2133	8 5/8 @ 3302' 7" @ 3715	3885	OH 2I	O.H. 3715-3885 No Treatment.	
6-31	1927	120 B.O.	20" @ 101'. 15 1/2" @ 410' 12 1/2 @ 915	10" @ 2295' 8 5/8 @ 3692'	4100	d.h	O.H. 3692-4100 No Treatment.	

EXHIBIT 4-A

OPERATOR Lease & Well #	LOCATION	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSE OR WO
BOYD OPERATING COMPANY						OH2I			
Robinson #3	O-25-16-31	1-1-39	80 B.O.; O-W	8 5/8" @1097 w/50 sx.	7" @ 3619' w/100 sx.	4040	-	O.H. 3619-4040 No Treatment	8/54 - to 404 3450. w/20,0 12,600
? Robinson #4	N-25-16-31	9-7-39	30 B.O.;O -W	8 5/8" @927' w/50 sx.	7" @ 3600' w/100 sx.	4025	4015	O.H. 3600-4825 Shot w/150 qts. 3841-78	5/43-R 5" lin of per @ 4015
? Robinson #6	J-25-16-31	P&A 11-21-51	-0-	8 5/8" @ 1048 w/50 sx.	None	4058	P/A	No completion attempt. Pulled 380' of 8 5/8".	Plug 1 Plug 2 Plug 3 Plug 4
Robinson #7	M-25-16-31	9-9-55 9-20-55	10B.O.;O-W 35 B.O.	8 5/8" @ 966' w/50 sx.	5 1/2" @3666' w/100 sx.	3985	-	O.H. 3666-3985 Fracked w/10,000 gal. oil, 10,000 lb. sand.	
Robinson #8	N-25-16-31	8-25-75	16.4 B.O. 14.2 B.W.	8 5/8" @ 450 w/175 sx.	4 1/2" @ 4050 w/335 sx.	4050	4036	3992'-4006', 30,000 gal. 25,000 # sand. 3858-3878', 45,000 gal. 42,000 lb. sand	10/75-5 Re-per 3858-38 Acid (5 and pla
Carper Drilling Co Taylor #1	M-30-16-32	6-6-39	15 B.O.;O-W	8 5/8" @ 1095 w/35 sx.	7" @ 3605 w/15 sx.	4097 Bad	3700	O.H. 3605-4015 Shot w/90 qts. 3995-4015	Betwee cement @ 3700 10 sx. 1095 o Pulled

EXHIBI

OHZI

COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSEQUENT TREATMENTS OR WORKOVERS
1-1-39	80 B.O.; O-W	8 5/8" @1097 w/50 sx.	7" @ 3619' w/100 sx.	4040	-	O.H. 3619-4040 No Treatment	8/54 - Cleaned out to 4040. Packer @ 3450. Treated w/20,000 lb. sand, 12,600 gal. oil.
9-7-39	30 B.O.;O -W	8 5/8" @927' w/50 sx.	7" @ 3600' w/100 sx.	4025	4015	O.H. 3600-4825 Shot w/150 qts. 3841-78	5/43-Ran 185' of 5" liner w/65' of perforations. Set @ 4015.
P&A 11-21-51	-0-	8 5/8" @ 1048 w/50 sx.	None	4058	P/A	No completion attempt. Pulled 380' of 8 5/8".	Plug 1-15 sx @ 3285' Plug 2-10 sx @ 2138' Plug 3-10 sx @ 1065'. Plug 4-10 sx. @ surface
9-9-55 9-20-55	10B.O.;O-W 35 B.O.	8 5/8" @ 966' w/50 sx.	5 1/2" @3666' w/100 sx.	3985	-	O.H. 3666-3985 Fracked w/10,000 gal. oil, 10,000 lb. sand.	
8-25-75	16.4 B.O. 14.2 B.W.	8 5/8" @ 450 w/175 sx.	4 1/2" @ 4050 w/335 sx.	4050	4036	3992'-4006', 30,000 gal. 25,000 # sand. 3858-3878', 45,000 gal. 42,000 lb. sand	10/75-Squeezed perfs. Re-perforated 3838-40, 3858-3864, 3866-68. Acid (500 gal) wash and place on production
6-6-39	15 B.O.;O-W	8 5/8" @ 1095 w/35 sx.	7" @ 3605 w/15 sx.	4097 Bad	3700	O.H. 3605-4015 Shot w/90 qts. 3995-4015	Between 1939-1947 a cement plug was set @ 3700. P&A 6-47. 10 sx. plugs @ 2250, 1095 of surface. Pulled 1950' of 7".

EXHIBIT 4-B

OPERATOR Lease & Well #	LOCATION	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUB OR
BOYD OPERATING COMPANY									
Taylor 2	M-30-16-32	11-23-55	22 B.O.; O-W	8 5/8" @ 1225 w/50 sx.	7" @ 3862 w/100 sx.	4017	-	O.H. 3862-4017. Treated w/10,000 gal oil, 15,000# sand. Went from 1.5 to 22 BOPD	
Taylor 3	N-30-16-32	1-13-60	25 B.O.;O-W	8 5/8" @ 945' w/50 sx.	5 1/2" @ 4030 w/100 sx.	4032	4025	Perf. 3744-50, 3754-3776-86, 3842-52, 3962-77. Treated w/67,000 gal. refine oil and 47,500# sand 3 stages.	
ANADARKO									
Federal B-1	P-25-16-31	2-22-61	60.3 B.O.P.D.	8 5/8" @ 353' w/275 sx.	5 1/2" 4065' w/225 sx.	4065	4055	Perf. 3757-63, 3799-3888-92, 3913-17 & 4034-46, SF w/50,000 gal. 85,000# sand.	
Federal B-2	H-25-16-31	5-15-61	36.5 B.O.P.D.	8 5/8" @ 315' w/225 sx.	5 1/2" 4084 w/250 sx.	4084	-	Perf. 3891-96, 4924-S.F. 25,000 gal, 50	
West.Dev. B-1	F-36-16-31	10-11-61	37.5 B.O.P.D.	8 5/8" @ 350' w/200 sx.	5 1/2" @ 3974 w/350 sx.	3986	3974	Perf. 3746-51,3786-8 3806-14-,3826-38,391 S.F. 60,000 gal. 90 sand.	

	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSEQUENT TREATMENTS OR WORKOVERS
-32	11-23-55	22 B.O.; O-W	8 5/8" @ 1225 w/50 sx.	7" @ 3862 w/100 sx.	4017	-	O.H. 3862-4017. Treated w/10,000 gal oil, 15,000# sand. Went from 1.5 to 22 BOPD	
-32	1-13-60	25 B.O.;O-W	8 5/8" @ 945' w/50 sx.	5 1/2" @ 4030 w/100 sx.	4032	4025	Perf. 3744-50, 3754-56 3776-86, 3842-52, 3962-77. Treated w/67,000 gal. refined oil and 47,500# sand. 3 stages.	
-31	2-22-61	60.3 B.O.P.D.	8 5/8" @ 353' w/275 sx.	5 1/2" 4065' w/225 sx.	4065	4055	Perf. 3757-63, 3799-3804 3888-92, 3913-17 & 4034-46; SF w/50,000 gal. 85,000# sand.	
-31	5-15-61	36.5 B.O.P.D.	8 5/8" @ 315' w/225 sx.	5 1/2" 4084 w/250 sx.	4084	-	Perf. 3891-96, 4924-27 S.F. 25,000 gal, 50,000# sand.	
-31	10-11-61	37.5 B.O.P.D.	8 5/8" @ 350' w/200 sx.	5 1/2" @ 3974 w/350 sx.	3986	3974	Perf. 3746-51,3786-88. 3806-14-,3826-38,3915-3957. S.F. 60,000 gal. 90,000# sand.	

EXHIBIT 4-C

OPERATOR Lease & Well #	LOCATION	COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSEQUENT TR OR WORKOVERS
ARWOOD LTD.									
Constate #1	C-36-16-31	7-20-61	97 B.O.P.D.	8 5/8" @ 385' w/175 sx.	5 1/2" @ 4036' w/250 sx.	4036	4014	Perf. 3727-4001 S.F. 79,500 gal, 120,700# sand.	
Constate #2	E-36-16-31	9-22-61	48 B.O.P.D.	8 5/8" @ 419' w/150 sx.	5 1/2" @ 3975' w/200 sx.	3975	3898	Perf. 3724-3951, 1000 gal. acid. S.F. 55,000 68,500# sand.	
Constate #3	J-36-16-31	12-22-61	48 B.O.P.D.	8 5/8" @ 400' w/150 sx.	5 1/2" @ 3977 w/200 sx.	3977	3950	Perf. 3784-3945 S.F. 45,000 gal, 43,000# sand. (3 stages)	
AZTEC OIL AND GAS COMPANY									
Robinson Tr.4-9	I-36-16-31	10-30-59	66 B.O.P.D.	8 5/8" @ 335' w/250 sx.	4 1/2" @ 4023' w/250 sx.	4024	4010	Perf. 3967-83, 1000 gal acid. 11,000# sand. Perf. 3776-3858, 1000 gal acid. 36,000# sand.	
Robinson Tr. 3-15	O-30-16-32	9-2-59	60 B.O.P.D.	8 5/8" @ 326' w/200 sx.	4 1/2" @ 4090 w/200 sx.	4090	-	Perf. 3824-4047, 1000 gal. acid. S.F.40,000# sand.	
Robinson Tr. 1-3	C-31-16-32	8-31-59	60 B.O.P.D.	8 5/8" @ 316' w/275 sx.	4 1/2" @ 4080 w/200 sx.	4080	4046	Perf. 3814-3893, 4000-4010. S.F. 60,000# sand.	
Robinson Tr. 1-4	D-31-16-32	8-13-59	60 B.O.P.D.	8 5/8" @ 354' w/200 sx.	4 1/2" @ 4074 w/200 sx.	4074	4038	Perf. 3814-4010 S.F. 40,000# sand.	
Robinson Tr. 1-5	E-31-10-32	7-27-59	60 B.O.P.D.	8 5/8" @ 350' w/200 sx.	4 1/2" @ 4098 2/200 sx.	4098	-	Perf. 3796-3996. 1000 gal. acid. S.F. 40,000# sand.	
MERCURY PRODUCTION COMPANY									
Constate #1	D-~~356~~-16-31 36	9-21-65	2 B.O. 5 BW	13 3/8	4 1/2" @ 3995 w/400 sx.	3995	3992	Perf. 3684-3854, 1/ft (intervals) Perf. 3950-3954. Frac. 40,000 gal. 27,500# sand	1/66 pack comm perf job.

EXH

COMPLETION DATE	INITIAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK T.D.	ORIGINAL COMPLETION	SUBSEQUENT TREATMENTS OR WORKOVERS
7-20-61	97 B.O.P.D.	8 5/8" @ 385' w/175 sx.	5 1/2" @ 4036' w/250 sx.	4036	4014	Perf. 3727-4001 S.F. 79,500 gal, 120,700# sand.	
9-22-61	48 B.O.P.D.	8 5/8" @ 419' w/150 sx.	5 1/2" @ 3975' w/200 sx.	3975	3898	Perf. 3724-3951, 1000 gal. acid. S.F. 55,000 68,500# sand.	
12-22-61	48 B.O.P.D.	8 5/8" @ 400' w/150 sx.	5 1/2" @ 3977 w/200 sx.	3977	3950	Perf. 3784-3945 S.F. 45,000 gal, 43,000# sand. (3 stages)	
10-30-59	66 B.O.P.D.	8 5/8" @ 335' w/250 sx.	4 1/2" @ 4023' w/250 sx.	4024	4010	Perf. 3967-83, 1000 gal acid. 11,000# sand. Perf. 3776-3858, 1000 gal acid. 36,000# sand.	
9-2-59	60 B.O.P.D.	8 5/8" @ 326' w/200 sx.	4 1/2" @ 4090 w/200 sx.	4090	-	Perf. 3824-4047, 1000 gal. acid. S.F.40,000# sand.	
8-31-59	60 B.O.P.D.	8 5/8" @ 316' w/275 sx.	4 1/2" @ 4080 w/200 sx.	4080	4046	Perf. 3814-3893, 4000-4010. S.F. 60,000# sand.	
8-13-59	60 B.O.P.D.	8 5/8" @ 354' w/200 sx.	4 1/2" @ 4074 w/200 sx.	4074	4038	Perf. 3814-4010 S.F. 40,000# sand.	
7-27-59	60 B.O.P.D.	8 5/8" @ 350' w/200 sx.	4 1/2" @ 4098 2/200 sx.	4098	-	Perf. 3796-3996. 1000 gal. acid. S.F. 40,000# sand.	
9-21-65	2 B.O. 5 BW	13 3/8	4 1/2" @ 3995 w/400 sx.	3995	3992	Perf. 3684-3854, 1/ft (intervals) Perf. 3950-3954. Frac. 40,000 gal.. 27,500# sand	1/66 -Ran straddle packers. Had communication on most perfs. Bad cement job.S.I.

EXHIBIT 4-D

OPERATOR LEASE & WELL #	LOCATION	COMPLETION DATE	INITIRAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK TOTAL DEPTH	ORIGINAL COMPLETION	SUBSEQUE OR WORKO
BOYD OPERATING COMPANY									
Robinson #1	K-25-16-31	July,1927	20 BOPD	15 1/2" @ 413' 12 1/2" @ 940' w/40 sx. 10" @ 2133'	8 1/4" @ 3307 w/60 sx. 6 1/4" @ 3715 W./150 sx.	3885	-	O.H. 3715-3885 No Treatment	7/34 D 4365; Tested
Robinson #2	L-25-16-31	1927	120 BOPD	20" @ 101' 15 1/2" @ 410' 12 1/2 @ 915'	10" @ 2298 8 1/4" @ 3692 w/200 sx.	4100	-	O.H. 3692-4100	6/34 A 4015 w Tested 6/36 S 3986.
Robinson #5	E-25-16-31	5-4-51	P&A	8 5/8" @ 1007 w/50 sx.	7" @ 3705 w/100 sx.	4681	4610	P&A 5-4-51 Pulled 2868' of 7". No 8 5/8"	Spot @ 460 2870' 10 sx Base Put 8 swage
Carper Johnson #6	A-35-16-31	8-24-56	P&A	8 5/8" @ 907 w/50 sx.	7" @ 3070 w/no cement	3871	-	P&A 9-4-56 Pulled 2888' of 7" 293' of 8 5/8"	Set 32 &
J. D. HANCOCK									
Con't.State #1	C-36-16-31 660 FNL, 1980 FWL	8-6-55	P&A	8 5/8" @ 927' 2/250 sx.	5 1/2" @ 4083 w/175 sx.	4085	3912	6-9-55 to 7-4-55 Perforate 3805 4058. Treat w/11,600 gals acid. 9000 gals crude and 12,500# san 4 zones.	

EXHIBIT 4-E
Supplemen

COMPLETION DATE	INITIRAL POTENTIAL	SURFACE CASING	PRODUCTION CASING	ORIGINAL TOTAL DEPTH	PLUG BACK TOTAL DEPTH	ORIGINAL COMPLETION	SUBSEQUENT TREATMENTS OR WORKOVERS
July,1927	20 BOPD	15 1/2" @ 413' 12 1/2" @ 940' w/40 sx. 10" @ 2133'	8 1/4" @ 3307 w/60 sx. 6 1/4" @ 3715 w./150 sx.	3885	-	O.H. 3715-3885 No Treatment	7/34 Deepened to 4365; Oil Show 3910-15 Tested 15 BOPD.
1927	120 BOPD	20" @ 101' 15 1/2" @ 410' 12 1/2 @ 915'	10" @ 2298 8 1/4" @ 3692 w/200 sx.	4100	-	O.H. 3692-4100	6/34 Acidized 3945-4015 w/1,200 gals. Tested 30 BOPD 6/36 Shot w/100 qts. @ 3986. Tested 25 BOPD.
5-4-51	P&A	8 5/8" @ 1007 w/50 sx.	7" @ 3705 w/100 sx.	4681	4610	P&A 5-4-51 Pulled 2868' of 7". No 8 5/8"	Spot 20 sx. plug @ 4600'. 10 sx. 2870' (top of 7") 10 sx plug @ 1000'. Base of 8 5/8" Put 8 5/8" X 4 1/2" swage in 8 5/8".
8-24-56	P&A	8 5/8" @ 907 w/50 sx.	7" @ 3070 w/no cement	3871	-	P&A 9-4-56 Pulled 2888' of 7" 293' of 8 5/8"	Set 10 sx. plugs @ 3280, 2890, 1025 & surface.
8-6-55	P&A	8 5/8" @ 927' 2/250 sx.	5 1/2" @ 4083 w/175 sx.	4085	3912	6-9-55 to 7-4-55 Perforate 3805-4058. Treat w/11,600 gals acid. 9000 gals crude and 12,500# sand 4 zones.	8/55 Pulled 2878' of 5 1/2. Plugs - 20 sx. @ 4085, 20 sx. @ 2250 base of salt, 20 sx. @ 1075 top of salt, 10 sx. @ surface.

EXHIBIT 4-E
Supplement after hearing

Dockets Nos. 29-76 and 30-76 are tentatively set for hearing on October 27 and November 10, 1976. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 13, 1976

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for November, 1976, from seventeen prorated pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

(2) Consideration of the allowable production of gas for November, 1976, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 5773: (Continued from September 29, 1976, Examiner Hearing)

Application of Yates Petroleum Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the North Millman Unit Area comprising 2,017 acres, more or less, of State lands in Township 19 South, Range 28 East, Eddy County, New Mexico.

CASE 5783: Application of Palmer Oil and Gas Company for an unorthodox gas well location and a non-standard proration unit, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 335.66-acre non-standard proration unit, comprising all of Sections 6 and 7, Township 26 North, Range 2 West, Blanco Mesaverde Pool, Rio Arriba County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 1850 feet from the South line and 700 feet from the West line of said Section 7.

CASE 5784: Application of Atlantic Richfield Company for four unorthodox locations and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to simultaneously dedicate a previously approved 320-acre Jalmat gas proration unit comprising the NW/4, SW/4 NE/4, E/2 NE/4, NE/4 SE/4 of Section 35, Township 23 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to its John P. Combest Wells Nos. 1, 2, 3, and 4 located at unorthodox locations in Units H, G, A, and E, respectively, of said Section 35.

CASE 5785: Application of Doyle Hartman for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Seven Rivers-Queen formation underlying the NE/4 NE/4, NW/4 NE/4, SW/4 NE/4, and SE/4 NE/4 of Section 19, Township 24 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico, to form four 40-acre proration units to be dedicated to four oil wells to be drilled at standard locations on said tracts. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 5786: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its New Mexico "BZ" State Lease, Langlie-Mattix Pool, Lea County, New Mexico, by the injection of water into the Seven Rivers-Queen formation through seven injection wells located in Unit L of Section 15 and Units B, D, F, H, J, and P of Section 16, Township 23 South, Range 37 East.

CASE 5787: Application of Boyd Operating Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Grayburg-Jackson Pool, Eddy County, New Mexico, by the injection of water into the Grayburg-San Andres formation through its Robinson Well No. 8 located in Unit N of Section 25 and its Brinson Wells Nos. 2 and 3 located, respectively, in Units A and G of Section 36, Township 16 South, Range 31 East, Eddy County, New Mexico. Applicant further seeks an administrative procedure for expansion of the project by approval of additional injection and production wells at orthodox and unorthodox locations.

CASE 5574: (Reopened)

In the matter of Case 5574 being reopened pursuant to the provisions of Order No. R-5118 which order established a temporary special depth bracket allowable of 750 barrels of oil per day for the Eagle Mesa-Entrada Oil Pool, Sandoval County, New Mexico. All interested parties may appear and show cause why said special depth bracket allowable should not be rescinded.

CASE 5780: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Northwest Production Corporation, Federal Insurance Company, and all other interested parties to appear and show cause why the Blanco 30-12 Well No. 1, located in Unit A of Section 4, Township 30 North, Range 12 West, San Juan County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5781: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Petroleum Development Corporation, American Employers Insurance Company, and all other interested parties to appear and show cause why the San Luis Federal Well No. 1, located in Unit J of Section 21, Township 18 North, Range 3 West, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5782: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit U. S. Frigidice, Inc., Fireman's Fund Indemnity Company, and all other interested parties to appear and show cause why the U. S. Frigidice Well No. 1, Clyde Berlier (Kayser), located in Unit A of Section 14, Township 19 North, Range 21 East, Mora County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5783: Southeastern New Mexico nomenclature case calling for the creation, contraction, extension and abolishment of certain pools in Lea, Eddy, and Roosevelt Counties, New Mexico:

a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Angell Ranch-Morrow Gas Pool. The discovery well is the Penroc Oil Corporation Wright Federal Well No. 1 located in Unit O of Section 6, Township 20 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 6: All

b) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the West Burton Flat-Strawn Gas Pool. The discovery well is the David Fasken El Paso Federal Well No. 3 located in Unit H of Section 1, Township 21 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 1: Lots 1 through 8

c) CREATE a new pool in Roosevelt County, New Mexico, classified as a gas pool for Canyon production and designated as the North Chaveroo-Canyon Gas Pool. The discovery well is the Union Oil Company of California Roberts Well No. 1, located in Unit D of Section 9, Township 7 South, Range 33 East, NMPM. Said pool would comprise:

TOWNSHIP 7 SOUTH, RANGE 33 EAST, NMPM
Section 9: W/2

d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Foster Ranch-Morrow Gas Pool. The discovery well is the Mark Production Company Foster Well No. 1 located in Unit J of Section 21, Township 20 South, Range 24 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 24 EAST, NMPM
Section 21: E/2

e) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Cherry Canyon production and designated as the Nash Draw Cherry-Canyon Pool. The discovery well is the Mesa Petroleum Company Nash Unit Well No. 4 located in Unit A of Section 13, Township 23 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 29 EAST, NMPM
Section 13: NE/4

f) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Strawn production and designated as the Ojo Chiso-Strawn Gas Pool. The discovery well is the American Quasar Petroleum Company of New Mexico Ojo Chiso Unit Well No. 1, located in Unit E of Section 23, Township 22 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 34 EAST, NMPM
Section 23: W/2

g) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Cisco production and designated as the North Vacuum-Cisco Gas Pool. The discovery well is the Marathon Oil

Company State Section 7 Com Well No. 1, located in Unit G of Section 7, Township 17 South, Range 35 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 7: E/2

h) CONTRACT the vertical limits of the Kemnitz-Pennsylvanian Pool in Lea County, New Mexico, to the Cisco formation only, redesignating said pool the Kemnitz-Cisco Pool and redefining said pool to comprise:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 13: N/2 and SE/4

i) CONTRACT the vertical limits of the Sombrero-Pennsylvanian Gas Pool in Lea County, New Mexico, to the Atoka formation only, redesignating said pool the Sombrero-Atoka Gas Pool and redefining said pool to comprise:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 12: W/2
Section 13: W/2 and SE/4

j) ABOLISH the East Shugart-Queen Pool in Lea County, New Mexico, described as:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 6: NE/4

k) ABOLISH the Watkins-Seven Rivers Pool in Eddy and Lea Counties, New Mexico, described as:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 36: E/2

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 31: All

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 6: N/2

l) EXTEND the vertical limits of the Watkins-Grayburg Pool in Lea County, New Mexico, to include the Yates, Seven Rivers, and Queen formations, redesignating said pool the Watkins Yates-Seven Rivers-Queen-Grayburg Pool and redefining said pool to comprise:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 31: NW/4 and S/2

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 6: N/2

m) EXTEND the Blinebry Oil and Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 38 EAST, NMPM
Section 18: SE/4

n) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM
Section 1: S/2

o) EXTEND the North Burton Flats-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 10: W/2
Section 15: W/2
Section 16: E/2

p) EXTEND the South Carlsbad-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 27 EAST, NMPM
Section 20: E/2

TOWNSHIP 24 SOUTH, RANGE 26 EAST, NMPM
Section 3: W/2

q) EXTEND the North Dagger Draw-Upper Pennsylvanian Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 25 EAST, NMPM
Section 30: SE/4

r) EXTEND the Dayton-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 26: SW/4

s) EXTEND the East Empire Yates-Seven Rivers Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 27: NE/4 and N/2 NW/4

t) EXTEND the Hoag Tank-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 24 EAST, NMPM
Section 23: All

u) EXTEND the Middle Lynch Yates -Seven Rivers Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 28: N/2 N/2

v) EXTEND the Maljamar-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 32: W/2

w) EXTEND the Peterson-Pennsylvanian Associated Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 5 SOUTH, RANGE 33 EAST, NMPM
Section 20: SW/4

x) EXTEND the Red Lake Queen - Grayburg - San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 13: SE/4 SE/4
Section 24: NE/4

y) EXTEND the Sawyer-San Andres Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 13: SW/4

z) EXTEND the Shugart Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 26: NW/4
Section 27: NE/4

aa) EXTEND the Vacuum-Queen Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 2: SW/4
Section 3: SE/4

Case 5787

KELLAHIN AND FOX
ATTORNEYS AT LAW
500 DON GASPAR AVENUE
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

JASON W. KELLAHIN
ROBERT E. FOX
W. THOMAS KELLAHIN

TELEPHONE 982-4315
AREA CODE 505

September 15, 1976

Mr. Joe Ramey, Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Enclosed please find the original and two copies of the application of Boyd Operating Company for approval of a water-flood project, Eddy and Lea Counties, New Mexico. We would appreciate this being set for the October 13th hearing.

Yours very truly,

Jason Kellahin

Jason W. Kellahin

CC: Mr. T. M. Boyd
JWK:kjf

Enclosure

Case 5787

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF BOYD OPERATING COMPANY FOR
APPROVAL OF A WATER-FLOOD PROJECT,
EDDY AND LEA COUNTIES, NEW MEXICO

APPLICATION

Comes now Boyd Operating Company and applies to the New Mexico Oil Conservation Commission for approval of its Robinson Water-Flood project, Eddy and Lea Counties, New Mexico, and in support thereof would show the Commission:

1. Applicant proposes to institute a water-flood project for secondary recovery on the following-described land:

Township 31 East, Range 16 South

Section 25 - SW/4, E/2 SE/4, NE/4 SE/4
Section 36 - NE/4

Township 32 East, Range 16 South

Section 30 - S/2 SW/4

2. Initial injection will be in applicant's Robinson No. 8 well, located in Unit N of Section 25, and the Brinson No. 2, located in Unit A and Brinson No. 3, located in Unit G of Section 36. Injection will be unto the Grayburg-San Andres formation at a depth of approximately 4,000 feet.

3. Initial injection rates will be 400 barrels of water per day for each well. It is anticipated that initially the wells will take water on a vacuum, with pressures increasing during the life of the flood.

4. Injection will be through tubing and under a packer. New liners have been run in two of the older wells, and cemented

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in place. Fresh water from the Ogalla formation will be utilized for injection purposes.

5. The proposed project is offset to the Southeast by a water-flood project initiated by Aztec Oil & Gas Company, and presently operated by applicant. It is also offset to the West by a waterflood that has reached depletion, and is no longer operating.

6. Approval of this application will result in the production of oil that would not otherwise be recovered. Waste will be prevented, and correlative rights of all interest owners, including offsetting owners, will be fully protected.

WHEREFORE applicant prays that this application be set for hearing before the Commission's examiner at the October 13th hearing of the Commission, and that after notice and hearing as required by law the water-flood project be approved, together with an administrative procedure for adding additional injection wells, or producing wells, at orthodox or unorthodox locations, and for such other and further provisions as may be proper.

Respectfully submitted,

BOYD OPERATING COMPANY

By Jason Kellahin

Kellahin & Fox
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

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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. 5787

Order No. R- 5318

APPLICATION OF BOYD OPERATING COMPANY

FOR A WATERFLOOD PROJECT, EDDY

COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 13, 19 76, at Santa Fe, New Mexico, before Examiner, Richard L. Stamets.

NOW, on this _____ day of October, 1976, 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, Boyd Operating Company, seeks authority to institute a waterflood project on its Robinson ~~Federal~~ and Brinson ~~State~~ Leases, Grayburg-Jackson Pool, by the injection of water into the Grayburg-S[redacted] formation through its Robinson Well No. 8 located in Unit N of Section 25 and its ~~injection wells in Sections~~ Brinson ~~Wells~~ Nos. 2 and 3 located, respectively, in Units A and G of Section 36, all in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the Robinson Well No. 6 in Unit J of said Section 25 and the Carper Drilling Company Taylor Well No. 1 in Unit M of Section 30, Township 16 South, Range 32 East, NMPM, are two plugged and abandoned wells which offset proposed injection wells and ~~were~~ are not plugged and abandoned in such a manner as to assure that ~~water injected through said offset injection wells will not~~ will not serve as channels for injected water to migrate from the Grayburg formation to other formations or the surface.

(6) That to prevent the migration of water from the Grayburg formation through said Robinson Well No. 6 and said Taylor Well No. 1, said wells should be recompleted as producing or injection wells in the Grayburg formation or replugged in accordance with Commission approved programs within one year after initiation of injection under pressure within the project.

(7) That the wells within the project should be equipped ~~with risers or in some other manner to permit~~ to facilitate periodic testing of the annular space between strings of production and surface casing.

(8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(9) That an administrative procedure should be established whereby additional injection and producing wells at orthodox and unorthodox locations in the project area may be approved without notice and hearing.

(10) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Boyd Operating Company, is hereby authorized to institute a waterflood project on its Robinson, Brinson and Taylor Leases in Sections 25 and 36, Township 16 South, Range 31 East, and Section 30, Township 16 South, Range 32 East, NMPM, Grayburg-Jackson Pool, by the injection of water into the Grayburg formation through the following-described wells in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico:

LEASE NAME	WELL NO.	UNIT	SECTION
Robinson	8	N	25
Brinson	2	A	36
Brinson	3	G	36

(2) That injection into each of said wells should be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation, ~~or in the case of an open-hole completion, to the casing shoe~~; that the casing-tubing annulus of each injection well shall be tested for leaks, be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device, and that the injection wells or system shall be equipped in such a manner as to limit wellhead pressure to no more than ~~px~~ 1050 psi.

(3) That the Secretary-Director of the Commission may administratively authorize a pressure limitation in excess of 1050 psi upon a showing by the operator that such higher pressure will not result in fracturing of the confining strata.

(4) That the wells within the project area shall be equipped with risers or in another acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(5) That the operator shall immediately notify the supervisor of the appropriate Commission district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, the leakage of water or oil from any plugged and abandoned well within the project area or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(6) That within one year after initiation of injection under pressure greater than hydrostatic pressure into injection wells within the project directly or diagonally offsetting the wells listed below, such wells must be recompleted as producing or injection wells or be replugged in accordance with a Commission approved program:

LEASE	WELL NO.	UNIT	SECTION-TOWNSHIP-RANGE
Robinson	6	J	25-16S-31E
Taylor	1	M	30-16S-32E

~~(7) That the operator shall immediately notify the supervisor of the appropriate Commission district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.~~

(7) That the subject waterflood project is hereby designated the Boyd Operating Company Robinson Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(8) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(10) The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of applicant's Robinson, Brinson, or Taylor leases in said Sections 25, 36, and 30 as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to any lease line nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

(a) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.

(b) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, ~~and~~ depth, and a demonstration that any proposed injection well will meet construction, pressure, and monitoring provisions of Order (2)(3), and(4) of this Order or the equivalent.

(c) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed well, if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(11) 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.