

1 1 2 STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT 3 OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG. 4 SANTA FE, NEW MEXICO 7 October 1981 5 EXAMINER HEARING 6 7 IN THE MATTER OF: 8 Application of Corona Oil Company for a pilot steam-enhanced CASE 9 oil recovery project, Guadalupe 7354 County, New Mexico. 10 11 12 13 BEFORE: Daniel S. Nutter 14 15 TRANSCRIPT OF HEARING 16 17 APPEARANCES 18 W. Perry Pearce, Esq. For the Oil Conservation 19 Legal Counsel to the Division Division: State Land Office Bldg. 20 Santa Fe, New Mexico 87501 21 22 Randolph M. Richardson, Esq. For the Applicant: Roswell, New Mexico 23 24 25

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2	MR. NUTTER: We'll move on to Case 7354.
3	MR. PEARCE: Application of Corona Oil
4	Company for a pilot steam-enhanced oil recovery project,
5	Guadalupe County, New Mexico.
6	MR. RICHARDSON: Randolph M. Richardson,
7	Roswell, New Mexico, appearing on behalf of the applicant.
8	And I have two witnesses to be sworn.
. 9	
10	(Witnesses sworn.)
11	
12	MR. RICHARDSON: I'd like to call Mr.
13	George Scott first.
14	And on the record and before actually
15	qualifying Mr. Scott, I'd like to point out that the original
16	application for this pilot was made under the name of Public
17	Lands Exploration, and they gone through a name change and
18	it is now Corona Oil Company, and they have been qualified to
19	do business in the State of New Mexico, and do have a statutory
20	agent.
21	So some of the exhibits may show Public
22	Lands and some may show Corona, but it is exactly the same
23	company with merely a name change.
24	MR. NUTTER: Well now, Mr. Richardson,
25	the previously approved steam project was issued under the

1	4
2	name of Public Lands. That will also be changed to Corona?
3	MR. RICHARDSON: Corona.
4	MR. NUTTER: So the company itself is
5	just changing its name. It's still the same company.
6	MR. RICHARDSON: That's right, uh-huh.
7	MR. NUTTER: As a matter of observation,
8	I think that we don't have a bond yet for Corona, so we will
9	need a bond before we can approve any changes, and also we
10	would have to have names changes filed for the old Public
11	Lands wells.
12	I think the drilling permits for these
13	wells may have been filed in the name of Public Lands, also.
14	MR. RICHARDSON: Well, may I ask Mr.
15	Williams, do you know anything about the bond?
16	MR. WILLIAMS: Yes. I handled that.
17	The bond is with Kemper Insurance Company and they have moved
18	their headquarters to back to Kansas and they're in the
19	process of changing the name.
20	Now I checked about four days ago and it
21	still hadn't come through.
22	MR. NUTTER: You have requested it.
23	MR. WILLIAMS: Yes, that's been requested
24	over six weeks ago.
25	MR. NUTTER: I see.

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2	MR. WILLIAMS: I talked to Mr. Padilla
3	just before he left and he informed me that we'd have to get
. 4	this through and we'd have to have the president of Corona
- 5	Oil Company also verify this.
6	MR. NUTTER: Okay.
-7	MR. RICHARDSON: I just wanted to make
8	a statement about the name change and have handed the Examiner,
<b>9</b> -	Mr. Nutter, eight different exhibits and Mr. Scott will be
10	testifying on a portion of the exhibits and Mr. Joy will be
11	testifying to a portion of the exhibits.
12	
13	GEORGE L. SCOTT, JR.
14	being called as a witness and being duly sworn upon his oath,
15	testified as follows, to-wit:
16	
17	DIRECT EXAMINATION
18	BY MR. RICHARDSON:
19	Q And Mr. Scott, would you please state
20	your name, address, present occupation?
21	A. My name is George L. Scott, Junior. I
22	am a consulting geologist, located in Roswell, New Mexico.
23	Q. And you have testified several times
24	before the Oil Conservation Division in the past?
25	A. Yes.

1 6 2 And --Q MR. RICHARDSON: Do I need to go into 3 4 them? Are they acceptable? MR. NUTTER: Mr. Scott is qualified, yes, 5 6 sir. MR. RICHARDSON: You've examined him 7 2 before. Mr. Scott, would you please tell the . Division the township, section, range of the proposed pilot 10 11 steam injection program? Yes. This proposed pilot steam operation, 12 A. flood operation, is located in Section 17 of Township 11 North, 13 Range 26 East, in Guadalupe County, New Mexico. 14 Within the section the pilot will be 15 located in the northeast quarter of the northwest quarter. 16 And this location is shown on Exhibit Number One, a topographic 17 18 map. Exhibit Number One there is a topo map 19 a showing the pilot, location of the pilot project, which is 20 21 40 acres. Would you like to add anything additional 22 23 as to your topo map, Exhibit One? Yes, I would. This map could be useful 24 A. to anyone that wanted to go to the area. It has the -- shows 25

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2	the access road coming down from the northwest to the pilot
3	area. There's a notation in the upper lefthand corner as to
4	the New Mexico Highway 129, which is a short distance to the
5	west of the map area. Other prominant terrain features are
6	Mesa Rica in the northeast corner of the topo map.
7	Q Mr. Scott, would you refer to Exhibit
8	Number Two, which is a base map, showing wells that have been
<b>'9</b>	drilled within the immediate area?
10	A. Yes. The purpose of this base map is
11	to is to show the wells that have been drilled within a
12	distance of two miles of the proposed pilot.
13	The proposed pilot is shown, well, is in
14	the northeast quarter of the northwest quarter of Section 17.
15	This shows that there are two wells in that area right now,
16	the No. 1 and 2 Jeanne. These Late wells have been previously
17	drilled and cased and are ready to become a part of the pilot
18	steam operation.
19	There are two other wells nearby that
20	have also been drilled by Corona and casing run to TD, and
21	these these two wells are the No. 1. Karen State in Section
22	8 and the No. 1 Barbara in Section 17, south half of 17 there.
23	These two wells could be utilized at some future date in
24	production, possibly.
25	Other wells on the map are stratigraphic

1	8
2	tests drilled by Exxon and those well symbols are explained
3	down on the information block.
4	Also shown on the map are dry holes,
5	wells that have been drilled and plugged, by Corona or Public
6	Lands Exploration, and one wildcat drilled by Hankins over
7	in Section 15. I believe all of the other wells shown on
8	this map were either the Humble or Exxon stratigraphic tests
. 9	or wells drilled by Corona.
10	Let me back up, that's not correct.
11	There in Section 18 there is a well
12	drilled by Wilbanks, the No. 2 T-4 Cattle Company, and also
13	in the northwest quarter of 17 there is a well drilled by
14	Wilbanks, the No. 1 T-4.
15	Q Mr. Scott, would you in addition to
16	your base map showing all the wells that have been drilled
17	in the immediate area, would you refer to Exhibit Three, and
18	would you tell the Division what Exhibit Three portrays?
19	A All right. Exhibit Three is a larger
20	scale map of a portion of the area in which on which I've
21	contoured on top of the O'Connell sand, a little bit of the
22	Santa Rosa formation.
23	It is the O'Connell sand that is carrying
24	the the heavy oil in the area. The contour interval on
25	this map is 20 feet. It simply shows a segment of the east-

1	9
2	ward trending Newkirk anticline; in the vicinity of the pilot
3	we've got possibly as much as 20 feet of closure.
4	The now on this map the wells that
5	are in the proposed pilot are shown, together with the in-
6	jection well. The wells are the that will be producing
7	wells in the pilot are the 1, 3, 4, and 6 Jeanne. The in-
8	jection well will be the No. 5 Jeanne, and the No. 7 Jeanne
9	will be our water supply well.
10	If you'll refer back to the previous
11	map you will see that the No. 7 Jeanne is the same as the
12	Exxon No. 6-12-17 stratigraphic test, and this well is to
13	be re-entered and recompleted as a water supply well.
14	And Mr. Joy, who will follow, will cover
15	the discussion of mechanics of re-entering that well.
16	A Mr. Scott, how was your geological
17	structure map contoured? It's contoured on top of the O'Connell
18	sand, and the information for the map was obtained from what
19	sources?
20	A Okay, primarily as a result of our
21	coring, and and logs, but primarily we drilled into the
22	to near the top of this sand and go in with a core barrel and
23	cut cores. Our data and our evaluation of the area is based
24	upon cores and core analysis, primarily.
25	Q Mr. Scott, on our last case, No. 7048,

Conservation Division Order No. 6504, the Conservation Division approved a pilot steam injection program, located some four to five miles west of this proposed pilot program. Is there a geological reason for having a second pilot project that near the first pilot project?

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Yes.

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A Yes, there sure is. In the first place, it appears from our work that there is no direct connection between the two areas. They are the same sand zone. Apparently this O'Connell sand, the O'Connell member of the Santa Rosa formation, deposited as a result of meandering stream channeling environment, and it's not unusual for segments of those type of reservoirs to be cut off and isolated from each other, one another, and we think that this is the case, and that we're actually in a separate segment of the same general reservoir.

Would you explain the reasons?

Also, it's deeper over here. It's approximately 350 - 400 feet deeper, greater overburden, and there's a likelihood that to be successful, a steam injection program would have to have higher pressures, and this could be an advantageous thing.

Q. Could you tell the Division, please, the approximate depths, top and bottom of thicknesses of the

1 11 2 O'Connell member of the Santa Rosa? 3 Yes. The --A. The reason I ask that, Mr. Scott, was Q you mentioned that this pilot is somewhat deeper than the 5 first, so I do need to get in the depths for this proposed 6 7 pilot. 8 All right. We estimate in the pilot A. 9 area the producing sand which we have encountered at a depth 10 of approximately 708 to 760 feet. 11 And it is approximately how thick? Q. The gross pay interval would be appro-12 A. 13 ximately 50 to 55 feet thick. In other words, this particular area 14 a is both deeper and is isolated from the initial pilot. 15 16 That is correct. A. By the time both pilots are in complete 17 Q operation you will have a better idea as to other areas that 18 19 you could obtain oil known to be in place. 20 And there is oil in place in this area. 21 That is correct. A. 22 And Mr. Joy will testify as to the en-<u>0</u> 23 gineering aspect of obtaining the oil and Mr. Scott, I think you might also refer to Number Four, Exhibit Number Four, 24 25 which is a plat showing the location of the pilot on the

1 12 2 particular 40-acre tract, together with the footage locations 3 and I wonder, Mr. Scott, if you could go through and tell the 4 Commission, or the Division, the location of the wells, footage 5 locations from the section lines and which wells have been 6 drilled and which ones are proposed to be drilled, and the 7 location of your injection well? ŝ. A All right. This -- this plat is on a 9 still larger scale, a scale of one inch equal 200 feet, and 10 shows the -- primarily here the northeast quarter of the 11 northeast quarter -- excuse me, northeast quarter of the 12 northwest quarter of Section 17. 13 The wells that presently exist are the 14 No. 1 and 3 Jeanne. They have been drilled and cased, and 15 are awaiting perforation and inclusion in the project. 16 Q Could you --17 Also ---A. 18 -- give a footage location for the No. Q 19 1 and then the No. 2? 20 Yes. All right. The No. 1 Jeanne was A. 21 located 800 feet from the north line and 1900 -- 1980 feet 22 from the west line. 23 The No. 3 Jeanne was 800 feet from the 24 north and 2310 feet from the west line. 25 We are proposing that the No. 4, 5, and

1 13 2 6 will be drilled. The 4 and the 6 would be producing wells, so indicated here by the appropriate symbol on the map. 3 The No. 5 would be the injection well. The No. 4 would be located 463 feet from 5 6 the north line and 2145 feet from the west line. The No. 5, the injection well, would be 7 located 800 feet from north and 2145 feet from the west. 8 The No. 6 would be located 965 feet from 10 north and 2145 feet from the west line. 11 We would also utilize the -- the old 12 Humble 6-12-17, stratigraphic test, as a water supply well, and that well is located 660 feet from the north and 1980 feet 13 14 from the west line. And I believe that covers the description. 15 16 The No. 7 well, which is the water supply Q. well, was a Humble stratigraphic test drilled, what, several 17 18 years ago, back in, what, '60? 19 Back -- back in the 1960s, yes. A. 20 Mr. Scott, you might also briefly refer Q. to Exhibit Number Five, which is an electric log of the No. 1 21 22 Jeanne. I believe Mr. Nutter has a copy. Would you point 23 out the depths and how the log is marked as to the --24 Yes. A. 25 -- recoverable zone? Q.

14 1 All right. The -- this is a compensated 2 A. neutron log run through casing and on this log on the 5-inch 3 scale at 708 feet we show the top of the O'Connell sand of 4 the Santa Rosa formation. This -- the top of the O'Connell 5 sand is also the same as the top of the Santa Rosa in this 6 7 area. And at a depth of 806 feet you go out of this O'Connell sand into a shale unit that varies from 10 to 9 50 feet thick that separates the O'Connell sand from the next 10 sand in the Santa Rosa, called the Monsimer sand, locally, 11 and it will be from 30 to 100 feet thick, the Monsimer sand. 12 That sand is carrying water in the area 13 and will be the objective of our water supply efforts in the 14 15 former Humble well. 16 I'd like to point out on this log here that the lower part of the O'Connell sand typically carries 17 water in this area and on the log that would be that segment 18 from 750 -- or 778 to about 806. It is separated from the 19 good porosity above by approximately 20 feet of tight and 20 21 low permeability sand. Our reservoir pay extends on this log 22 23 from 708 down to 759 feet. Mr. Scott, let me say all the land in 24 Q, this particular quarter section, that is patented fee lands. 25

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2	There is no State or	Federal land involved in this pilot.	
3	Α.	That is correct.	
4	Q	That is correct, and the base lease on	
5	which the pilot will	be located is actually in the name of	
6	Amoco Production Com	pany.	
7	A	That is correct.	
8	Q	And Corona does have a written farmout	
9	contract agreement w	ith Amoco to drill and inject steam.	
10	A	That is correct.	
11	Q	In the event the Commission approves, or	
12	Division approves th	e pilot project, will the institution be	
13	in the interest of c	onservation and protection of correlative	
14	rights, and the proj	ect will be towards the prevention of	
15	waste, economical wa	ste, as well as possibly recovering oil	
16	which would not be r	ecovered?	
17	А.	Yes.	
18	Q	And the correlative rights of all parties	;
19	will be protected?		
20	Α.	Yes, they will.	
21		MR. RICHARDSON: I have nothing further,	
22	Mr. Nutter.		
23			
24		CROSS EXAMINATION	
25	BY MR. NUTTER:		

1 16 2 Mr. Scott, in looking at your Exhibit Q. 3 Four, I find it hard to figure out the actual distance of 4 No. 4 Well from the north line. Now you say 463 feet from the 5 north line. MR. JOY: 635 from the north. 7 MR. NUTTER: 635, not 463, then. MR. JOY: 635 and 2145. The wells are 9 all located 165 feet from the injection well. 10 A. Let me see, we may have made an error 11 in the -- right there on that -- excuse me, just one moment, 12 please. 13 MR. RICHARDSON: That is a drafting mis-14 take. 15 MR. NUTTER: Okay, so this --16 MR. RICHARDSON: It is -- it should be 17 635 feet from the north. 18 MR. NUTTER: Okay, the pattern, then, is 19 uniform. It's 165 feet from the injection well to each of 20 the four producers, is that it? 21 MR. RICHARDSON: That is correct. 22 MR. NUTTER: So you have a uniform 23 pattern then. 24 MR. RICHARDSON: Yes, we do. 25 MR. NUTTER: Okay. Well, that had me

1	17
2	disturbed there.
3	Q Now, Mr. Joy or Mr. Scott, you're
4	putting this project on the north side of this 40/40 closure
5	on Exhibit Number Three. There's a slight slope there. Does
6	the slope in the pay have anything to do with the positioning
7	of the pilot project?
8	Did you want to get on the side of the
9	hill, so to speak?
10	A No. That is not a factor in in our
11	locating it. You're referring there, now, to the subsurface
12	map?
13	Q Yes, sir.
14	A. No, the structure is not that critical
15	to us. We're not sure as yet about the structural control
16	on this. Structure is important we know, but there's a number
17	of variables involved in the trapping of this oil and we don't
18	have a firm handle on all of them yet.
19	But we we'd have to say that this
20	local structuring situation is not critical for the location
21	of our pilot.
22	Q Well now, you mentioned that the O'Connell
23	down here below your pay, starting at about 780 feet, carried
24	water on down to 806. Are there other water sands up above
25	here anywhere?

1	. 18
2	A. Yes. We drilled these wells with air
3	and it is not uncommon to get small amounts of water while
4	we're drilling with air. It's a however, the amount of
5	water is very minor, and in any event, that's cased off and
6	cemented to protected by cement to the surface on our
7	wells.
8	Q Now is there any ranch, windmills or
9	waterwells in this vicnity?
10	A. I would have to defer that to Chuck Joy,
11	who will follow. I do not
12	MR. RICHARDSON: I think
13	A. There's none producing from zones as
14	deep as the O'Connell sand, but there are some shallow wind-
15	mills.
16	Q Well, I was thinking of the shallower
17	ones, any shallower supply zones.
18	MR. RICHARDSON: I think Mr. Joy will
19	probably cover that, as to the water.
20	MR. NUTTER: Okay.
21	A. The I do know they have real problems
22	out in this area of getting an adequate supply of stock water
23	in the shallow zones. If you look at the topo map, they've
24	got a number of tanks.
25	Q. I see tanks there but I don't see any

19 1 2 windmills except up here in Section 6 there is one. 3 Mr. Joy can help you on that, I think. A. 4 MR. RICHARDSON: I would like to, if you 5 have no further questions of Mr. Scott, call Mr. Joy. MR. NUTTER: I think we're through with 6 7 Mr. Scott for the time being. We may have some further questions, Mr. 8 9 Scott. 10 Yes, sir. A. MR. NUTTER: In the interim he's excused. 11 12 MR. RICHARDSON: All right. 13 I'd like to now call Mr. Charles Joy. 14 15 CHARLES JOY 16 being called as a witness and being duly sworn upon his oath, 17 testified as follows, to-wit: 18 19 DIRECT EXAMINATION 20 BY MR. RICHARDSON: 21 Mr. Joy, will you please state your name Q 22 and present occupation? 23 Charles Joy, and I'm a consulting en-A. 24 gineer, located out of Artesia, New Mexico. 25 And you have testified several times Q.

1	20
2	before the Oil Conservation Division.
3	A. Yes, I have.
4	Q And I'd say recently?
5	A. Yes.
6	Q And
7	MR. RICHARDSON: Are his qualifications
	acceptable?
9	MR. NUTTER: They are.
10	0 Mr. Joy, would you well, you have
11	heard Mr. Scott's testimony as to the geology of the area.
12	Would you please tell the Division some of the engineering,
13	reservoir engineering aspects as to permeabilities, porosities,
14	pressures, water saturation, and other factors which render
15	it impossible to recover the oil in place without some sort
16	of artificial stimulation?
17	A. Well, core analysės indicate permeabili-
18	ties range from 100 to 500 millidarcies; porosities from 18
19	to 22 percent; and a connate water saturation of approxi-
20	mately 12 percent.
21	Oil analyses indicate oil gravities
22	range from 15 to 17 degrees API and oil viscosity from 29.2
23	centipoise at 250 degrees Fahrenheit to 6006 centipoise at
24	70 degrees Fahrenheit.
25	And core analyses indicate little or no

page 200	
	21
	gas saturation and air drilling operations show no natural
5	water drive and little or no gravity drainage. And these
	conditions leave the reservoir without a driving mechanism
;	and it is planned to reduce oil viscosity to approximately
;	27 centipoise and create a driving mechanism by injecting
	steam.
	Q Mr. Joy, would you advise the Division
	of the pressure at which you propose to inject this steam?
	A. Yes. Approximately 150 barrels of water
L	will be injected per day and will be converted to steam and
2	this will be injected in the O'Connell sand at 465 degrees
3	Fahrenheit and 475 pounds psig.
•	Q. In the event the pressure is not adequat
5	we would like to reserve the right without a hearing to in-
5	crease or decrease the pressure to how much, Mr. Joy, would
7	you say?
8	A. Oh, we might have to later go up to
9	about 510 pounds, around 500.
e	Q In the event the Division does approve
1	the pilot, could the order allow that leeway for approval
2	of increasing the pressure?
3	MR. NUTTER: We may be able to put that
4	in the order, Mr. Richardson. We'll check it.
•	In the order, Mr. Kichardson. No if one of att

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1 22 2 of another hearing. 3 MR. NUTTER: We'll check on that. Q. Mr. Joy, refer please, if you would, to 5 Exhibit Number Six, which, for the record, Exhibit Six is a 6 set of the schematic completions diagrams for several different 7 wells, and it is covering all the wells within the immediate 2 area. 9 Could you go through and very briefly 10 mention the well, the location, and some of them have been 11 drilled, some of them are closed wells, could you tell the 12 Division which ones have been drilled and what your casing 13 program is as to all wells that will be drilled in the pilot 14 area to protect the shallow water? 15 Yes. I've drawn schematics of every A. 16 well within a half mile radius of the pilot area. 17 And the first I'll look at Exhibit 18 Number Two on the ownership map there, I've set out, and it 19 indicates these wells. 20 That is Exhibit 5-Q. 21 A. Right. Now, the first one, though, will 22 be on the proposed injection well and this will be our Jeanne 23 No. 5 Well, and if you look at this schematic, I will -- we 24 will run 30 feet of J-55 casing, 10-3/4 inch, 51 pound, and 25 cement with 10 sacks and circulate back to the surface. I

<ul> <li>of 850 feet, and I have been cementing all these wells with</li> <li>220 sacks and circulating it back to the surface to protect</li> <li>any fresh water zones.</li> <li>7 And if you'll note, we have not perfort</li> <li>I will perforate this well from approximately 710 feet to</li> <li>770 feet. This is just proposed. We'll have to log these</li> <li>wells to find the exact interval we want to open up for</li> <li>steam injection.</li> <li>12 And I will run a 700 I mean a Bake</li> <li>packer, HB-1 single jet, at 760 feet. Now this is a high</li> <li>temperature packer with an expansion joint built into the</li> <li>packer.</li> <li>16 Now, on this inhibited water, it's</li> <li>almost impossible, and originally I plan to try to load bit</li> <li>the annulus with inhibited water. The thing is when we si</li> <li>going down with steam we convert this water behind that</li> <li>tubing into steam and we can't hardly contain it, I mean,</li> <li>puts a lot of pressure on it.</li> </ul>			
<ul> <li>K-55 casing, 5-1/2 pounds, 17 pounds to the approximate TI of 850 feet, and I have been cementing all these wells with 220 sacks and circulating it back to the surface to protect any fresh water zones.</li> <li>And if you'll note, we have not perfors</li> <li>I will perforate this well from approximately 710 feet to 770 feet. This is just proposed. We'll have to log these wells to find the exact interval we want to open up for steam injection.</li> <li>And I will run a 700 I mean a Bake packer, HB-1 single jet, at 760 feet. Now this is a high temperature packer with an expansion joint built into the packer.</li> <li>Now, on this inhibited water, it's almost impossible, and originally I plan to try to load by the annulus with inhibited water. The thing is when we sigoing down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.</li> </ul>	ı	23	
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<ul> <li>And if you'll note, we have not performed and in the second sec</li></ul>	5	220 sacks and circulating it back to the surface to protect	
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<ul> <li>9 770 feet. This is just proposed. We'll have to log these wells to find the exact interval we want to open up for steam injection.</li> <li>12 And I will run a 700 I mean a Bake packer, HB-l single jet, at 760 feet. Now this is a high temperature packer with an expansion joint built into the packer.</li> <li>16 Now, on this inhibited water, it's almost impossible, and originally I plan to try to load by the annulus with inhibited water. The thing is when we sigoing down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.</li> </ul>	7-	And if you'll note, we have not perfor	
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And I will run a 700 I mean a Bake packer, HB-1 single jet, at 760 feet. Now this is a high temperature packer with an expansion joint built into the packer. Nov, on this inhibited water, it's almost impossible, and originally I plan to try to load by the annulus with inhibited water. The thing is when we so going down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.	Ď	wells to find the exact interval we want to open up for	
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14 temperature packer with an expansion joint built into the 15 packer. 16 Now, on this inhibited water, it's 17 almost impossible, and originally I plan to try to load ba 18 the annulus with inhibited water. The thing is when we sa 19 going down with steam we convert this water behind that 10 tubing into steam and we can't hardly contain it, I mean, 21 puts a lot of pressure on it.	2	And I will run a 700 I mean a Baker	
15 packer. 16 Now, on this inhibited water, it's 17 almost impossible, and originally I plan to try to load bat the annulus with inhibited water. The thing is when we so going down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.	3	packer, HB-1 single jet, at 760 feet. Now this is a high	
Now, on this inhibited water, it's almost impossible, and originally I plan to try to load bat the annulus with inhibited water. The thing is when we s going down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.	4	temperature packer with an expansion joint built into the	
<ul> <li>17 almost impossible, and originally I plan to try to load be</li> <li>18 the annulus with inhibited water. The thing is when we see</li> <li>19 going down with steam we convert this water behind that</li> <li>20 tubing into steam and we can't hardly contain it, I mean,</li> <li>21 puts a lot of pressure on it.</li> </ul>	5	packer.	
18 the annulus with inhibited water. The thing is when we so going down with steam we convert this water behind that tubing into steam and we can't hardly contain it, I mean, puts a lot of pressure on it.	6	Now, on this inhibited water, it's	
19 going down with steam we convert this water behind that 20 tubing into steam and we can't hardly contain it, I mean, 21 puts a lot of pressure on it.	7	almost impossible, and originally I plan to try to load back	
<ul> <li>20 tubing into steam and we can't hardly contain it, I mean,</li> <li>21 puts a lot of pressure on it.</li> </ul>	8	the annulus with inhibited water. The thing is when we start	
21 puts a lot of pressure on it.	9	going down with steam we convert this water behind that	
	0	tubing into steam and we can't hardly contain it, I mean, it	
	1	puts a lot of pressure on it.	
22 So I'll just have to work this out	2	So I'll just have to work this out	
23 later. I may want to open that up. We may not be able t	3	later. I may want to open that up. We may not be able to	
24 contain that water in there.	4	contain that water in there.	
25 The next well would be the Jeanne No	:5	The next well would be the Jeanne No.	

1	24		
2	well, and this is a well we've already set casing in and I		
3	think if you want me to go through each one of these, but		
4	I think I believe the schematics are self explanatory		
5	here. I've shown the TD, the casing I'm going to set, and		
6	how much cement I'm going to be using.		
7	MR. RICHARDSON: Would you like to, Mr.		
8	Nutter, have him go through each schematic or basically,		
9	the program on all the wells that have been drilled and will		
10	be drilled is to circulate cement from total depth back to		
11	the surface.		
12	There is a proposal there for one open		
13	hole or		
14	A. Two. We will have two open hole com-		
15	pletions, Mr. Nutter.		
16	MR. NUTTER: I notice that the No. 4 is		
17	an open hole.		
18	A. Right.		
19	MR. NUTTER: And No. 6 is an open hole,		
20	Mr. Joy.		
21	A. We're doing that for one purpose. We're		
22	going to see what kind of results we get and if we can re-		
23	cover a larger percentage of oil because this area is highly		
24	laminated and we thought maybe the recoveries from these		
25	wells might exceed the wells that are cased through.		

1	25		
2	MR. NUTTER: Well, in the case of the		
3	No. 1 and the No. 3, which are both producing wells, the		
4	west and the east producing wells, you've got casing set		
5	down to TD at about 840, which would be down below the base		
6	of the O'Connell		
7	A. Right.		
	MR. NUTTER: sand.		
9	A It will be in the shale		
10	MR. NUTTER: It will be in the O'Connell.		
11	A Right, and it's about 10 or 15 feet		
12	above the Monsimer.		
13	MR. NUTTER: Right. Okay, then we get		
14	over to the Jeanne 4 and Jeanne 6, which are the north and		
15	the south offsets to the injection well, and you show your		
16	casing set at 724 and 710. Now where is that with respect		
17	where would you propose to set that with respect to the top		
18	of the O'Connell?		
19	A That would be right in the top of the		
20	O'Connell.		
21	MR. NUTTER: Right in the top.		
22	A. I'll drill right to the top of the		
23	O'Connell and when we top it, then I'll set my casing.		
24	MR. NUTTER: So that footage that you		
25	give there is just tentative.		

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1		26	
2	A.	Right.	
3		MR. NUTTER: What it really means is	
4	that you're going to	set this casing in the top of the	
5	O'Connell.		
	A.	Correct.	
		MR. NUTTER: Okay.	
	A	Now,	
		MR. NUTTER: And then how deep would it	
	be drilled? Would i	t be drilled through the pay of the	
11	O'Connell?		
12	A.	No, we'll drill down to where we estimate	
13	the bottom of the oi	l bearing zone is from the two wells that	
14	we have already comp	leted in the area.	
15		MR. NUTTER: Okay, in other words, you	
16	would drill to where	you would anticipate	
17	A.	Getting into that tight area, right	
18	there.		
19		MR. NUTTER: Getting into that tight	
20	area, which starts at 759 feet on the Jeanne No. 1.		
21	A.	Right, that is correct.	
22		MR. NUTTER: And that would be the	
23	bottom, so you would	In't be penetrating this section down here	
24	where the water is.		
25	А.	No, I will not be penetrating it.	

	r	
	1	27
	2	MR. NUTTER: Okay.
	3	MR. RICHARDSON: Do you want him to go
	4	each one separately before placing them in evidence?
	5	MR. NUTTER: I don't think he will. If
	6	he just generally discusses them and then I'll, if I have
	7	any questions on them specifically, I'll ask him, like I just
	- <b>B</b>	now did.
	9	MR. RICHARDSON: Okay, real fine.
	10	A. Well now, the No. 7, Jeanne No. 7 is
	11	going to be our water source well, and I
	12	Q Mr. Joy, anticipating anticipating
	13	the No. 7 well is your water supply, water source well, now
ź	14	what zone, where will that water come from, and how much water
2 2 -	15	do you propose to use?
	16	A. We would be using approximately 150
	17	barrels of water per day, and that may exceed our needs. At
	18	this time we plan on converting 150 barrels of water per day
	19	to steam.
	20	Q And that water is coming from the what
	21	formation?
	22	A. The Monsimor.
	23	Q Monsimer, which is a localized name and
	24	it is a lower member of the Santa Rosa formation.
	25	A. And this will be an open hole completion.

..

I plan on re-entering that well, in fact, we're in the process of re-entering it at this time, and I will top the Monsimer and set casing in the top of the Monsimer sand and then I'm going to cement that with 75 sacks.

Now if you'll look at this schematic, the top of the O'Connel sand is approximately 700 feet in this well. The calculated top of the cement will bring this back to 600 feet, and I've already talked with Steve Reynolds, the State Engineer. He has authorized the recompletion of this well as a water source well, since it's going to be a water well.

And you'll actually use very little

water.

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Right.

Would you --

A And that's the reason there's no C-101 in on this. This comes under State Engineer's jurisdiction. I thought I'd show the Commission I am

going to cement this for two purposes. One is to protect the water zone and the other is to restrict any loss of steam due to the proximity of this well to the pilot area. MR. NUTTER: Now this is an old Humble

stratigraphic test, right?

A.

Right.

MR. NUTTER: What kind of a casing or whatever is in it right now? Nothing right now. I'm down to about à. 750 feet at this time.

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Q.

MR. NUTTER: You're re-entering it now. I'm re-entering it, but there was one plug in this well. No, there was two plugs. There's one at the surface and then we had one that was over this water sand at about 220 feet. They did have a plug over that.

In your opinion, will that zone produce Q enough water for your steam injection project?

Yes, because I have penetrated the Mon-A. simer in the Karen -- in the Barbara No. 1 South, and in the Karen No. 2, located directly\_east there in Section 17, and we had probably -- it was probably making close to a barrel a minute in those wells.

In other words, you do have sufficient D. water --

Right, water, and I --A -- in the immediate area. Q In fact, those should average about λ. 14,000 barrels per acre feet. I've run the reserves out on the water there. Could you please refer to the Exhibits

Numbers Seven and Eight. One of those is the request for a permit for a pit, a lined, sealed pit, for your discharge water from the water coftener, and Exhibit Number Eight is a request for permit to the Oil Conservation Division for water produced from the heater-treaters.

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Could you please go into more detail as to the lining of the pits and protection of surface water? Surface ground water from discharging in the pits?

Right. Due to the future production, A. and anticipating that we will produce some water in this area 11 and in order to take care of this and to handle it, I have 12 proposed to dig earthen pits and I've made out the OCD's 13 application for this, and if you'll look at this first 14 exhibit, that was in Public Lands Exploration Company, In-15 16 corporated's name, and this would be on the Jeanne lease and it will be Unit C, Section 17, 11 North, Range 26 East, and 17 analysis of some of the waters from some of the wells from 18 this -- not in this exact area, but in other areas, indicates 19 20 that the chlorides content is about 700 parts per million; 21 total sclids were not available, but I know they're very low 22 because we were -- I've used water in other areas. And at 23 this time we probably would not produce over about a half 24 a barrel of water per day. We have not -- well, that would 25 be the deal on the waterflood, but we don't have the problem.

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1	31		
2	And then on the method of hydrocarbon		
3	entrapment to be employed, I just put out there in they've		
4	got header pits, I put an asterisk down below. This is, let's		
5	see, this is the water produced from the heater-treater, and		
6	I've elected to build a 20x20x6 foot pit and that gives me		
<b>7</b>	400 square feet and from the top of the firewalls down to the		
	bottom of the pit it will be approximately 8 feet, and I will		
<b>9</b>	use a polyethylene which has thickness of 6 mils, and it goes		
<b>D</b>	in there.		
11	Does manufacturer recommend protection		
12	of material from direct sunlight? No.		
13	Is material resistant to hydrocarbons?		
14	Yes.		
15	Is material resistant to acid and alkalies?		
16	Yes.		
17	Is material resistant to salt? Yes.		
18	Is material resistant to fungus? Yes.		
19	Is material rot resistant? Yes.		
20	Will joints of material be fabricated		
21	in the field? No.		
22	And then that will take care of this		
23	first pit.		
24	The other pit will be required, because		
25	when we want to use softeners out there to convert our water		

1	32		
2	so we will not plug up our steam generator, and these soften-		
3	ers have to be regenerated approximately every 20,000 gallons.		
4	and brine water is used to regenerate these softeners with,		
5	and it is approximately 60 gallons is produced.		
6	Consequently, we're going to have to have		
7	an area to discharge this brine water in, and I plan to build		
8	a similar pit but a little bit larger, 30x30x6 feet, and the		
9	rest of the information is identical to the other pit, and		
10	the we're going to use a polyethylene and it will be 6		
11	mils thick.		
12	Now the reason we're not splicing this,		
13	I can buy the material large enough to cover the pit without		
14	splicing in the field.		
15	Q You will actually have two pits, then.		
16	A. Right, we will have two pits there.		
17	And I've checked this, and this should be ample or sufficient		
18	large enough the pit should be large enough to take care		
19	of of the water produced at this time from either source		
20	there. The evaporation is approximately 70 - 80 inches per		
21	year in New Mexico.		
22	0. They definitely will be lined.		
23	A. Right, they definitely will be lined.		
24	Q. And I'll ask Mr. Nutter, those permits,		
25	which you have, which were given as Exhibits Seven and Eight,		

1	33
2	do we need to file a separate one application or can the
3	ones that are will be introduced in evidence, will that
4	suffice?
5	MR. NUTTER: No, Separate permits will
6	have to be issued for the pits. These are just exhibits in
7	this hearing. They're not actually applications.
8	I think Mr. Joy brought some application
9	in this morning.
10	A. Well, we'll have to submit these, then,
11	because this is your application that we're using for exhibits
12	That is the OCD's legal application.
13	MR. NUTTER: Right. Well, didn't you
14	give some of those to
15	A. Well, that was for another area.
16	MR. NUTTER: Oh, that's for that other
17	area.
18	A. Well, we'll have to submit new ones then
19	to avoid that.
20	MR. NUTTER: Well, we'll have some
21	question on this material. 6 mils doesn't meet our specifi-
22	cations in the first place.
23	A. All right, we can go much higher.
24	MR. NUTTER: The minimum is 30 mils
25	
	under our specification.

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2	A. Okay, 30 mils. We'll pick that up,
3	then, Mr. Nutter.
4	MR. NUTTER: And I've never seen poly-
5	ethylene yet that didn't have to be protected from sunlight.
6	A Okay, well, we've got it covered with
7	dirt out there right now.
8	MR. NUTTER: Yeah.
9	A It's covered with dirt.
19	MR. NUTTER: And if you don't protector
11	it from sunlight it just will be in shreds in a little while.
12	A Okay. We need 30 mil, 30 mil, and now
13	what material do you recommend?
14	MR. NUTTER: I think Mr. Johnson here
15	can furnish you with a copy of our pit specification booklet.
16	A All right.
17	MR. NUTTER: He probably didn't have a
18	copy.
19	A He didn't Bill Griffith didn't have
20	one because I went in and talked to him there in Artesia.
21	MR. NUTTER: If you'll ask Mr. Johnson
22	here before you leave.
23	A. All right. I'll get it. We'll pick
24	that up, then.
25	Q Mr. Joy, I have only one other question.

1	1	35
2	2 And that is I see on all the plats that you are	not having
3	3 an observation well. You're having an injection	n well, water
4	4 supply well, and then four producers, is that co	prrect?
5	5 A. Correct.	
6	6 Q And there's no mention of a	an observation
7,	7 well, so you will not have an observation well	in this parti-
8	cular project, is that correct?	
<b>9</b>	• No. That is correct.	
10	10 Q. So you will have basically	, the producers,
11	11 your injection well, and the water well, all lo	cated on one
12	12 lease.	
13	13 A. Right.	
14	14 Q Within a very small area.	Will the
15	15 Mr. Joy, will the institution of this project b	e in the
16	16 interest of conservation and prevention of wast	e?
17	17 A. Yes, it will.	
18	18 Q. Will correlative rights of	all parties
19	19 be protected?	
20	20 A. Yes.	
21	21 MR. RICHARDSON: I have no	othing further,
22	22 Mr. Nutter.	
23		
24		
25	25	

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1	36
2	CROSS EXAMINATION
3	BY MR. NUTTER:
4	Q Mr. Joy, I asked Mr. Scott about
5	existing shallow fresh waters in the area and he deferred
6	to you.
7	Can you tell me what the situation is?
8	A Yes, we they are not consistent
9	throughout the area. You'll run into them occasionally
10	in individual wells.
11	We've encountered some around 100 feet
12	down to 250 and those will be coming in on C-105s when I get
13	those submitted.
4	Q Do you know the quality of the water?
5	A No, we haven't been able to get the
5	quality because I haven't run any analysis and oftentimes
'	we do foam up in order to help get our cuttings out because
	you're cutting through about 300 feet of shale in this area,
	and you get a little water, fresh water on there and it
	balls up and it causes tremendous problems in drilling.
	Consequently, we have to use a foaming agent, which would
	contaminate any fresh waters.
	Q Well, now you've been out there a lot.
	Are there any windmills in the vicinity?
5	A. No, not in that immediate vicinity.

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2	The closest one is there about four miles up there. It's on
3	the Monsimer right where's the topo map?
4	Q. Is that the one that shows up there in
5	Section 6?
.6	A. Yeah, it's up there in Section 6.
7	There is another windmill over in, it
8	would be, just a minute, I think there's one up in here some-
9	where on the west it would be in 12 or 7. Wait a minute,
10	that's 12, isn't it? Yeah, 12, Section 12, right there in
11	Section 12.
12	Q. That would be east of here then.
13	A It's west. Go west from 7 up there.
14	Q Oh
15	MR. RICHARDSON: The nearest windmill
16	is located how far from the
17	A. Well, that's approximately yeah, it's
18	on the topo there. If you'll look at your topo there just
19	west of 7. That would be the nearest windmill to this area.
20	Q Well, is that a windmill there at that -
21	A. Right.
22	Q 4674?
23	A. Right.
24	MR. RICHARDSON: That's roughly, what,
25	about a mile?

38 1 But I've been circulating them about 2 A. approximately 100 sacks from each well when I cement from 3 TD to surface. A Well, I notice on a number of these pages 5 Q. in Exhibit Number Six, Mr. Joy, for these old wells it doesn't 6 7 show any plugs at all. Are those wells that were drilled and 2 9 you have no knowledge of how they were plugged? 10 Those were all -- these are strat tests. A. 11 We have no knowledge on them. 12 The 6-12-17, I put Humble, it's now 13 Exxon. That was a strat. 14 The 6-14-17 was a strat. All we know 15 is the TD and we picked that up off of a log. 16 And the 6-33-17, and that was a strat 17 test. 18 Now the Wilbanks, we do not know how 19 it was plugged but we did find some information that indicated 20 they had 12-1/4 inch casing set at 75 feet. But on the other strat tests that -- of 21 Q. 22 Humble's that you did enter, you found a surface plug and 23 you found another plug at about 200 feet, I think you said. 24 Are you talking about the whole general A. 25 area or just the pilot area here?

1		39
2	Q I'm talki	ng about in the pilot area.
3	A. In the pi	lot area that did have one plug
4	down at 220 to 230 feet and we	encountered that water when
5	we drilled it out.	
6	Q Uh-huh.	
7	A. Soit cov	vered a water zone down there,
8	and that's the reason	
<b>9</b>	Q So at lea	st on one well Humble did plug
10	off the water.	
11	A. Right.	
12	Q But you d	lon't know whether they did on
13	these others?	
14	A. Not in th	nis area, no. We did not re-
15	enter those wells.	
16	Q Now, you	mentioned that the the vis-
17	cosity of this oil was about	6000 centipoise.
18	A. Right.	
19	Q At 70 de	grees.
20	A Right.	
21	And 27 c	entipoise at 200 and some de-
22	grees?	
23	A. 65, that	's correct.
24	A Q Now what	centipoise do you have to lower
25	5 it to in order to get to flow	through the reservoir?

.

40 1 2 Well, we feel like if we can raise it A. up to this temperature that we'll get it down to about 27 3 4 centipoise. 5 And it ought to flow. **Q** Right, then it should move. And then 6 A. 7 we'll create a drive with the steam. Now -- but on these steam floods what â will happen, the top part is going to be a steam drive, the 9 10 bottom is going to be a hot water drive. 11 That's right. Q As the water condenses out and moving 12 A. 13 out through the reservoir. MR. NUTTER: Are there any other ques-14 15 tions of Mr. Joy? 16 He may be excused. 17 Did you have anything further? MR. RICHARDSON: I have nothing further. 18 19 MR. NUTTER: You want to present your 20 exhibits, I presume. 21 MR. RICHARDSON: Yes, I would like to 22 offer Exhibits One through Eight into --MR. NUTTER: Exhibit One through Eight 23 24 will be admitted into evidence. 25 And you have nothing further?



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## CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boys CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7354 heard by me on

19.81 Oil Conservation Division , Examiner

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2	STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT
3	OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG.
4	SANTA FE, NEW MEXICO 7 October 1981
5	EXAMINER HEARING
6	
7	IN THE MATTER OF:
8	Application of Corona Oil Com- pany for a pilot steam-enhanced CASE oil recovery project, Guadalupe 7354
10	oil recovery project, Guadalupe 7354 County, New Mexico.
11	
12	
13	BEFORE: Daniel S. Nutter
14	
15	· TRANSCRIPT OF HEARING
16	
17	APPEARANCES
18	For the Oil Conservation W. Perry Pearce, Esq.
19 20	Division: Legal Counsel to the Division State Land Office Bldg.
20	Santa Fe, New Mexico 87501
21	Dendelich M. Diebendeen
23	For the Applicant: Randolph M. Richardson, Esq. Roswell, New Mexico
24	
25	

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16	Applicant Exhibit One, Topographic Map	6	
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	Applicant Exhibit Three, Map	8	
18	Applicant Exhibit Four, Plat	11	
19	Applicant Exhibit Five, Log	13	
20	Applicant Exhibit Six, Schematics	22	
21	Applicant Exhibit Seven, Request for Pit	30	
22	Applicant Exhibit Eight, Request for Pit	30	
23			
24 24			
25			

1       3         2       MR. NUTTER: We'll move on to Cas         3       MR. PEARCE: Application of Coron         4       Company for a pilot steam-enhanced oil recovery project         5       Guadalupe County, New Mexico.         6       MR. RICHARDSON: Randolph N. Rich         7       Roswell, New Mexico, appearing on behalf of the applic         8       And I have two witnesses to be sw         9       (Witnesses sworp.)         11       MR. RICHARDSON: I'd like to call         13       George Scott first.         14       And on the record and before actual	
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14 And on the record and before actu	L Mr.
	ally
15 qualifying Mr. Scott, I'd like to point out that the o	riginal
16 application for this pilot was made under the name of	Public
17 Lands Exploration, and they gone through a name change	and
18 it is now Corona Oil Company, and they have been quali	ified to
19 do business in the State of New Mexico, and do have a	statutory
20 agent.	Public
<ul> <li>20 agent.</li> <li>21 So some of the exhibits may show</li> </ul>	same
21 So some of the exhibits may show	rdson,
21 So some of the exhibits may show 22 Lands and some may show Corona, but it is exactly the	

1	4
2	name of Public Lands. That will also be changed to Corona?
3	MR. RICHARDSON: Corona.
	MD. NUTTER: So the company itself is
5	just changing its name. It's still the same company.
6	MR. RICHARDSON: That's right, uh-huh.
7	MR. NUTTER: As a matter of observation,
8	I think that we don't have a bond yet for Corona, so we will
9	need a bond before we can approve any changes, and also we
10	would have to have names changes filed for the old Public
11.	Lands wells.
12	I think the drilling permits for these
13	wells may have been filed in the name of Public Lands, also.
14	MR. RICHARDSON: Well, may I ask Mr.
15	Williams, do you know anything about the bond?
16	MR. WILLIAMS: Yes. I handled that.
17	The bond is with Kemper Insurance Company and they have moved
18	their headquarters to back to Kansas and they're in the
19	process of changing the name.
20	Now I checked about four days ago and it
21	still hadn't come through.
22	MR. NUTTER: You have requested it.
23	MR. WILLIAMS: Yes, that's been requested
24	over six weeks ago.
25	MR. NUTTER: I see.

1	5	
2	MR. WILLIAMS: I talked to Mr. Padilla	
3	just before he left and he informed me that we'd have to get	
. 4	this through and we'd have to have the president of Corona	
5	Oil Company also verify this.	
6	MR. NUTTER: OKAy.	
7	MR. RICHARDSON: I just wanted to make	
8	a statement about the name change and have handed the Examiner	•
•	Mr. Mutter, eight different exhibits and Mr. Scott will be	
19	testifying on a portion of the exhibits and Mr. Joy will be	
11	testifying to a portion of the exhibits.	
12		
13	GEORGE L. SCUT, JR.	
14	being called as a witness and being duly sworn upon his oath,	
15	testified as follows, to-wit:	
16	<b>.</b> .	
17	DIRECT EXAMINATION	
18	BY MR. RICHARDSON:	
19	And Mr. Scott, would you please state	
20	your name, address, present occupation?	
21	A My name is George L. Scott, Junior. I	
22	am a consulting geologist, located in Roswell, New Mexico.	
23	And you have testified several times	
24	before the Oil Conservation Division in the past?	
25	A. Yes.	

1 6 2 0 And ---3 MR. RICHARDSON: Do I need to go into 4 them? Are they acceptable? 5 MR. NUTTER: Mr. Scott is qualified, yes, 6 sir. 7 MR. RICHARDSON: You've examined him 2 before. . Mr. Scott, would you please tell the Q 10 Division the township, section, range of the proposed pilot 11 steam injection program? 12 Yes. This proposed pilot steam operation, A. 13 flood operation, is located in Section 17 of Township 11 North, 14 Range 26 East, in Guadalupe County, New Mexico. 15 Within the section the pilot will be 16 located in the northeast quarter of the northwest quarter. 17 And this location is shown on Exhibit Number One, a topographic 18 map. 19 Q. Exhibit Number One there is a topo map 20 showing the pilot, location of the pilot project, which is 21 40 acres. 22 would you like to add anything additional 23 as to your topo map, Exhibit One? 24 A, Yes, I would. This map could be useful 25 to anyone that wanted to go to the area. It has the -- shows

and a second second

1	7
2	the access road coming down from the northwest to the pilot
3	area. There's a notation in the upper lefthand corner as to
4	the New Mexico Highway 129, which is a short distance to the
5	west of the map area. Other prominant terrain features are
6	Nesa Rica in the northeast corner of the topo map.
7	A Mr. Scott, would you refer to Exhibit
8	Number Two, which is a base map, showing wells that have been
9	drilled within the immediate area?
10-	A Yes. The pumpose of this base map is
11	to is to show the wells that have been drilled within a
12	distance of two miles of the proposed pilot.
13	The proposed pilot is shown, well, is in
14	the northeast quarter of the northwest quarter of Section 17.
15	This shows that there are two wells in that area right now,
16	the No. 1 and 2 Jeanne. These Late wells have been previously
17	drilled and cased and are ready to become a part of the pilot
18	steam operation.
19	There are two other wells nearby that
20	have also been drilled by Corona and casing run to TD, and
21	these these two wells are the No. 1 Karen State in Section
22	8 and the No. 1 Barbara in Section 17, south half of 17 there.
23	These two wells could be utilized at some future date in
24	production, possibly.
25	Other wells on the map are stratigraphic

<ul> <li>Lands Exploration, and one wildcat drilled by Hankins over in Section 15. I believe all of the other walls shown on this map were either the Humple or Exmon stratigraphic tests or wells drilled by Corona.</li> <li>Let me back up, that's not correct. There in Section 18 there is a well drilled by Wilbanks, the No. 2 T-4 Cattle Company, and also in the northwest quarter of 17 there is a well drilled by Wilbanks, the No. 1 T-4.</li> <li>Q Mr. Scott, would you in addition to your base map showing all the wells that have been drilled in the immediate area, would you refer to Exhibit Three, and would you tell the Division what Exhibit Three is a larger scale map of a portion of the area in which on which I've contoured on top of the O'Connell sand, a little bit of the Santa Rosa formation.</li> <li>It is the O'Connell sand that is carryi the the heavy oil in the area. The contour interval on</li> </ul>	Ľ	
3       down on the information block.         4       Also shown on the map are dry boles,         5       wells that have been drilled and plugged, by Corona or Public         6       Lands Exploration, and one wildcat drilled by Hankins over         7       in Section 15. I believe all of the other wells shown on         8       this map were either the Rumble or Exmon stratigraphic tests         9       or wells drilled by Corona.         11       Let me back up, that's not correct.         12       There in Section 18 there is a well         13       in the northwest quarter of 17 there is a well drilled by         14       Wilbanks, the Ho. 1 T-4.         15       Q       Mr. Scott, would you in addition to         16       your base map showing all the wells that have been drilled         17       in the immediate area, would you refer to Exhibit Three, and         18       would you tell the Division what Exhibit Three is a larger         18       would you tell the O'Connell sand, a little bit of the         19       A       All right. Exhibit Three is a larger         19       A       All right. Exhibit Three is a larger         19       A       All right. Exhibit Three is a larger         10       It is the O'Connell sand, a little bit of the	1	8
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23 24 24 24 25 25 24 25 24 25 24 25 25 26 27 26 27 27 26 27 27 26 27 27 27 27 27 27 27 27 27 27	21	contoured on top of the O'Connell sand, a little bit of the
24 the the heavy oil in the area. The contour interval on	22	Santa Rosa formation.
the the heavy oil in the area. The contour interval on	23	It is the O'Connell sand that is carrying
25	24	the the heavy oil in the area. The contour interval on
this map is 20 reet. It simply shows a segment of the east-	25	this map is 20 feet. It simply shows a segment of the east-

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2	ward trending Newkirk anticline; in the vicinity of the pilot
3	we've got possibly as much as 20 feet of closure.
4	The now on this map the wells that
5	are in the proposed pilot are shown, together with the in-
6	jection well. The wells are the that will be producing
7	wells in the pilot are the 1, 3, 4, and 6 Jeanne. The in-
8	jection well will be the No. 5 Jeanne, and the No. 7 Jeanne
° 9	will be our water supply well.
10	If you'll refer back to the previous
11	map you will see that the No. 7 Jeanne is the same as the
12	Exxon No. 6-12-17 stratigraphic test, and this well is to
13	be re-entered and recompleted as a water supply well.
14	And Mr. Joy, who will follow, will cover
15	the discussion of mechanics of re-entering that well.
16	Q Mr. Scott, how was your geological
17	structure map contoured? It's contoured on top of the O'Connell
18	sand, and the information for the map was obtained from what
19	sources?
20	A Okay, primarily as a result of our
21	coring, and and logs, but primarily we drilled into the
22	to near the top of this sand and go in with a core barrel and
23	cut coles. Our data and our evaluation of the area is based
24	upon cores and core analysis, primarily.
25	A Mr. Scott, on our last case, No. 7048,

Conservation Division Order No. 6504, the Conservation Division approved a pilot steam injection program, located some four to five miles west of this proposed pilot program. Is there a geological reason for having a second pilot project that near the first pilot project?

Yes.

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Would you explain the reasons?

A Yes, there sure is. In the first place, it appears from our work that there is no direct connection between the two areas. They are the same sand zone. Apparently this C'Connell sand, the O'Connell member of the Santa Rosa formation, deposited as a result of meandering stream channeling environment, and it's not unusual for segments of those type of reservoirs to be cut off and isolated from each other, one another, and we think that this is the case, and that we're actually in a separate segment of the same general reservoir.

Also, it's deeper over here. It's approximately 350 - 400 feet deeper, greater overburden, and
there's a likelihood that to be successful, a steam injection
program would have to have higher pressures, and this could
be an advantageous thing.

Q Could you tell the Division, please, the approximate depths, top and bottom of thicknesses of the

1	11
2	O'Connell member of the Santa Rosa?
3	A Yes. The
4	Q The reason I ask that, Mr. Scott, was
5	you mentioned that this pilot is somewhat deeper than the
6	first, so I do need to get in the depths for this proposed
7	pilot.
8	A All right. We estimate in the pilot
9	area the producing sand which we have encountered at a depth
10	of approximately 708 to 760 feat.
11	And it is approximately how thick?
12	A The gross pay interval would be appro-
13	ximately 50 to 55 feet thick.
14	1 In other words, this particular area
15	is both deeper and is isolated from the initial pilot.
16	A That is correct.
17	Q. By the time both pilots are in complete
18	operation you will have a better idea as to other areas that
19	you could obtain oil known to be in place.
20	And there is oil in place in this area.
21	A That is correct.
22	And Mr. Joy will testify as to the an-
23	gineering aspect of obtaining the oil and Mr. Scott, I think
24	you might also refer to Number Four, Exhibit Number Four,
25	which is a plat showing the location of the pilot on the

1	12
2	particular 40-acre tract, together with the footage locations
3	and I wonder, Mr. Scott, if you could go through and tell the
4	Commission, or the Division, the location of the wells, footage
5	locations from the section lines and which wells have been
6	drilled and which ones are proposed to be drilled, and the
7	location of your injection well?
8	A All right. This this plat is on a
j, <b>9</b>	still larger scale, a scale of one inch equal 200 feet, and
10	shows the primarily here the northeast quarter of the
11	northeast guarter excuse me, northeast guarter of the
12	northwast quarter of Section 17.
13	The wells that presently exist are the
14	No. 1 and 3 Jeanne. They have been drilled and cased, and
15	are awaiting perforation and inclusion in the project.
16	Q Could you 🙀 ,
17	A. Also
18	Q give a footage location for the No.
19	1 and then the No. 2?
20	A Yes. All right. The No. 1 Jeanne was
21	located 800 feet from the north line and 1900 1980 feet
22	from the west line.
23	The No. 3 Jeanne was 800 feet from the
24	north and 2310 feet from the west line.
25	We are proposing that the No. 4, 5, and

1 13 2 6 will be drilled. The 4 and the 6 would be producing wells, 3 so indicated here by the appropriate symbol on the map. The No. 5 would be the injection well. 5 The No. 4 would be located 463 feet from 6 the north line and 2145 feet from the west line. 7 The No. 5, the injection well, would be 8 located 800 feet from north and 2145 feet from the west. Ŷ, The No. 6 would be located 965 feet from 10 north and 2145 feet from the west line. 11 We would also utilize the -- the old 12 Rumble 6-12-17, stratigraphic test, as a water supply well, 13 and that well is located 660 feet from the north and 1980 feet 14 from the west line. 15 And I believe that covers the description. 16 The No. 7 well, which is the water supply 0 17 well, was a Humble stratigraphic test drilled, what, several 18 years ago, back in, what, 160? 19 Back -- back in the 1960s, yes. А, 20 Mr. Scott, you might also briefly refer 0 21 to Exhibit Number Five, which is an electric log of the No. 1 22 Jeanne. I believe Mr. Nutter has a copy. Would you point 23 cut the depths and how the log is marked as to the --24 A. Yes. 25 -- recoverable zone? Q.

All right. The -- this is a compensated X. neutron log run through casing and on this log on the 5-inch scale at 708 feet we show the top of the O'Connell sand of the Santa Rosa formation. This -- the top of the O'Connell sand is also the same as the top of the Santa Rosa in this area.

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And at a depth of \$06 feet you go out of this O'Connell sand into a shale unit that varies from 10 to 59 feet thick that separates the O'Connell sand from the next sand in the Santa Rosa, called the Monsimer sand, locally, and it will be from 30 to 100 feet thick, the Monsimer sand. That sand is carrying water in the area

and will be the objective of our water supply efforts in the former Humble well.

I'd like to point out on this log here that the lower part of the O'Connell sand typically carries water in this area and on the log that would be that segment 19 from 750 -- or 778 to about 806. It is separated from the good porosity above by approximately 20 feet of tight and 21 low permeability sand.

Our reservoir pay extends on this log from 708 down to 759 feet.

Mr. Scott, let me say all the land in Q. this particular quarter section, that is patented fee lands.

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1	15	
2	There is no State or Federal land involved in this pilot.	
3	A. That is correct.	
4	Q That is correct, and the base lease on	
5	which the pilot will be located is actually in the name of	
6	Amoco Production Company.	
7	A That is correct.	
	Q And Corona does have a written farmout	
•	contract agreement with Amoco to drill and inject steam.	
10	A That is correct.	
11	Q In the event the Commission approves, or	
12	Division approves the pilot project, will the institution be	
13	in the interest of conservation and protection of correlative	
14	rights, and the project will be towards the prevention of	
15	waste, economical waste, as well as possibly recovering oil	
<b>16</b>	which would not be recovered?	
17	A. Yes.	
18	Q And the correlative rights of all parties	
15	will be protected?	
20	A Yes, they will.	
21	MR. RICHARDSON: I have nothing further,	
22	Mr. Nutter.	
23		
24	CROSS EXAMINATION	
25	BY MR. NUTTER:	

1 16 2 Q Mr. Scott, in looking at your Exhibit 3 Four, I find it hard to figure out the actual distance of 4 No. 4 Well from the north line. Now you say 463 feet from the 5 north line. MR. JOY: 635 from the north. 7 MR. NUTTER: 635, not 463, then. MR. JOT: 635 and 2145. The wells are 9 all located 165 fost from the injection well. 19 Let me see, we may have made an error 1 11 in the -- right there on that -- excuse me, just one moment, 12 please. 13 MR. RICHARDSON: That is a drafting mis-14 take. 15 MR. NUTTER: Okay, so this ---16 MR. RICHARDSON: It is -- it should be 17 635 feet from the north. 18 MR. NUTTER: Okay, the pattern, then, is 19 uniform. It's 165 feet from the injection well to each of 20 the four producers, is that it? 21 MR. RICHARDSON: That is correct. 22 MR. NUTTER: So you have a uniform 23 pattern then. 24 MR. RICHARDSON: Yes, we do. 25 MR. NUTTER: Okay. Well, that had me

1 17 2 disturbed there. 3 Now, Mr. Joy -- or Mr. Scott, you're 0 4 putting this project on the north side of this 40/40 closure 5 on Exhibit Number Three. There's a slight slope there. Does 6 the slope in the pay have anything to do with the positioning 7 of the pilot project? 8 Did you want to get on the side of the 9 hill, so to speak? 19 That is not a factor in -- in our No. L 11 locating it. You're referring there, now, to the subsurface 12 map? 13 Yes, sir. 0 14 No, the structure is not that critical 1 15 to us. We're not sure as yet about the structural control 16 on this. Structure is important we know, but there's a number 17 of variables involved in the trapping of this oil and we don't 18 have a firm handle on all of them yet. 19 But we -- we'd have to say that this 20 local structuring situation is not critical for the location 21 of our pilot. 22 Well now, you mentioned that the O'Connell Q 23 down here below your pay, starting at about 780 feet, carried 24 water on down to 806. Are there other water sands up above 25 here anywhere?

1       A       Yes. We drilled these wells with air         2       A       Yes. We drilled these wells with air         3       and it is not uncommon to get small amounts of water while         4       we're drilling with air. It's a howsver, the amount of         5       water is very minor, and in any event, that's cased off and         6       eminted to protected by cement to the surface on our         7       wells.         8       Q         9       Now is there any ranch, windmills or         9       waterwells in this vicnity?         9       A         9       Now is there any ranch, windmills or         9       waterwells in this vicnity?         9       A         9       Now is there any ranch, windmills or         9       waterwells in this vicnity?         9       A         9       No will follow. I do not         11       who will follow. I do not         13       A         14       There's none producing from zones as         15       ME. RICHARDSON:, I think         16       Q       Well, I was thinking of the shallow rindmills         17       ones, any shallower supply zones.       MR. RICHARDSON:, I think Mr. Joy	2 A. Yes. We drilled these wells wi	18
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21 A. The I do know they have real proble 22 out in this area of getting an adequate supply of stock wat 23 in the shallow zones. If you look at the topo map, they've	19 probably cover that, as to the water.	
22 out in this area of getting an adequate supply of stock wat 23 in the shallow zones. If you look at the topo map, they've	20 MR. NUTTER: Okay.	
23 in the shallow zones. If you look at the topo map, they've	21 A. The I do know they have rea	l problems
In the shallow zones. If you look at the topo map, and w	22 out in this area of getting an adequate supply of s	tock water
24 got a number of tanks.	23 in the shallow zones. If you look at the topo map,	they've
	24 got a number of tanks.	
25 Q. I see tanks there but I don't see any	25 Q. I see tanks there but I don't	see any

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2	windmills except up here in Section 6 there is one.
3	A Mr. Joy can help you on that, I think.
4	MR. RICHARDSON: I would like to, if you
5	have no further questions of Mr. Scott, call Mr. Joy.
6	MR. NUTTER: I think we're through with
7	Mr. Scott for the time being.
	We may have some further questions, Mr.
9	Scott.
10	<b>L</b> Yes, sir.
11	MR. NUTTER: In the interim he's excused.
12	MR. RICHARDSON: All right.
13	I'd like to now call Mr. Charles Joy.
14	
15	CHARLES JOY
16	being called as a witness and being duly sworn upon his oath,
17	testified as follows, to-wit:
18	
19	DIRECT EXAMINATION
20	BY MR. RICHARDSON:
21	Q Mr. Joy, will you please state your name
22	and present occupation?
23	A Charles Joy, and I'm a consulting en-
24	gineer, located out of Artesia, New Mexico.
25	Q And you have testified several times

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2	before the Oil Conservation Division.	
3	A. Yes, I have.	
4	a And I'd say recently?	
5	A. Yes.	
6	Q. And	
7	MR. RICHARDSON: Are his gualification	ns
8	acceptable?	
9	MR. NUTTE: : They are.	
10	Ω Mr. Joy, would you well, you have	
11	heard Mr. Scott's testimony as to the geology of the area.	
12	Would you please tell the Division some of the engineering	J.
13	reservoir engineering aspects as to permeabilities, porosi	ities,
14	pressures, water saturation, and other factors which rende	ar
15	it impossible to recover the oil in place without some some	rt
16	of artificial stimulation?	
17	A. Well, core analyses indicate permeabi	11 <b>1-</b>
18	ties range from 100 to 500 millidarcies; porosities from 1	18
19	to 22 percent; and a connate water saturation of approxi-	
20	mately 12 percent.	
21	Oil analyses indicate oil gravities	
22	range from 15 to 17 degrees API and oil viscosity from 29	.2
23		
24	70 degrees Fahrenheit.	
25	-	no

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gas saturation and air drilling operations show no natural water drive and little or no gravity drainage. And these conditions leave the reservoir without a driving mechanism and it is planned to reduce oil viscosity to approximately 27 centipoise and create a driving mechanism by injecting steam.

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Mr. Joy, would you advise the Division Q. of the pressure at which you propose to inject this steam? Yes. Approximately 150 barrels of water A. will be injected per day and will be converted to steam and this will be injected in the O'Connell sand at 465 degrees Fahrenheit and 475 pounds psig.

In the event the pressure is not adequate Q we would like to reserve the right without a hearing to increase or decrease the pressure to how much, Mr. Joy, would you say?

18 Oh, we might have to later go up to A. 19 about 510 pounds, around 500.

In the event the Division does approve Q. the pilot, could the order allow that leeway for approval of increasing the pressure?

23 MR. NUTTER: We may be able to put that 24 in the order, Mr. Richardson. We'll check it. 25

MR. RICHARDSON: Without the necessity

1	22
2	of another hearing.
3	MR. NUTTER: We'll check on that.
4	4 Mr. Joy, refer please, if you would, to
5	Exhibit Number Six, which, for the record, Exhibit Six is a
6	set of the schematic completions diagrams for several different
7	wells, and it is covering all the wells within the immediate
8	area.
9	Could you go through and very briefly
10	mention the well, the location, and some of them have been
11	drilled, some of them are closed wells, could you tell the
12	Division which ones have been drilled and what your casing
13	program is as to all wells that will be drilled in the pilot
14	area to protect the shallow water?
15	A Yes. I've drawn schematics of every
16	well within a half mile radius of the pilot area.
17	And the first I'll look at Exhibit
18	Number Two on the ownership map there, I've set out, and it
19	indicates these wells.
20	Q That is Exhibit,
21	A Right. Now, the first one, though, will
22	be on the proposed injection well and this will be our Jeanne
23	No. 5 Well, and if you look at this schematic, I will we
24	will run 30 feet of J-55 casing, 10-3/4 inch, 51 pound, and
25	cement with 10 sacks and circulate back to the surface. I

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1	23
2	plan on casing through this well and running 850 feet of
3	K-55 casing, 5-1/2 pounds, 17 pounds to the approximate TD
4.	of 850 feet, and I have been cementing all these wells with
5	220 sacks and circulating it back to the surface to protect
6	any fresh water zones.
7	And if you'll note, we have not perfor
8	I will perforate this well from approximately 710 feet to
•	770 feet. This is just proposed. We'll have to log these
10	wells to find the exact interval we want to open up for
11	steam injection.
12	And I will run a 700 I mean a Baker
13	packer, HB-1 single jet, at 760 feet. Now this is a high
14	temperature packer with an expansion joint built into the
15	packer.
16	Now, on this inhibited water, it's
17	almost impossible, and originally I plan to try to load back
18	the annulus with inhibited water. The thing is when we start
19	going down with steam we convert this water behind that
29	tubing into steam and we can't hardly contain it, I mean, it
21	puts a lot of pressure on it.
22	So I'll just have to work this out
23	later. I may want to open that up. We may not be able to
24	contain that water in there.
25	The next well would be the Jeanne No.

1	24
2	well, and this is a well we've already set casing in and I
3	think if you want me to go through each one of these, but
4	I think I believe the schematics are self explanatory
5	here. I've shown the TD, the casing I'm going to set, and
6	how much cement I'm going to be using.
7	MR. RICHARDSON: Would you like to, Mr.
	Mutter, have him go through each schematic or basically,
9	the program on all the wells that have been drilled and will
10	be drilled is to circulate cement from total depth back to
11	the surface.
12	There is a proposal there for one open
13	hole or
-14	A Two. We will have two open hole com-
15	pletions, Mr. Nutter.
16	MR. NUTTER: I notice that the No. 4 is
17	an open hole.
18	A Right.
19	MR. NUTTER: And No. 6 is an open hole,
20	Mr. Joy.
21	A. We're doing that for one purpose. We're
22	going to see what kind of results we get and if we can re-
23	cover a larger percentage of oil because this area is highly
24	laminated and we thought maybe the recoveries from these
25	wells might exceed the wells that are cased through.

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1	25
2	MR. NUTTER: Well, in the case of the
3	No. 1 and the No. 3, which are both producing wells, the
4	west and the east producing wells, you've got casing set
5	down to TD at about 840, which would be down below the base
6	of the O'Connell
7	A. Right.
8	MR. NUTTER: sand.
9	A. It will be in the shale
10	MR. NUTTER: It will be in the O'Connell
11	A Right, and it's about 10 or 15 feet
12	above the Monsimer.
13	MR. NUTTER: Right. Okay, then we get
14	over to the Jeanne 4 and Jeanne 6, which are the north and
15	the south offsets to the injection well, and you show your
16	casing set at 724 and 710. Now where is that with respect
17	where would you propose to set that with respect to the top
18	of the O'Connell?
19	A That would be right in the top of the
20	O'Connell.
21	MR. NUTTER: Right in the top.
22	A I'll drill right to the top of the
23	O'Connell and when we top it, then I'll set my casing.
24	MR. NUTTER: So that footage that you
25	give there is just tentative.

1		26
2	P.	Right.
3		MR. NUTTER: What it really means is
4	that you're going to	set this casing in the top of the
5	O'Connell.	
6	A.	Correct.
7		MR. NUTTER: OKAY.
8	A.	Now,
		MR. NUTTER: And then how deep would it
10	be drilled? Would it	be drilled through the pay of the
11	0'Connell?	
12	A	No, we'll drill down to where we estimate
13	the bottom of the oil	bearing zone is from the two wells that
14	we have already compl	eted in the area.
15		MR. NUTTER: Okay, in other words, you
16	would drill to where	u would anticipate
17	A	Getting into that tight area, right
18	there.	
19		MR. NUTTER: Getting into that tight
20	area, which starts at	759 feet on the Jeanne No. 1.
21	<b>A.</b>	Right, that is correct.
22		MR. NUTTER: And that would be the
23	bottom, so you would	h't be penetrating this section down here
24	where the water is.	
25	A.	No, I will not be penetrating it.

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1	27
2	MR. NUTTER: Okay.
3	MR. RICHARDSON: Do you want him to go
4	each one separately before placing them in evidence?
5	MR. NUTTER: I don't think he will. If
6	he just generally discusses them and then I'll, if I have
7	any questions on them specifically, I'll ask him, like I just
8	now did.
9	MR. RICHARDSON: Okay, real fine.
10	A. Well now, the No. 7, Jeanne No. 7 is
11	going to be our water source well, and I
12	Q Mr. Joy, anticipating anticipating
13	the No. 7 well is your water supply, water source well, now
14	what zone, where will that water come from, and how much water
15	do you propose to use?
16	A We would be using approximately 150
17	barrels of water per day, and that may exceed our needs. At
18	this time we plan on converting 150 barrels of water per day
19	to steam.
20	Q And that water is coming from the what
21	formation?
22	A The Monsimer.
23	Q Monsimer, which is a localized name and
24	it is a lower member of the Santa Rosa formation.
25	A And this will be an open hole completion

1	28
2	I plan on re-entering that well, in fact, we're in the pro-
3	cess of re-entering it at this time, and I will top the
4	Monsimer and set casing in the top of the Monsimer sand and
5	then I'm going to cement that with 75 sacks.
6	Now i fyou'll look at this schematic,
7	the top of the O'Connel sand is approximately 700 feet in
8	this well. The calculated top of the cement will bring this
9	back to 600 feet, and I've already talked with Steve Rey-
10	nolds, the State Engineer. He has authorized the recompletion
11	of this well as a water source well, since it's going to be
12	a water well.
13	And you'll actually use very little
14	water.
15	A Right.
16	Q. Would you
17	A. And that's the reason there's no C-101
18	in on this. This comes under State Engineer's jurisdiction.
19	I thought I'd show the Commission I am
20	going to cement this for two purposes. One is to protect
21	the water zone and the other is to restrict any loss of
22	steam due to the proximity of this well to the pilot area.
23	MR. NUTTER: Now this is an old Humble
24	stratigraphic test, right?
25	A. Right.

1 29 2 MR. NUTTER: What kind of a casing or 3 whatever is in it right now? 4 A. Nothing right now. I'm down to about 5 750 feet at this time. 6 MR. NUTTER: You're re-entering it now. 7 A I'm re-entering it, but there was one 8 plug in this well. No, there was two plugs. There's one at 9 the surface and then we had one that was over this water sand ÍÔ at about 220 feet. They did have a plug over that. 11 Q. In your opinion, will that zone produce 12 enough water for your steam injection project? 13 Yes, because I have penetrated the Mon-A. 14 simer in the Karen -- in the Barbara No. 1 South, and in the 15 Karen No. 2, located directly east there in Section 17, and 16 we had probably -- it was probably making close to a barrel 17 a minute in those wells. 18 In other words, you do have sufficient Q. 19 water ---20 Right, water, and I --A. 21 -- in the immediate area. a 22 In fact, those should average about Ъ Гн 23 14,000 barrels per acre feet. I've run the reserves out on 24 the water there. 25 Could you please refer to the Exhibits Q.
Numbers Seven and Eight. One of those is the request for a permit for a pit, a lined, sealed pit, for your discharge water from the water softener, and Exhibit Number Eight is a request for permit to the Oil Conservation Division for water produced from the heater-treaters.

Could you please go into more detail as to the lining of the pits and protection of surface water? Surface ground water from discharging in the pits?

Â. Right. Due to the future production, and anticipating that we will produce some water in this area, and in order to take care of this and to handle it, I have proposed to dig earthen pits and I've made out the OCD's application for this, and if you'll look at this first exhibit, that was in Public Lands Exploration Company, Incorporated's name, and this would be on the Jeanne lease and it will be Unit C, Section 17, 11 North, Range 26 East, and analysis of some of the waters from some of the wells from . this -- not in this exact area, but in other areas, indicates that the chlorides content is about 700 parts per million; total solids were not available, but I know they're very low because we were -- I've used water in other areas. And at this time we probably would not produce over about a half a barrel of water per day. We have not -- well, that would be the deal on the waterflood, but we don't have the problem.

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2	And then on the method of hydrocarbon
3	entrapment to be employed, I just put out there in they've
4	got header pits, I put an asterisk down below. This is, let's
5	see, this is the water produced from the heater-treater, and
6	I've elected to build a 20x20x6 foot pit and that gives me
9	400 square feet and from the top of the firewalls down to the
	bottom of the pit it will be approximately 8 feet, and I will
· 9	use a polyethylene which has thickness of 6 mils, and it goes
10	in there.
11	Does manufacturer recommend protection
12	of material from direct sunlight? No.
13	Is material resistant to hydrocarbons?
14	Yes.
15	Is material registant to acid and alkalies
16	Yes.
17	Is material resistant to salt? Yes.
18	Is material resistant to fungus? Yes.
19	Is material rot resistant? Yes.
20	Will joints of material be fabricated
21	in the field? No.
22	And then that will take care of this
23	first pit.
24	The other pit will be required, because
25	when we want to use softeners out there to convert our water

1	32
2	so we will not plug up our steam generator, and these soften-
3	ers have to be regenerated approximately every 20,000 gallons,
4	and brine water is used to regenerate these softeners with,
5	and it is approximately 60 gallons is produced.
6	Consequently, we're going to have to have
7	an area to discharge this brine water in, and I plan to build
8	a similar pit but a little bit larger, 38x30x6 feet, and the
9	rest of the information is identical to the other pit, and
10	the we're going to use a polyethylene and it will be 6
11	mils thick.
12	Now the reason we're not splicing this,
13	I can buy the material large enough to cover the pit without
14	splicing in the field.
15	Q You will actually have two pits, then.
16	A Right, we will have two pits there.
17	And I've checked this, and this should be ample or sufficient
18	large enough the pit should be large enough to take care
19	of of the water produced at this time from either source
20	there. The evaporation is approximately 70 - 80 inches per
21	year in New Mexico.
22	Q They definitely will be lined.
23	A Right, they definitely will be line 1.
24	Q And I'll ask Mr. Nutter, those permits,
25	which you have, which were given as Exhibits Seven and Eight,

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1 33 2 do we need to file a separate one -- application or can the 3 ones that are -- will be introduced in evidence, will that 4 suffice? 5 MR. NUTTER: No, Separate permits will 6 have to be issued for the pits. These are just exhibits in 7 this hearing. They're not actually applications. 2 I think Mr. Joy brought some applications 9 in this morning. 10 Well, we'll have to submit these, then, 11 because this is your application that we're using for exhibits 12 That is the OCD's legal application. 13 MR. NUTTER: Right. Well, didn't you 14 give some of those to --15 Well, that was for another area. λ. 16 MR. NUTTER: Oh, that's for that other 17 area. 18 A. Well, we'll have to submit new ones then 19 to avoid that. 20 MR. NUTTER: Well, we'll have some 21 question on this material. 6 mils doesn't meet our specifi-22 cations in the first place. 23 All right, we can go much higher. A. 24 MR. NUTTER: The minimum is 30 mils 25 under our specification.

1 34 2 Okay, 30 mils. We'll pick that up, A. 3 then, Mr. Nutter. MR. NUTTER: And I've never seen poly-5 ethylene yet that didn't have to be protected from sunlight. Okay, well, we've got it covered with 1 7 dirt out there right now. 2 MR. NUTTER: Yeah. It's covered with dift. 1 10 MR. NUTYER: And 11 get don't protect 11 it from sunlight it just will be in shreds in a little while. 12 Okay. We need 30 mil, 30 mil, and now L 13 what material do you recommend? 14 MR. NUTTER: I think Mr. Johnson here 15 can furnish you with a copy of our pit specification booklet. 16 All right. L 17 MR. NUTTER: He probably didn't have a 18 copy. 19 He didn't -- Bill Griffith didn't have one because lowent in and talked to him there in Artesia. 20 21 MR. NUTTER: If you'll ask Mr. Johnson 22 here before you leave. 23 All right. I'll get it. We'll pick A. 24 that up, then. 25 Mr. Joy, I have only one other question. Q.

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2	And that is I see on all the plats that you are not having
3	an observation well. You're having an injection well, water
4	supply well, and then four producers, is that correct?
5	L Correct.
6	And there's no mention of an observation
7	well, so you will not have an observation well in this parti-
8	cular project, is that correct?
<b>9</b> -	A No. That is correct.
10	Q So you will have basically, the producers,
11	your injection well, and the water well, all located on one
12	lease.
13	A Right.
14	Q Within a very small area. Will the
15	Mr. Joy, will the institution of this project be in the
16	interest of conservation and prevention of waste?
17	A. Yes, it will.
18	Q Will correlative rights of all parties
19	be protected?
20	<b>A. Yes.</b>
21	MR. RTCHARDSON: I have nothing further,
22	Mr. Nutter.
23	
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1	36
2	CROSS EXAMINATION
3	BY MR. NUTTER:
4	Q Mr. Joy, I asked Mr. Scott about
5	existing shallow fresh waters in the area and he deferred
6	to you.
7	Can you tell me what the situation is?
8	A Yes, we they are not consistent
, 9	throughout the area. You'll run into them oceasionally
10	in individual wells.
11	We've encountered some around 100 feet
12	down to 250 and those will be coming in on C-105s when I get
13	those submitted.
14	Do you know the quality of the water?
15	A No, we haven't been able to get the
16	quality because I haven't run any analysis and oftentimes
17	we do foam up in order to help get our cuttings out because
18	you're cutting through about 300 feet of shale in this area,
19	and you get a little water, fresh water on there and it
20	balls up and it causes tremendous problems in drilling.
21	Consequently, we have to use a foaming agent, which would
22	contaminate any fresh waters.
23	Q Well, now you've been out there a lot.
24	Are there any windmills in the vicinity?
25	A. No, not in that immediate vicinity.

1 37 2 The closest one is there about four miles up there. It's on 3 the Monsimer right -- where's the topo map? 4 Is that the one that shows up there in Q. 5 Section 6? 6 Yeah, it's up there in Section 6. 7 There is another windmill over in, it 8 would be, just a minute, I think there's one up in here some-.9 where on the west -- it would be in 12 or 7. Wait a minute, 10 that's 12, isn't it? Yeah, 12, Section 12, right there in 11 Section 12. 12 That would be east of here then. Q. 13 It's west. Go west from 7 up there. 14 Oh. Q 15 MR. RICHARDSON: The nearest windmill 16 is located how far from the --17 Well, that's approximately -- yeah, it's A. 18 on the topo there. If you'll look at your topo there just 19 west of 7. That would be the nearest windmill to this area. 20 Well, is that a windmill there at that -+ Q 21 Right. A. 22 -- 4674? Ū. 23 Right, A. 24 MR. RICHARDSON: That's roughly, what, 25 about a mile?

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1	38
2	A But I've been circulating them about
3	approximately 100 sacks from each well when I cement from
4	TD to surface.
5	Q Well, I notice on a number of these pages
6	in Exhibit Number Six, Mr. Joy, for these old wells it doesn't
7	show any plugs at all.
8	Are those wells that were drilled and
•	you have no knowledge of how they were plugged?
10	A Those were all these are strat tests.
11	We have no knowledge on them.
12	The 5-12-17, I put Humble, it's now
13	Exxon. That was a strat.
14	The 6-14-17 was a strat. All we know
15	is the TD and we picked that up off of a log.
16	And the 6-33-17, and that was a strat
17	test.
18	Now the Wilbanks, we do not know how
19	it was plugged but we did find some information that indicated
20	they had 12-1/4 inch casing set at 75 feet.
21	Q But on the other strat tests that of
22	Humble's that you did enter, you found a surface plug and
23	you found another plug at about 200 feet, I think you said.
24	A Are you talking about the whole general
25	area or just the pilot area here?

1 39 2 I'm talking about in the pilot area. Q. 3 In the pilot area that did have one plug A 4 down at 220 to 230 feet and we encountered that water when 5 we drilled it out. 6 Uh-huh. 0 7 So it covered a water sone down there, Ä 8 and that's the reason ---9 So at least on one well Humble did plug Q. 10 off the water. 11 Right. λ 12 But you don't know whether they did on Q 13 these others? 14 Not in this area, no. We did not re-۱. 15 enter those wells. 16 Now, you mentioned that the -- the vis-Q 17 cosity of this oil was about 6000 centipoise. 18 Right. L 19 At 70 degrees. Q. 20 Right. λ. 21 And 27 centipoise at 200 and some de-Q 22 grees? 23 65, that's correct. A. 24 Now what centipoise do you have to lower Q 25 it to in order to get to flow through the reservoir?

1 40 2 Well, we feel like if we can raise it A. 3 up to this temperature that we'll get it down to about 27 4 centipoise. 5 And it ought to flow. 0 Right, then it should move. And then X. 7 we'll create a drive with the steam. 8 Now -- but on these steen floods what 9 will happen, the top part is going to be a steam drive, the 10 bottom is going to be a hot water drive. 11 That's right. . 9 12 As the water condenses out and moving A. 13 out through the reservoir. 14 MR. NUTTER: Are there any other ques-15 tions of Mr. Joy? 16 He may be excused. 17 Did you have anything further? 18 MR. RICHARDSON: I have nothing further. 19 MR. NUTTER: You want to present your 20 exhibits, I presume. 21 MR. RICHARDSON: Yes, I would like to 22 offer Exhibits One through Eight into --23 MR. NUTTER: Exhibit One through Eight 24 will be admitted into evidence. 25 And you have nothing further?



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BOYD, C.S.

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## CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sully W. Boys CSR.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner bearing of Case 40.

Examiner Oil Conservation Division

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

BRUCE KING BOVENIOR LARRY KEHOE

January 12, 1982

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87501 (506) 827-2434

Mr. Randolph Richardson J. P. White Building Roswell, New Nexico 8820) Re: CASE NO. 7354 ORDER NO. <u>R-6868</u>

Applicant:

Corona Oil Company

Dear Sir:

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

Pours very truly, JOE D. RAMEY Director

JDR/fd

Copy of order also sent to:

Hobbs OCD Artesia OCD ¥ Aztec OCD

<u>Other</u>

## STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

> CASE NO. 7354 Order No. R-6868

APPLICATION OF CORONA OIL COMPANY FOR A PILOT STEAM ENHANCED OIL RECOVERY PROJECT GUADALUPE COUNTY, NEW MEXICO.

### ORDER OF THE DIVISION

#### BY THE DIVISION:

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This cause came on for hearing at 9 a.m. on October 7, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this <u>l2th</u> day of January, 1982, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Corona Oil Company, seeks authority to institute a pilot steam enhanced oil recovery project on its Jeanne Lease, Undesignated Santa Rosa Pool, by the injection of approximately 150 barrels of water as steam into the "O'Connell Sand" zone of the Santa Rosa formation through its Jeanne Well No. 5 located approximately 800 feet from the North line and 2145 feet from the West line (in Unit C) of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

(3) That the wells in the project area are incapable of commercial production due to the low viscosity of the oil found in the pay sand and the lack of any significant natural drive mechanism.

(4) That the proposed enhanced recovery project may result in the recovery of otherwise unrecoverable oil, thereby preventing waste. -2-Case No. 7354 Order No. R-6868

(5) That the operator should take all steps necessary to ensure that the injected fluid 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.

(6) That the applicant shall take such steps as may be necessary to ensure that the operation of the steam injection project does not contaminate surface or subsurface waters or damage nearby properties.

(7) That the injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(8) That the applicant proposes to drill and complete four new wells as producers, all located, respectively, at orthodox and unorthodox locations within the NE/4 NW/4 of said Section 17 as follows:

Jeanne Lease Well No.	Location
1	800 feet from the North line and 1980 feet from the East line
3	800 feet from the North line and 2310 feet from the East line
4	635 feet from the North line and 2145 feet from the East line
6	965 feet from the North line and 2145 feet from the East line
(0) The	the applicable objects whether we have a

(9) That the applicant should submit monthly reports of injection volumes, pressures, temperatures and production in a form acceptable to the Division.

(10) That the subject application should be approved and the project should be governed by the provisions of this order and of Rules 702 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Corona Oil Company, is hereby authorized to institute a pilot steam enhanced recovery project -3-Case No. 7354 Order No. R-6868

on its Jeanne Lease, Undesignated Santa Rosa Pool, by the injection of water into the "O'Connell Sand" zone of the Santa Rosa formation through its Jeanne Well No. 5 located approximately 800 feet from the North line and 2145 feet from the West line of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

(2) That injection into said well shall be through internally coated tubing, set in a packer at approximately 660 feet; that the casing-tubing annulus of each injection well shall, at the option of the applicant, be loaded with an inert fluid and shall be equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Santa Fe District 4 office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or 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.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the applicant is further authorized to drill and complete four new wells as producers, all located, respectively, at orthodox and unorthodox locations within the NE/4 NW/4 of said Section as follows:

Jeanne Lease Well No.	 			Locat	ion				· ·
1	feet East	-	the	North	line	and	1980	teet	trom
3	feet East	-	the	North	line	and	2310	feet	from
4	feet East		the	North	line	and	2145	feet	from
6	 feet East		the	North	line	and	2145	feet	from

-4-Case No. 7354 Order No. R-6868

(6) That the subject project is hereby designated the Corona Oil Company Santa Rosa Enhanced Recovery Project and shall be governed by the provisions of Rules 702 through 708 of the Division Rules and Regulations.

(7) That the applicant shall operate said project in such a manner as to ensure against contamination of surface or subsurface waters or damage to nearby properties.

(8) That monthly progress reports of the project herein authorized shall be submitted to the Division in a form acceptable to the Division.

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

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



STATE OF NEW MEXICO OIL CONSERVATION DIVISION

JOE D. RAMEY Director

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PROPOSED INJECTION WELL CORONA OIL CO. JEANNE No.5 WELL LOCATION: 800' FNL & 2145' FWL SECTION: 17, T-11-N, R-26-E  $\land \land \land \land \land \land$ 30 ft. J-55 Csg. Cement 10 sx and circulate 10 3/4" 51# 760 ft. 2 3/8" J-55 Tbg. Inhibited Water here as to be as to on acct & pressure Amild - up 760 ft. Packer Baker Model HB-1 Single Grip 710 ft. Proposed Perforations BEFORE EXAMINER NUTTER 770 ft, OIL CONSERVATION DIVISION Corona EXHIBIT NO. 5 CASE NO. 7354 850 ft. K-55 Csg. Cement 320 sx and circulate 5 늘" 17# TD 850'

PRODUCER CORONA OIL CO. JEANNE No.1 WELL LOCATION: 800' FNL & 1980' FWL SECTION 17, T-11-N, R-26-E 77777. 25 ft. J-55 Csg. 8 5/8" 23# Cement 5 sx and circulated 740 ft. 2 3/8" J-55 Tbg. 709 ft. Proposed Perforations Seating Nipple 760 ft. Perforated Nipple 842 ft. K-55 Csg. 4늘" 11.6# Cement 320 sx and circulated TD 840'







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PLUGGED AND ABANDONED CORONA OIL CO. JEANNE No. 2 WELL LOCATION: 1980' FNL & 660' FWL SECTION 17, T-11-N, R-26-E



PLUGGED AND ABANDONED PUBLIC LANDS EXPLORATION CO., INC. KAREN STATE No. 2 WELL LOCATION: 990' FNL & 660' FEL SECTION 17, T-11-N, R-26-E TITTI ///// Top of Cement 13-Sack Cmt. Plug 25 ft. J-55 Csg. 8 5/8" 23# Cement 5 sx and circulate 40 ft. Bottom of Cement 7 7/8" Open Hole 700 ft. Top of Cement **50-Sack Cement Plug** O'Connell Sand 803 ft.-888 ft. 944 ft. Bottom of Cement TD 944'

PLUGGED AND ABANDONED WILBANKS T4 CATTLE CO. No.1 WELL LOCATION: 1980' NL & 2000' FWL Section 17, T-11-N, R-26-E



PLUGGED AND ABANDONED HUMBLE 6 -12-17 LOCATION: 660' FNL & 1980' FWL Section 17, T-11-N, R-26-E





4 3/4" Open Hole

PLUGGED AND ABANDONED HUMBLE 6-14-17 WELL LOCATION: 660' FNL & 660' FEL Section 17, T-11-N, R-26-E

TITTTT





4 3/4" Open Hole

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TD 1256'

# PLUGGED AND ABANDONED HUMBLE 6-33-17 WELL LOCATION: 1980' FS L & 1980' FEL Section 17, T-11-N, R-26-E

# TITITI ATTITIT

5 1/8" Open Hole



TD 880'

	APPLICATION FOR PERMIT PERMIT NO.	
<u>(e)</u>	TO UTILIZE A LINED EVAPORATION PIT	
CASI	NO. 1534	
	New Mexico Oil Conservation Constantion	
	Name of Operator Public Lands Exploration Company, Inc.	
	Address 4835 LBJ Freeway, Suite 635, Dallas, Texas 75234 Name of lease upon which evap- oration pit will be located	
مبير.	Location of evaporation pit: Unit Letter -C. Section 17 Township11N Range 26B	
	Lease(s) which will be producing into pit	
	Pool(s) which will be producing into pit	
	Quantity of water to be disposed of into this pit barrels per day.	
· · ·		
	Water production from these same wells six months ago 0. bpd Three months ago 0 bpd (If more than one pool will be producing into pit, give water production data for each)	
	Method of hydrocarbon entrapment to be employed: Settling tankHeader pit	
-	If settling tank is to be used, give size and number of barrels	
. • .	If header pit is to be used, give dimensions and depth	
	Header pit lining materialThickness	
	Dimensions of Evaporation Pit ("A" and "B" on diagram) 30' x 30' x 6'	
•	Number of square feet contained in above 900	
	Depth (Top of levee to floor of pit-"D" on diagram) 8'	
•		
•	Material to be used as liner Polyethylene Thickness 6 mille	
• ••	Does manufacturer recommend protection of material from direct sunlight No No	
	If yes, what means will be provided to so protect the material?	
	Is material resistant to hydrocarbons? Yes XX No	
	Is material resistant to acids and alkalis? Yes XX No	
	Is material resistant to salts? YesNo	
	Is material resistant to fungus? Yes <u>XX</u> No	
	Is material rot-resistant? Yes XX No	
	Will joints in material be fabricated in the field? Yes <u>No XX</u>	-
	If yes, describe method to be used in joining material	
	Attach constants moching describing the qualities of the links	
	Attach manufacturer's brochure describing the qualities of the lining material.	
	Describe the leakage detection system to be used	
	Describe the leakage detection system to be used	
	Describe the leakage detection system to be used	
· · ·	Describe the leakage detection system to be used *Water discharged when softeners are regenerated	
• .	Describe the leakage detection system to be used *Water discharged when softeners are regenerated	

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EFORE EXAMINER NUTTER	
OIL CONSERVATION DIVISION	
Crean EXHIBIT NO.	· · · · · · · · · · · · · · · · · · ·
ASE NO. 2357 TO UTILIZE A LINED EVAPORATION PIT	- ·· ·· · · · · · · · ·
New Mexico Oil Conservation Com. ission	
Neme of Operator Public Lands Exploration Company, Inc.	
Address 4835 LBJ Freeway, Suite 635, Dallas, Texas 75234	
Name of lease upon which evap- oration pit will be located <u>leanne</u>	
Location of evaporation pit: Unit Letter C Section 17 Township11N Range 26E	
Lease(s) which will be producing into pit	
Pool(s) which will be producing into pit	
Analysis of disposal water: Chlorides 700 ppm. Total dissolved solide NA ppm. (If more than one pool will be producing into pit; give water analysis for each pool.)	
Quantity of water to be disposed of into this pit 1/2barrels per day.	
Water production from these same wells six months age bpd Three-months age bpd	
(If more than one pool will be producing into pit, give water production data for each)	
Method of hydrocarbon entrapment to be employed: Settling tankHeader pit*	:
If settling tank is to be used, give size and number of barrels	- 
If header pit is to be used, give dimensions and depth	
Header pit lining material Thickness	
Dimensions of Evaporation Pit ("A" and "B" on diagram) 20' x 20' x 6'	
Number of square feet contained in above 400	
	9 
Material to be used as liner_PolyethyleneThickness6 milbs	2.
Does manufacturer recommend protection of material from direct sunlight?	
Does manufacturer recommend protection of material from direct sunlight? Yes No	·
Does manufacturer recommend protection of material from direct sunlight?	
Does manufacturer recommend protection of material from direct sunlight?	
Does manufacturer recommend protection of material from direct sunlight? YesNo If yes, what means will be provided to so protect the material? Is material resistant to hydrocarbons? YesXXNo	
Does manufacturer recommend protection of material from direct sunlight? YesNo If yes, what means will be provided to so protect the material? Is material resistant to hydrocarbons? YesXXNo Is material resistant to acids and alkalis? YesXXNo	
Does manufacturer recommend protection of material from direct sunlight? No	·
Does manufacturer recommend protection of material from direct sunlight? No	
Does manufacturer recommend protection of material from direct sunlight? No   If yes, what means will be provided to so protect the material? No   Is material resistant to hydrocarbons? Yes XX No   Is material resistant to hydrocarbons? Yes XX No   Is material resistant to acids and alkalis? Yes XX No   Is material resistant to salts? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant? Yes XX No   Vill joints in material be fabricated in the field? Yes No XX	
Does manufacturer recommend protection of material from direct sunlight? No	·
Does manufacturer recommend protection of material from direct sunlight? No   If yes, what means will be provided to so protect the material? No   Is material resistant to hydrocarbons? Yes XX No   Is material resistant to hydrocarbons? Yes XX No   Is material resistant to acids and alkalis? Yes XX No   Is material resistant to salts? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant to fungus? Yes XX No   Is material resistant? Yes XX No   Vill joints in material be fabricated in the field? Yes No XX	
Does manufacturer recommend protection of material from direct sunlight? YesNo	
Does manufacturer recommend protection of material from direct sunlight? YesNo	
Does manufacturer recommend protection of material from direct sunlight? Yaw	
Does manufacturer recommend protection of material from direct sunlight? Yes	
Does manufacturer recommend protection of material from direct sunlight? Yes	
Does manufacturer recommend protection of material from direct sunlight? Yee	
Does manufacturer recommend protection of material from direct sunlight? Yes	
Memo 3rd Grom

FLORENE DAVIDSON ADMINISTRATIVE SECRETARY To Called in by Charles Joy 8/13/81

Corona Oil Company Steam Enhanced Recovery Project Newkirk East

NE/4 NW/4

17-11N-26E Guadalupe County

OIL CONSERVATION COMMISSION-SANTA FE

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	STAT	TE OF NEW MEXICO	
		MINERALS DEPARTMENT	
		SERVATION DIVISION	
		LAND OFFICE BLDG.	
		FE, NEW MEXICO	
		September 1981	
	EXAN	MINER HEARING	
IN THE MATT	ER OF:		
		_	
	Application of	f Corona Oil Company	CASE
-	for a pilot ste	eas-enhanced oil	
· · · · · · · · · · · · · · · · · · ·		ct, Guadalupe County,	7354
	New Mexico.		
ار. موجوع است منتقد العام المنتقد المحمد المحمد الم	a magana a sa	a and a second secon	
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BEFORE: Di	ichard L. Stamets		
	round a ne oranie co	2	
	TRANSC	RIPT OF HEARING	
	APPE	CARANCES	
	_		
	Conservation	W. Perry Pearce, E	
Division:		Legal Counsel to t	
		State Land Office	
		Santa Fe, New Mexi	LUCIS 00.
Day the De-	licont.		
For the App	llcant:		

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1	2
2	MR. STAMETS: The hearing will please
3	come to order.
4	We'll call first case 7354.
5	MR. PEARCE: Application of Corona Oil
6	Company for a pilot steam enhanced recovery project, Guadalupe
.7	County, New Mexico.
	MR. STAMETS: At the request of the
9	applicant this case will be continued till the October 7th
10	Examiner Hearing.
11	
12	(Hearing concluded.)
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CERTIFICATE I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conserva-tion Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of ability. Energier Bogd Cor I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. hearthy sie on 19.81 Examiner Oil Conservation Division 

1 1 2 STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT 3 OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG. 4 SANTA FE, NEW MEXICO 23 September 1981 5 EXAMINER HEARING б 7 IN THE MATTER OF: 8 Application of Corona Oil Company for a pilot steam-enhanced oil CASE 9 recovery project, Guadalupe County, 7354 New Mexico. 10 11 12 13 BEFORE: Richard L. Stamets 14 15 TRANSCRIPT OF HEARING 16 17 A P P E A R A N C E S 18 W. Perry Pearce, Esq. For the Oil Conservation 19 Legal Counsel to the Division Division: State Land Office Bldg. 20 Santa Fe, New Mexico 87501 21 22 For the Applicant: 23 24 25

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2		MR. STAMETS: The hearing will please
3 4 5 6 7 8 9	Com	we'll call first case 7354. MR. PEARCE: Application of Corona Oil MR. PEARCE: Application of Corona Oil many for a pilot steam enhanced recovery project, Guadalupe onty, New Maxico. MR. STAMETS: At the request of the MR. STAMETS: At the request of the plicant this case will be continued till the October 7th
10		caminer Hearing.
11 12 1	3	(Hearing concluded.)
•	14 15 16 17	
	18 19 20	
	21 22 23	
	24 25	

CERTIFICATE I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conserva-tion Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of ability. Snew 101. Boyd COR I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. heard by me on\_\_\_\_\_19 , Examiner Oil Conservation Division 



CHARLES C. JOY

702 Hermosa Dr. Artesia, New Mexico 88210

Phone SERVATION DIVISION (505) 746-2480

August 17, 1981

Oil Conservation Division Attn: Florene Davidson P. O. Box 2068 Santa Fe, New Mexico 87501

> Re: Pilot Steam Enhanced Oil Recovery Project Guadalupe Co., N. M.

Case 7354

Dear Ms. Davidson:

A hearing for approval to conduct a Pilot Steam Enhanced Oil Recovery (EOR) project is requested for September 23, 1981, on behalf of Corona Oil Co., 4835 LBJ Freeway, Suite 635, Dallas, Texas, 75234.

Project will be located in NE/4 NW/4 of Section 17-TILN-R26E. Corona plans to use two existing wells and drill three additional wells to complete a five spot pattern. Steam will be injected into sandstones of the Santa Rosa formation of Triassic age.

Sincerely,

charles & Joy

Charles C. Joy

CCJ:jj

cc: Paul Creson, President, Corona Oil Dave Martin, PRRC, Socorro, N. M. George L. Scctt, Roswell, N. M. Dockets Nos. 33-81 and 34-81 are tentatively set for October 21 and November 4, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - MONDAY - OCTOBER 5, 1981

OIL CONSERVATION COMMISSION - 9 A.M. Poom 205, state land office building, Santa FE, New Mexico

CASE 7372: Application of Navajo Refining Company for a determination of preference to purchase state royalty oil pursuant to Section 19-10-68, NMSA, 1978.

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Docket No. 32-81

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 7, 1981

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

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

- <u>CASE 7363:</u> Application of Gulf Oil Corporation for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the East White Ranch Unit Area, comprising 1920 acres, more or less, of Federal lands in Township 13 South, Range 30 East.
- CASE 7364: Application of Gulf Cil Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the East Chosa Draw Unit Area comprising 5120 acres, more or less, of Federal and State lands in Township 25 South, Range 25 East.

<u>CASE 7365</u>: Application of Yates Petroleum Corporation for the amendment of Order R-6406, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-6406, to permit recompletion of its State "JM" No. 2 Well, drilled at an unorthodox Morrow location 660 feet from the South line and 660 feet from the East line of said Section 25, Township 18 South, Range 24 East, in any and all Wolfcamp and Pennsylvanian pays in said well.

CASE 7354: (Continued from the September 23, 1981, Examiner Hearing)

Application of Corona Oil Company, for a pilot steam-enhanced oil recovery project, Guadalupe County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot steam-enhanced oil recovery project in the Santa Rosa formation by using two existing wells and three additional wells to be drilled to complete a five spot pattern located in the NE/4 NW/4 of Section 17, Township 11 North,

CASE 7359: (Continued from the September 23, 1981 Examiner Hearing)

Range 26 East.

Application of Energy Reserves Group for creation of a new gas pool and an unorthodox location, Roosevelt County, New Mexico.

Applicant, in the above-styled cause, seeks creation of a new Cisco gas pool for its Miller Com Well No. 1, located in Unit M of Section 12, Township 6 South, Range 33 East.

Applicant further seeks approval of an unorthodox location for its Miller "A" Well No. 1-Y, to be drilled 1800 feet from the South line and 1700 feet from the East line of Section 11 of the same township. The S/2 of said Section 11 to be dedicated to the well.

<u>CASE 7366</u>: Application of Read & Stevens, Inc., for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Strawn, Atoka and Morrow formations underlying the W/2 of Section 19, Township 23 South, Range 28 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7367: Application of Anadarko Production Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause; seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the N/2 of Section 12, Township 19 South, Range 25 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well. CASE 7368: Application of Doyle Hartman for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 1980 feet from the South line and 990 feet from the West line of Section 17, Township 24 South, Range 37 East, Jalmat Gas Pool, the S/2 of said Section 17 to be dedicated to the well.

<u>CASE 7369</u>: Application of Morris R. Antweil for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Blinebry and Drinkard formations underlying the NW/4 SE/4 of Section 8, Township 20 South, Range 38 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7370: Application of Southland Royalty Company for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pictured Cliffs and Fruitland formations, East Blanco Field, underlying the NW/4 of Section 35, Township 30 North, Range 4 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

#### CASE 7023: (Reopened and Readvertised)

In the matter of case 7023 being reopened pursuant to the provisions of Order No. R-6489, which order created the Stingray-Pennsylvanian Pool and promulgated special rules therefor, including provision for 80-acre spacing. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 7347: (Continued and Readvertised)

Application of Tenneco Oil Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause. seeks approval for the unorthodox Pennsylvanian location of a well to be drilled 660 feet from the South line and 860 feet from the West line of Section 20, Township 16 South, Range 34 East, Kemnitz Field, the W/2 of said Section 20 to be dedicated to the well.

CASE 7371: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, redesignating, extending vertical limits, and contracting and extending horizontal limits of certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico.

(a) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Antelope Ridge-Wolfcamp Pool. The discovery well is Coquina Oil Corporation Alexander Well No. 1 located in Unit G of Section 10, Township 24 South, Range 34 East, NMPM. Said pool would comprise:

## TOWNSHIP 24 SOUTH, RANGE 34 EAST, NMPH Section 10: NE/4

(b) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Bone Spring production and designated as the Brinninstool-Bone Spring Pool. The discovery well is Amoco Production Company State IK Well No. 1 located in Unit C of Section 10, Township 23 South, Range 33 East, NMPM. Said pool would comprise:

#### TOWNSHIP 23 SOUTH, RANGE 33 EAST, NMPM Section 10: NW/4

(c) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Brinninstool-Wolfcamp Pool. The discovery well is Amoco Production Company Federal H Well No. 1 located in Unit L of Section 26, Township 23 South, Range 33 East, NMPM. Said pool would comprise:

> TOWNSHIP 23 SOUTH, RANGE 33 EAST, NMY 1 Section 26: SW/4

(d) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the Collins Ranch-Wolfcamp Gas Pool. The discovery well is the Yates Petroleum Corporation State DF Well No. 1 located in Unit D of Section 35, Township 17 South, Range 24 East, NMPM. Said pool would comprise:

> TOWNSHIP 17 SOUTH, RANGE 24 EAST, NMPM Section 35: N/2

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(e) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the Fairview Mills-Atoka Gas Pool. The discovery well is the Enserch Exploration, Inc. T. G. Bates Well No. 1 located in Unit G of Section 14, Township 25 South, Range 34 East, NMPM. Said pool would comprise:

#### TOWNSHIP 25 SOUTH, RANGE 34 EAST, NMPM Section 14: N/2

(f) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Gen-Wolfcamp Pool. The discovery well is the Amoco Production Company Federal AW Well No. 1 located in Unit E of Section 26, Township 19 South, Range 32 East, NMPM. Said pool would comprise:

> TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM Section 26: NW/4

(g) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Tubb production and designated as the Hardy-Tubb Pool. The discovery well is the Conoco Inc. State F Well No. 10 located in Unit V of Section 1, Township 21 South, Range 36 East, NMPM. Said pool would comprise:

## TONNISHIP 21 SOUTH, RANGE 36 EAST, NHPH Section 1: SW/4

(h) CREATE a new pool in Chaves County, New Mexico, classified as a gas pool for Upper Pennsylvanian production and designated as the Moriah-Upper Pennsylvanian Gas Pool. The discovery well is the Tom 1. Ingram Moriah Well No. 2 located in Unit J of Section 7. Township 10 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 10 SOUTH, RANGE 29 EAST, NMPM Section 7: S/2

(i) CREATE a new pool in Chaves County, New Mexico, classified as a gas pool for Atoka production and designated as the Moriah-Atoka Gas Pool. The discovery well is the Tom L. Ingram Moriah Well No. 1 located in Unit J of Section 7, Township 10 South, Range 29 East, NMPN. Said pool would comprise:

#### TONNSHIP 10 SOUTH, RANGE 29 EAST, NMPM Section 7: S/2

(j) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Queen production and designated as the West Reeves-Queen Gas Pool. The discovery well is the Collier Energy, Inc. Mesa State Well No. 1 located in Unit F of Section 20, Township 18 South, Range 35 East, NMPM. Said pool would comprise:

> TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM Section 20: NW/4

(k) CONTRACT the Cato-San Andres Pool in Chaves County, New Mexico, by the deletion of the following described area:

TOWNSHIP 8 SOUTH, FANGE 31 EAST, NMPM Section 5: NW/4 SW/4

(1) CONTRACT the East Weir-Blinebry Pool in Lea County, New Mexico, by the deletion of the following described area:

> TOWNSHIP 20 SOUTH, RANGE 38 EAST, NMPH Section 7: N/2 N/2 Section 8: N/2 H/2 Section 9: W/2 NW/4

(m) EXTEND the vertical limits of the Cave-Grayburg Pool in Eddy County, New Mexico, to include the San Andres formation and redesignate said pool as the Cave-Grayburg-San Andres Pool.

(n) EXTEND the Antelope Sink-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 24 EAST, NMPM Section 33: S/2

TOWNSHIP 19 SOUTH, RANGE 24 EAST, NMPM Section 4: E/2

(o) EXTEND the Atoka-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAS1, NMPM Section 27: S/2 NE/4, S/2 NW/4, N/2 SE/4 and N/2 SW/4

(p) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TONNISHIP 13 SOUTH, RANGE 32 EAST, NAPH Section 23: SW/4

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

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM Section 16: SW/4

(r) EXTEND the Boyd-Morrow Gas Pool in Eddy County, New Mexico to include therein:

TONNISHIP 18 SOUTH, RANGE 25 EAST, NMPM Section 34: W/2

(s) EXTEND the Bull's Eye-Sar Andres Pool in Chaves County, New Naxico , to include therein:

TONNISHIP 8 SOUTH, RANGE 28 EAST, NMPM Section 12: NE/4 SM/4 and E/2 NM/4

(t) EXTEND the East Crossroads-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIF 10 SOUTH, RANGE 37 EAST, NMPM Section 7: All

(u) EXTEND the Crow Flats-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TONNSHIP 16 SOUTH, RANGE 27 EAST, NMPM Section 25: E/2 Section 36: E/2

(v) EXTEND the Culebra Bluff-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM Section 15: W/2

(w) EXTEND the South Culebra Bluff-Bone Spring Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM Section 27: N/2 SE/4

(x) EXTEND the D-K Abo pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 39 EAST, NMPM Section 31: NW/4

(y) EXTEND the Happy Valley-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 26 EAST, NMPM Section 16: E/2 Section 20: N/2

(z) EXTEND the East Hightower-Upper Pennsylvanian Pool in Lea County, New Mexico to include therein:

TOWNSHIP 12 SOUTH, RANGE 34 EAST, NMPM Section 31: NE/4 and E/2 NW/4

(aa) EXTEND the Imperial-Tubb Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM Section 27: NW/4 (bb) EXTEND the Jalmat-Yates-Seven Rivers Pool in Lea County, New Mexico to include therein:

TOWNSHIP 22 SOUTH, RANGE 35 EAST, NMPM Section 15: NE/4

(cc) EXTEND the Kemnitz-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NHPH Section 9: N/2

(dd) EXTEND the Linda-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPH Section 29: NW/4

(ee) EXTEND the North Loving-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, PANGE 28 EAST, NHPM Section 5: S/2 Section 8: N/2 Section 9: W/2

(ff) EXTERIO the Northeast Lovington-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TURNSHIP 16 COUTH, RANCE 37 EAST, NMPM Section 18: NM/4

(gg) EXTEND the Malaga-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 28 EAST, NMPM Section 15: N/2

(hh) EXTEND the Midway-Devonian Pool in Lea County, New Mexico, to include therein:

TONNSHIP 17 SOUTH, RANGE 37 EAST, NMPM Section 8: NW/4

(ii) EXTEND the West Milnesand-San Andres Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 34 EAST, NMPM Section 17: SE/4

(jj) EXTEND the Penasco Draw-San Andres-Yeso Associated Pool in Eddy County. New Mexico to include therein:

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM Section 32: S/2 NE/4 and SE/4 Section 33: S/2 NW/4 and SW/4 TOWNSHIP 19 SOUTH, RANGE 25 EAST, NMPM

TOWNSHIP 19 SOUTH, RANGE 25 EAST, NMPM Section 4: NW/4 Section 5: N/2 NE/4 and SE/4 NE/4

(kk) EXTEND the Quail Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 34 EAST, NMPM Section 19: N/2

(11) EXTEND THE Querecho Plains-Lower Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, PANCE 32 EAST, NMPM Section 28: S/2

(mmn) EXTEND the Rocky Arroyo-Wolfcamp Cas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, WANGE 22 EAST, NMPM Section 9: SW/4 Section 16: NW/4 Page 6 Examiner Hearing - Wednesday - October 7, 1981.

(nn) EXTEND the South Salt Lake-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 32 EAST, NMPM Section 7: E/2 Section 18: N/2

(00) EXTEND the West Sand Dunes-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM Section 32: N/2

(pp) REDESIGNATE the Sand Ranch-Atoka Gas Fool in Chaves County, New Mexico, to the Sand Ranch-Morrow Gas Pool, as said pool is producing from the Morrow formation rather than the Atoka, and EXTEND the horizontal limits of said pool to include therein:

> TOWNSHIP 10 SOUTH, RANGE 29 EAST, NMPM Section 14: 5/2

(qq) EXTEND the San Simon-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TONNEHIP 22 SOUTH, RANGE 35 EAST, NHPM Section 6: SE/4 Section 7: E/2

(rr) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 38 EAST, NMPM Section 7: SW/4

(ss) EXTEND the Spencer-San Andres Pool in Les County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 36 EAST, NMPM Section 23: SE/4

tt) EXTEND the Tomahawk-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM Section 36: NW/4

(uu) EXTEND the Tom-Tom-San Andres Pool in Chaves County, New Mexico, to include therein:

 TOWNSHIP 8 SOUTH, RANGE 31 EAST, NMPM

 Section 5:
 S/2 SW/4

 Section 8:
 N/2 NW/4

and the second second

(vv) EXTEND the Tonto-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NMPM Section 27: E/2

(ww) EXTEND the Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM Section 3: S/2

(xx) EXTEND the Wantz-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM Section 10: NE/4

(yy) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM Section 10: NE/4

# Case 7254

9-23-81

Chas for notified these locations can not be approved without hearing. ( See Kule 104 - B, III and 104-C, I.) These are only 165' between welle - need 330'. # 1 # #3 approved abready. He was advised to bring it up at hearing on 10/1/81 - Care 7354

# OIL CONSERVATION DIVISION

STATE OF NEW MEXICO

# P. 0. 80X 2068 SANTA FE, NEW MEXICO 87501

Form C-102 Revised 10-1-78

		All distant	ces must be f		ter houndaries o	of the Section	l.		
perator				Lease				Well No.	
C Sect	ion 17	Township //	- N	Rang	1• 26-E	County	radaliy		
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Memo

From R. L. STAMETS Technical

Support Chief

Jo Florence Send copy of Oct 7 Ducket to

Cherles Do y Box 1256

Artesia, NM 88211-1256

Wants Cose 7354 continuied to Oct 7 hearing.

Docket No. 29-81

Dockets Nos. 31-81 and 32-81 are tentatively set is October 7, and October 21, 1981. Applications for hearing orma date. must be filed at least 22 days it a mance of

IX CYST: EXAMINER REASONS - WELV SPAY -SEPTEMBER 23, 1981

9 A.M. - CIL CONSERVATION DIVISION 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:

CASE 7353: Application of Texaco, Inc., for the amendment of Division Order No. R-5530, Les County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5530, which authorized its Central Vacuum Unit Area Pressure Maintenace Project, to increase the total project area allowable, or as an alternative, to reclassify the project as a waterflood project.

Applicant, in the above-styled cause, seeks authority to institute a pilot steam-enhanced oil recovery project in the Santa Rosa formation by using two existing wells and three additional wells to be drilled to complete a five spot pattern located in the NE/4 HW/4 of Section 17, Township 11 North, Range 26 East.

\_7355: Application of Doyle Hartman for directional drilling and an unorthodox location, Lea County, New Mexico. CASE Applicant, in the above-styled cause, seeks authority to drill his Bates Well No. 3, the surface location of which is 1635 feet from the South line and 1210 feet from the Nest line of Section 20, Township 25 South, Range 37 East, in such a manner as to bottom it at a depth of 3500 feet in the Jalmat Gas Pool at an unorthodox location 2310 feet from the South line and 1650 feet from the West line of Section 20. The SN/4 of said Section 20 would be dedicated to the well.

- CASE 7356: Application of S & I Oil Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the N/2 SW/4 of Section 12, Township 29 North, Range 15 West, Cha Cha-Gallup Oil Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 7357: Application of Union Oil Company of California for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Atoka and Morrow formations underlying the W/2 of Section 16, Township 22 South, Range 33 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7343: (Continued from September 9, 1981, Examiner Hearing)

Application of Caribou Four Corners, Inc. for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Cha Cha Gallup Oil Pool underlying the E/2 NW/4 of Section 18, Township 29 North, Range 14 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7358: Application of John Yuronka for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Langley Mattix Pool underlying the SW/4 of Section 6, Township 23 South, Range 37 East, to form four 40acre tracts, each to be dedicated to a well to be drilled at a standard location thereon. 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, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.

ASE 7354: Application of Corona Oil Company, for a pilot steam-enhanced oil recovery project, Guadalupe County, New Mexico.

Page 2 Examiner Hearing - Wednesday - September 23, 1981

CASE 7359: Application of Energy Reserves Group for creation of a new gas pool and an unorthodox location, Roosevelt County, New Mexico.

> Applicant, in the above-styled cause, seeks creation of a new Cisco gas pool for its Miller Com Well No. 1, located in Unit M of Section 12, Township & South, Range 33 East.

Applicant further seeks approval of un unorthodox location for its Miller "A" Well No. 1-Y, to be drilled 1800 feet from the South line and 1700 feet from the East line of Section 11 of the same township. The S/2 of said Section 11 to be designed to the well.

#### CASE 7345: (Continued from September 9, 1981, Examiner Hearing)

Application of Bass Enterprises Production Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Lovington Penn Pool underlying the N/2 NE/4 of Section 13, Township 16 South, Range 36 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

#### CASE 7360: Application of L. J. Buck for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause seeks authority to dispose of produced salt water into the wen Rivers formation in the interval from 3221 feet to 3250 feet in his Monco Well No. 2 in Unit M of Section 25, Township 25 South, Range 36 East.

#### CASE 7352: (Continued from September 9, 1981 Examiner Hearing)

Application of Yates Petroleum Corporation for designation of a tight formation, Eddy County, New Maxico. Applicant. in the above-styled cause, pursuant to Section 107 of the Natural Gas Policy Act 19-CFR Section 271.701-705, seeks the designation as a tight formation of the Permo-Penn and formation underlying all of the following townships:

> Township 17 South, Ranges 24 thru 26 Bast: 18 South, 24 and 25 East; 19 South, 23 thru 25 East; 20 South, 21 thru 24 East; 201 South, 21 and 22 East: 21 South, 21 and 22 East; Also Sections 1 thru 12 in 22 South, 21 and 22 East,

All of the above containing a total of 315,000 acres more or less.

#### CASE 7329: (Readvertised)

Application of Loco Hills Water Disposal Company for an exception to Order No. R-3221, Eddy County, New Mexico

Applicant, in the above-styled cause, seeks an exception to Order No. R-3221 to permit the commercial disposal of produced brine into several unlined surface pits located in the N/2 SW/4 SW/4 of Section 16, Township 17 South, Range 30 East.

This Nos. 31-91 and 12-91 are contrologic for October 7, and October 3, 1981. Applications for hearing ŗ, motorie filed at least in the sub-section of the arms date.

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# 7116: (DE NOVO)

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CASE

Application of Southland Royalty Company for designation of a tight formation, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Dakota formation underlying portions of Township 31 and 32 North, Ranges 10, 11, 12, and 13 west, containing 93,860 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

Docket No. 30-81

Upon application of Consolid>ted Oil & Gas, Inc., this case will be heard De Novo pursuant to the provisions of Rule 1220.

CHER 7361: Application of Southland Boyalty Company for designation of a tight formation, San Juan County, New Maxico. Applicant, in the above-styled cause, seeks the designation of the Dakota formation underlying all or portions of Township 31 North, Ranges 10 and 11 West, and Township 32 North, Ranges 10, 11, 12, and 13 West, containing 92,871 acres more or less, as a tight formation gurement to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271. 701-705.

Application of R. A. Mendénhall Associates, Ltd., for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Delaware Mountain Group formation underlying the NM/4 SE/4 of Section 10, Township 22 South, Range 27 East, 7362: to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

# STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

> CASE NO. 7354 Order No. R-6868

CORONA OIL COMPANY APPLICATION OF PUBLIC LANDS EXPLORATION, INC. FOR A PILOT STEAM ENHANCED OIL RECOVERY PROJECT, GUADALUPE COUNTY, NEW MEXICO.

# ORDER OF THE DIVISION

#### BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 7, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

day of January, 1982, the Division NOW, on this Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

# FINDS:

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

Corona Oil Company That the applicant, Public Lands Exploration, Inc. (2) seeks authority to institute a pilot steam enhanced oil recovery project on its Jeanne Lease, Undesignated Santa Rosa Pool, by the injection of approximately 150 barrels of water as steam into the "O'Connell Sand" zone of the Santa Rosa formation through its Jeanne Well No. 5 located approximately 800 feet from the North line and 2145 feet from the West line (in Unit C) of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

That the wells in the project area are incapable of (3) commercial production due to the low viscosity of the oil found in the pay sand and the lack of any significant natural drive mechanism.

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

-2-Case No. 7354 Order No. R-6868

(5) That the operator should take all steps necessary to ensure that the injected fluid 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.

(6) That the applicant shall take such steps as may be necessary to ensure that the operation of the steam injection project does not contaminate surface or subsurface waters or damage nearby properties.

(7) That the injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(8) That the applicant proposes to drill and complete four new wells as producers, all located, respectively, at orthodox and unorthodox locations within the NE/4 NW/4 of said Section 17 as follows:

Jeanne Lease Well No.

Well No.	Location
1	800 feet from the North line and 1980 feet from the East line
3	800 feet from the North line and 2310 feet from the East line
4	635 feet from the North line and 2145 feet from the East line
6	965 feet from the North line and 2145 feet from the East line

(9) That the applicant should submit monthly reports of injection volumes, pressures, temperatures and production in a form acceptable to the Division.

(10) That the subject application should be approved and the project should be governed by the provisions of this order and of Rules 702 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Public Lands Exploration, Inc., is hereby authorized to institute a pilot steam enhanced recovery -3-Case No. 7354 Order No. R-6868

project on its Jeanne Lease, Undesignated Santa Rosa Pool, by the injection of water into the "O'Connell Sand" zone of the Santa Rosa formation through its Jeanne Well No. 5 located approximately 800 feet from the North line and 2145 feet from the West line of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

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(2) That injection into said well shall be through internally coated tubing, set in a packer at approximately 660 feet; that the casing-tubing annulus of each injection well shall, at the option of the applicant, be loaded with an inert fluid and shall be equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Santa Fe District 4 office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or 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.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) That the applicant is further authorized to drill and complete four new wells as producers, all located, respectively, at orthodox and unorthodox locations within the NE/4 NW/4 of said Section as follows:

Jeanne Lease Well No.	 	 	Locat	ion				<u> </u>
1	feet East	the	North	line	and	1980	feet	from
3	feet East	the	North	line	and	2310	feet	from
4	feet East	the	North	line	and	2145	feet	from
6	feet East	the	North	line	and	2145	feet	from

-4-Case No. 7354 Order No. R-6868

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Corona Oil Company (6) That the subject project is hereby designated the Public Lands Emploration, Inc. Santa Rosa Enhanced Recovery Project and shall be governed by the provisions of Rules 702 through 708 of the Division Rules and Regulations.

(7) That the applicant shall operate said project in such a manner as to ensure against contamination of surface or subsurface waters or damage to nearby properties.

(8) That monthly progress reports of the project herein authorized shall be submitted to the Division in a form acceptable to the Division.

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

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

> STATE OF NEW MEXICO OIL CONSERVATION DIVISION

JOE D. RAMEY, Director

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# STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 73 Order No. R-

APPLICATION OF PUBLIC LANDS EXPLORATION, INC. FOR A PILOT STEAN ENHANCED OIL RECOVERY PROJECT, GUADALUPE COUNTY, NEW MEXICO.



# ORDER OF THE DIVISION

# BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 7, 198;, at Santa Fe, New Mexico, before Examiner Daniel S. Nation

NOW, on this \_\_\_\_\_\_ day of **December**, 1984, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Public Lands Exploration, Inc. seeks authority to institute a pilot steam enhanced oil recovery project on its Jeanne Lease, Undesignated Santa Rosa Pool, by the injection of approximately 15a barrels of water as steam into the "O'Connell Sand" zone of the Santa Rosa formation through its Jeanne Well No. 5 located approximately 800 feet from the North line and 2145 feet from the West line (in Unit C) of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

(3) That the wells in the project area are incapable of commercial production due to the low viscosity of the oil found in the pay sand and the lack of any significant natural drive mechanism.

-2-Case No. ... Order No. R-

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

(5) That the operator should take all steps necessary to ensure that the injected fluid 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.

(6) That the applicant shall take such steps as may be necessary to ensure that the operation of the steam injection project does not contaminate surface or subsurface waters or damage nearby properties.

(7) That the injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant. Must hold plocations

Jeanne Lease Well No.	Location
<b>.</b> †	<b>Some</b> feet from the North line and <b>MRO</b> feet from the East line
3	<b>See</b> feet from the North line and <b>ZND</b> feet from the East line
4. 4	635 feet from the North line and 2/45 feet from the East line
6	<b>465</b> feet from the North line and <b>2005</b> feet from the East line
. <sup>3</sup>	feet-from-the-North line andfeet-from-the

(9) That the applicant should submit monthly reports of injection volumes, pressures, temperatures and production in a form acceptable to the Division.

(10) That the subject application should be approved and the project should be governed by the provisions of this order and of Rules **702** Aroughend **103** of the Division Rules and Regulations.

-3-Case No. Order No. R-

# IT IS THEREFORE ORDERED:

(1) That the applicant, Public Lands Exploration, Inc., is hereby authorized to institute a pilot steam enhanced recovery project on its Jamme Lease, Undesignated Santa Rosa Pool, by the injection of water into the "O'Connell Sand" zone of the Santa Rosa formation through its Jamme Well No. 5. located approximately **See** feet from the North line and 2145 feet from the West line of Section 17, Township 11 North, Range 26 East, NMPM, Guadalupe County, New Mexico.

(2) That injection into said well shall be through internally coated tubing, set in a packer at approximately **(10)** feet; that the casing-tubing annulus of each injection well shall, at the option of the applicant, be loaded with an inert fluid and shall be equipped with an approved pressure gauge or attentionattracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Santa Fe District 4 office of the failure of the tubing or packer in the injection well, the leakage of water or oil from or 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.

(4) That the injection well herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 475 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

pressure will not result in fracturing of the confining strata. (5) That the applicant is further authorized to drill and complete four new wells as producers, recomplete two existing wells as producers, and to operate and observation well, all located, respectively, within the NE/4 NW/4 of said Section as follows:

ell No.		Location
<b>;</b> `	í :	<b>200</b> feet from the North line and <b>Figo</b> feet from t East line
-3	•	<b>800</b> feet from the North line and <b>2310</b> feet from to East line
4	·	<b>635</b> feet from the North line and <b>2145</b> feet from t East line

-4-Case No. 7 Order No. R- ivm

State Lease <u>Well No.</u>	Location
6	<b>945</b> feet from the North line and <b>ANS</b> feet from the East line
	-feet from the North Line and St. feet from the

(6) That the subject project is hereby designated the Public Lands Exploration, Inc. Santa Rosa Enhanced Recovery Project and shall be governed by the provisions of Rules 702. Wind 705 of the Division Rules and Regulations.

(7) That the applicant shall operate said project in such a manner as to ensure against contamination of surface or subsurface waters or damage to nearby properties.

(8) That monthly progress reports of the project herein authorized shall be submitted to the Division in a form acceptable to the Division.

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

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

STATE OF NEW MEXICO OIL CONSERVATION DIVISION JOE D. RAMEY Director

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