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3	EXHIBITS	
4		
5	Sage Exhibit One, Map	5
6	Sage Exhibit Two, Summary	٠
,	Sage Exhibit two, Summary	5
7	Sage Exhibit Three, Schematics	6
8	Sage Exhibit Four, Diagrammatic Sketch	6
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22 23		
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1 2 MR. STAMETS: We'll call next Case 3 7738. MR. PEARCE: That case is on the 5 application of Sage Oil Company for salt water disposal, Lea 6 County, New Mexico. 7 MR. KILPATRIC: Mr. Examiner, my 8 name is Gary Kilpatric, from the law firm of Montgomery and 9 Andrews, P. A., here in Santa Fe, and we're representing Sage 10 Oil Company, and I have one witness, John Malloy. 11 MR. STAMETS: Are there other ap-12 pearances in this case? 13 MR. KELLAHIN: Mr. Examiner, I'm 14 Tom Kellahin of Santa Fe, New Mexico, appearing in association 15 with Mr. J. W. Neal on behalf of John E. Etcheverry. 16 E-T-C-H-E-V-E-R-R-Y. 17 Mr. Etcheverry is the lessee of the grazing 18 lease at the surface where the proposed disposal well is 19 located. 20 Mr. Neal has suffered a heart attack and is 21 unable to attend the hearing today, and I've consented to ap-22 pear on behalf of Mr. Etcheverry.

24 ness?

23

25

MR. KELLAHIN: I don't believe so.

MR. STAMETS: Will you have a wit-

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. 1.
    the witness' qualifications acceptable?
2
                               MR. STAMETS:
                                             They are.
 3
                     Are you familiar with Case Number 7738 now
    pending before the Division?
5
                       Yes, I am.
6
                     Would you summarize for us what the purpose
7
    of Sage Oil Company's application in this case is?
8
                       Sage seeks authority to dispose of salt water
9
    into a zone nonproductive of oil and gas; water they desire
10
    to dispose of comes from their production in the Saunders
11
    Permo-Penn Field, located approximately three miles, two and
12
    a half, three miles west in Section 35, Township 14, Range 33,
13
    Lea County, New Mexico.
14
                      Have you prepared a map that identifies all
15
    the wells and leases within two miles of the proposed injection
16
    well and with a half mile radius circle drawn around the pro-
17
    posed injection well?
18
19
                       Yes, I have.
20
                       If I may hand you what's been marked as
    Exhibit Number One and ask if you can identify that?
21
                       Yes, that's the map prepared by me.
22
                       Now I hand you two documents stapled to-
23
    gether and marked for identification as Exhibit Two, and ask
24
25
    you to identify that.
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A. That is a tubular summary indicating the two wells located within the half mile radius of the proposed injection well, showing their, all of their casing and cementing status.

Q. Mr. Mulloy, next I am handing you a stapled collection of two documents marked for identification as Sage Exhibit Number Three, and ask if you can identify those?

A. Yes, those are schematics of the same information that's shown on Exhibit Two of the two wells in the half mile radius of the proposed injection well.

0. Mr. Mulloy, next I am handing you what has been marked for identification as Sage Exhibit Number Four and ask you to identify that, please.

A. That is a diagrammatic sketch of the proposed injection well, showing its current, or its existing condition with the plugs and casing as left as of abandonment.

Q. I now hand you what has been marked for identification as Sage Oil Exhibit Five and ask you to identify this document.

A. This is a diagrammatic sketch of the proposed completion of the salt water disposal well, indicating that the surface plug and the plug at the shoe and -- will be drilled out and the well completed open hole from 4475 to 5895 with a Baker tension packer set at approximately 4400

2 feet. Injection will be through 2-7/8ths or perhaps 3-inch
3 plastic coated tubing.

Q. Next I hand you what has been marked for identification as Sage Oil Company Exhibit Number Six and ask you to identify and describe that.

A. This is a well log of the proposed injection well. It shows the open hole at the proposed injection -- at the proposed injection zone, which is from approximately 4475 feet to 5970 feet in the San Andres formation.

The San Andres formation is a limestone dolomitic section of Middle Permian age. It is overlain -- overlaid by the Grayburg formation and overlays the Glorieta formation. The top occurs at a depth of approximately 4436 and the proposed well then extends down to 5970 for an overall thickness of 1534 feet. The maximum porosity is approximately 20 percent and occurs from approximately 5340 feet to 5400 feet.

basis from shallow, tertiary sands that do not occur below a depth of 5-600 feet. Brackish and highly mineralized water could possibly occur from an approximate depth of 2000 feet in the Santa Rosa formation, Triassic age, but would not be suitable for domestic use.

There are no fresh water zones underlying

the proposed injection well.

Next let me hand you what's been marked for identification as Sage Exhibit Number Seven. It's three documents stapled together, and ask you to identify those documents.

17 (

A. One is titled Typical Water Analysis, San Andres Formation, Lea County, New Mexico, which was taken at random from a sampling of San Andres water in the area.

Number -- the second one is marked C & K

Lease New Mexico, and is a water analysis of a portion of the

proposed injection water, as is the third one from the Hobbs

"O" Lease, showing the analysis of the proposed injection water.

What is the proposed average and maximum daily rate in volume of the water proposed to be injected?

A. We propose an average of approximately 2000 barrels of water a day, which is the current production from the wells previously mentioned. It is not anticipated that this would exceed 3000 barrels of water a day.

Q. And what is the proposed average and maximum injection pressure?

A. Based on tests of other -- injection tests of other wells in the area, it is not anticipated that an average pressure would exceed 100 psi; perhaps a maximum of 400 psi.

<u> </u>	·
2	Q. Do you have a proposed stimulation program
3	for the proposed well and, if so, what is that program?
4	A. Our initial proposal would be a small acid
5	treatment of 200 or 2500 gallons of 15 percent acid. If
6 ,	the desired results were not obtained from that treatment,
7	then additional treatment made.
8	Q. Next let me hand you what has been marked
9	for identification as Sage Oil Exhibit Number Eight and ask
10	you to identify that.
11	A. Yes. That is a water analysis from a wind-
12	mill located approximately one mile northeast of the proposed
13	injection well. The depth of this windmill was not available.
14	Q. And when were the samples taken?
15	A. This sample was taken recently, October 16th
16	1982.
17	Q Have you examined the available geologic
18	and engineering data to determine whether there is any evidence
19	of open faults or any other hydrologic connection between the
20	disposal zone and any underground sources of drinking water?
21	A. Yes, I have.
22	Q. And what was the result of that examination?
23	A. I found that none exist.
24	Q. Next I'd like to hand you what's been
25	marked as Exhibit Nine, which is a series of documents, and

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2	ask if you can identify that?
3	A. These are waivers notices to offset opera-
4.	tors and to surface land owner, requesting waiver of objection
5	to injection of water into this well.
6	0. And did when you sent those notices were
7	copies of your application in this case enclosed, included?
8	A. Yes, they were.
9	0. Mr. Mulloy, in your opinion will the grantin
10	of this application be in the interest of the prevention of
11	waste and the protection of correlative rights?
12	A. Very much so. At the present time the wells
13	from which the produced water has been produced are shut in.
14	Their average daily production prior to shutting in was ap-
15	proximately 100 to 120 barrels per day.
16	Q. Are those wells located on State leases?
17 .	A. Yes, they are.
18	Q. Mr. Mulloy, were Exhibits One through Nine
19	prepared by you or under your supervision?
20	A. Yes, they were.
21	MR. KILPATRIC: Mr. Examiner, at
22	this time I'd move admission of Exhibits One through Nine.
23	MR. STAMETS: These exhibits will
24	be admitted.
25	MR. KILPATRIC: I have no further

1 2 questions on direct. 3 MR. STAMETS: Are there questions of Mr. Mulloy? 5 MR. KELLAHIN: Yes, Mr. Stamets. 6 7 CROSS EXAMINATION 8 BY MR. KELLAHIN: 9 Mr. Mulloy, I'd like to direct your atten-10 tion to your map of this area. Was that introduced as an 11 exhibit? 12 Yes, it was. A. 13 Is that Number One? 0. 14 Yes, sir. 15 MR. KILPATRIC: One, yes. 16 You identified that the produced salt water 17 you want to dispose of in the subject well is produced from 18 a field that lies to the west in, I think you said, Section 19 35? 20 I believe that's correct. 21 That's the section just off of this map? 22 Yes, sir. 23 Is that correct? How many wells are in the 24 Saunder Penrose -- Permo-Upper Penn Field? 25 Oh, I'm not sure. There's several.

wells would be hooked up into the disposal system for this

25

disposal well?

What's the cumulative production from those

24

25

months at this time, I believe.

14 1 wells, each of those wells? I have no idea. 3 Prior to having each of these wells shut-in, was water being produced in association with the oil? 5 Yes. In these wells? Yes. 8 What was being done with that water? 0. It was being put into a disposal system in 10 the area that became overloaded. 11 Who operated that disposal system, Mr. Mulloy? 12 I'm not sure. 13 It's your understanding that that disposal 14 system couldn't handle the additional water produced from 15 these two wells? 16 These wells were going into the system on 17 a day to day basis, and it became overloaded and the operator 18 of the system shut -- shut the injection from these wells off. 19 Where was the disposal well for that disposal 20 system located? 21 .It's in the area of the -- of these two 22 23 wells.

Somewhere in Section 35?

I'm not sure it's in Section 35. It's with-

24

25

0.

Α.

1	15
2	in a couple of miles of the well.
3	Q. Apart from the two wells operated by Sage
4	Oil Company that will be hooked up ; with the disposal system,
5	there are other operators in the area producing salt water?
6	A. Yes, there are.
7	Q And what are those other operators doing
8	with their produced water?
9	A. Well, some of them are going into their
10	own systems. Some of them are hauling it. Some of them are
11	looking for a disposal system to put it in. Upon receipt of
12	the application by Elk Oil Company, they immediately called
13	and asked for permission to join the system.
14	Q. I'm sorry, I'm confused. Elk Oil Company?
15	A. They're one of the offset operators.
16	Q. And Sage attempted to join the Elk Oil Com-
17	pany system?
18	A. No, no. Elk has asked to join this system,
19	this proposed system.
20	O. All right, how many wells would Elk then
21	contribute
22	A. I have no idea.
23	0 to the system?
24	A. I have no idea.
25	Q. Have you examined to determine whether there

16 1 2 are any other plugged and abandoned wells that are closer than the proposed location --. A. Yes, I have. -- to determine if it's suitable? 0. Yes, I have. A. 7 And what have you examined, Mr. Mulloy? 0. 8 I found that there are numerous plugged and abandoned wells that are in the area. One well has already 10 been attempted to be re-entered and it was not possible to 11 get back into the cutooff 8-5/8ths surface casing, and this 12 well was selected for the reason that the 8-5/8ths is still 13 in existence, still in the well. Sage examined another plugged and abandoned 14 15 well? 16 Yes, sir. **17** And where was that well? 18 I believe it was in Section -- pardon me 19 while I get a map. 20 It would have been the well located in Sec-21 tion 35, 14, 33, Unit letter B. 22 I see a number of abandoned wells in -- at 23 least two abandoned wells in Section 31 on the map. Did you 24 examine either one of those to determine if they were suitable 25 for disposal purposes?

1			17
2	А.	In Section 31, yes, I did.	
3	Q	What did you find out about thos	se wells?
4	А.	All the pipe has been cut off at	a depth
5	of approximately	12 to 1500 feet, which is in the	Redbeds and
6	it makes it very	difficult to re-enter.	
7	Q.	Did you examine to determine who	ether it was
8 .	feasible to truc	k the produced water	
9	A.	Yes.	
10	0	into a disposal facility?	
11	Α.	Yes.	
12	Q.	And what did you discover?	•
13	A.	Just about a break even situation	on.
14	Q.	Where is the nearest disposal fa	acility that
15	the produced wat	er is trucked to?	
16	A.	I'm not sure. When you put it	in a truck
17	you don't really	care where they take it. It's up	
• •			•
18		Did you what was the price pe	er parrer
19	of produced salt	water to be trucked?	
20	Α.	It varied, anywhere from \$1.00 a	and up.
21	Q.	Have you examined the possibilit	y or the
22	feasibility of h	aving the produced water reinjecte	ed in the
23	Saunders Field t	o the south?	
24	А.	. I would anticipate more objection	ons to that
25	than we got from		
	I CLICIL WG GOL LIUE	• • • • • • • • • • • • • • • • • • •	

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2	Q. Is there a possiblity to enterothrough aswat
3	flood project in the field?
4	A. No.
5	Q. Why not, Mr. Mulloy?
6	A. Water drive and there's already more water
7	there than you can produce.
8	Q. Would you have any objection if the order
9	entered would limit the use of this disposal well to produced
10	water from the Sage Oil Company wells?
11	A. I would imagine they probably would.
12	Q. Why?
13	A. Because this would be a facility that could
14	be utilized possibly by other producers in the area and there
15	is not any reason to limit a system that will take, say, 5000
16	barrels a day to 2000 barrels of water a day with the ecolo-
17	gical efforts being made to get all the produced water pos-
18	sible below the ground.
19	Q. Upon what do you base your opinion that the
20	proposed disposal well will take that much water?
21	A. The San Andres has a reputation of taking
22	large volumes of water. There is a there is an injection
23 :	well previously already in existence just to the east,
24	and I'm not sure, let me see if I can see it on this map, of
25	the proposed well that takes fairly large quantities of water

1	19	
2	at almost no pressure.	
3	Q. In the San Andres?	
4	A. Yes.	
5	0. And can you identify approximately what sec	
6	tion that would be located in?	
7	A. Yes, well, I think maybe I can even find	
8	it. It's a Petro-Lewis well. I think it could be the well	
9	in I'm not sure, but I believe it's in Section 33.	
10	I can find out exactly from my notes that	
11.	are in my briefcase, if you so desire.	
12	Q. In making your investigation of wells in the	
13	half mile radius surrounding the proposed disposal well, Mr.	
14	Mulloy, you've indicated on your tabulation that you discovered	d
15	two wells.	
16	A. Yes, sir.	
17	Ω Did you find any others?	i l
18	A. No, sir.	
19	0. In the south half of Section32, right on the	
20	section line with Section 5, there's a dot. Does that mean	
21	anything or is that	
22	A. I think that's courtesy of Xerox Corporation.	•,
23	0 That's not the indication of any well?	
24	A. Not according to the New Mexico Oil Conser-	
25	vation records.	

20 1 If you would turn, sir, to your Exhibit Q. 2 Number Three where you show a diagrammatic sketch of the Sage 3 State Well No. 2. 4 Exhibit Three? A. 5 I believe that's correct. There are two 6 parts to Exhibit Three? 7 Yes. 8 Would you identify for us whether this 5-1/2inch, I guess that's an intermediate casing string, has any 10 cement outside? 11 You're referring to the proposed or the --12 No, sir, this is the secit's not either the 13 proposed or --14 Are you referring -- are you referring to 15 the immediate well or to the Sage Energy Well? 16 Sage Energy Well is the State of New Mexico Q, 17 Well No. 2. 18 Does it have cement behind the pipe? 19 A. Yes, sir. 20 Q. Is that your question? 21 Yes, sir. 22 0. It does to a calculated top of 7200 feet; 23 above there it does not. 24 And then the 7-1/2 inch -- I'm sorry, it's 25 0.

1 21 2 the 12-3/4 inch casing string that has cement behind it down 3 to a depth of about 373 feet? Right. 5 And then the next cement top is the one that cements the 8-5/8ths inch intermediate casing string, and that 7 cement top is at 3500 feet. As calculated, yes. 9 And then at the base of that, the base of 10 that cement, then, is at the 4260? 11 Yes. A. 12 All right, sir. When was this well plugged 13 and abandoned, Mr. Mulloy? 14 This well was not plugged and abandoned. 15 It's producing well. 16 This is still a producing well? 17 The one that you were just asking about. 18 Yes, sir, and how about the next one, then? Q. 19 The next one is plugged and abandoned. 20 I'll have to refer to notes. It will take a minute until I 21 can find them. 22 Well, I'm sorry, I do not have that inform-23 It was -- it was plugged upon the drilling. It was 24 no completion attempt was ever made. 25 Let's look at Exhibit Four, if you please. Q.

23

24

No, sir, that was with the permission of

25

Mr. Ray Graham, State Land Office.

1	23
2	Q. You haven't commenced any tests on the well
3	to determine whether, in fact, it's still suitable for dis-
4	posal.
5	A. No.
6	Q. You identified a water analysis from a wind-
7	mill in the area. Would you show us on your Exhibit Number
8 .	One approximately where that windmill is located?
9	A. Well, it's a mile it's a mile northeast.
10	It would be in Section 28, somewhere in the southwest of the
11	southwest quarter, and that is not a survey estimate; that's
12	an estimate by the man that got the sample from the windmill.
13	Q HaVe you found the presence of any other
14	fresh water wells in the immediate area?
15	A. If they are there, they are not obvious to
16	the observer's eye. I'm not saying
17	Q. Did you make that observation or did you
18	have someone do that for you?
19	A. I had someone do it.
20	Q You said you'd found a number of plugged
21	and abandoned wells in Section 35 in the immediate area around
22	the field itself. Did you find any other plugged and abandoned
23	wells in the area of the field operated by any other operators
24	or in the possession of other operators that could be used
25	for disposal purposes?

there are numerous abandoned wells in the area to the east -I mean to the west and to the southwest, but as I said, it
was believed that since there was a more dense accumulation
of wells in the area, that there would possibly be more objection to disposal in that area. Also, as I said, we found
no well in that area that still had the 8-5/8ths casing at-

tached, which we felt was very important to the re-entering

Well, there's, as I stated previously,

MR. KELLAHIN: Thank you. I have nothing further.

CROSS EXAMINATION

BY MR. STAMETS:

of the well.

Mr. Mulloy, on the two exhibits which dealt with produced water quality, I saw quite a difference in the in that water. I presume it comes from two different formations?

A. No, sir, and I -- I really can't answer that question, either. I was aware of the difference in those two, the total dissolved solids, and they're basically from, both from the Permo-Penn and possibly it could have something to do with the -- with the way that the samples were taken, since the wells has been shut-in for some period of time. I

cannot testify as to just how these water samples were taken. It's possible that some sedimentation could have occurred in one and maybe not in the other one. I just don't -- I just don't know.,

Mr. Kellahin noted earlier in cross examination that Sage State of New Mexico Well No. 2, which is not cemented across the injection interval, that well is located right at the edge of the half mile circle drawn around this injection well, is that correct?

Yes, yes, it is.

Would Sage be prepared to test this well on an annual basis?

Let me make a statement here that probably I should have made in the very beginning. We're talking about two different Sage's. This is not -- this is not the same company and I should have made that earlier.

This, Sage Energy is -- is located in San Antonio and Sage Oil is located in Wichita Falls, and they're not associated in any way.

I suppose I should have clarified that in the very beginning.

> MR. KILPATRIC: No relation.

Sage Energy Company is the old K. K. Amini

Oil Company.

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Q All right, well, let me -- let me rephrase that, then.

This is a well that if it were located more proximate to the proposed injection well, the one that we would require that the injection interval be cemented, at that distance I feel that we would be safe in requiring some sort of periodic test, but what that would mean is if we discovered pressure or flow in this well, the Sage applicant for salt water disposal well would be in the position of either having to repair that well at that time or cease their injection.

Do you have any problem with that type of requirement?

A. I wouldn't think that that would be a problem at all (inaudible).

We did not receive any of the waivers back that we requested they be sent to the Commission. I do not know what Sage's position was.

Now I believe I understand you correctly to say that initially this well would be serving company leases but later on could be used for other operators, as well.

A. I would think that if it was capable of handling more water, if the capacity was there and the need was there, I feel sure that -- that they would be very agreeable to taking additional --

1	
2	Q. But it would all be Permo-Penn water?
3	A. I would think so. I believe that's pro-
4	bably about the only large volume of water being produced in
.5	the area.
6	Q. Okay.
7	A. These wells are producing on REDA pumps,
8	which accounts for the tremendous volumes of water. It also
9	accounts for the fact that it is economically possible to re-
10	enter and produce these large volumes of water to produce the
11	100, 100 or so, barrels of oil per day that they now that
12	they now are capable of producing.
13	MR. STAMETS: Are there any other
14	questions of this witness?
15	Anything further in this case?
16	MR. KELLAHIN: I have a brief state-
17	ment to make.
18	MR. STAMETS: The witness may be
19	excused.
20	Mr. Kellahin, you had a statement?
21	MR. KELLAHIN: Yes, sir. My client
22	is a rancher in the immediate, as I ve told you, Mr. Examiner,
23	and he and the other ranchers are very nervous about what may
24	be contamination of what small amount of fresh water they have
25	in the immediate area, and he is particularly distressed that
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an abandoned well on ranch property that he leases from the State is going to become a dumping place for produced water that is produced from fields some miles away.

I think I have the same concerns that he has insofar as the broad potential scope of granting the applicant's request.

I'm a little nervous that Mr. Mulloy is unable to specifically tell us more about the status of the producing wells, the exact sources of the produced water in terms of amounts, how long they ve produced the volumes of water they ve produced.

approves the application, that it be limited to approval of the two wells operated by Sage Oil Company at this time, and that would give the applicant immediate relief, allow him to continue to produce his wells and derive the income from the sale of the oil.

We'd request that if any other operators join the system, or any other wells are placed on the system, that that only be done after notice and hearing and an opportunity for us to come before the Examiner again so that we could have the Commission determine whether it is fair and reasonable to use that disposal well in a more extensive way than is immediately required, and we have nothing further,

thank you.

MR. KILPATRIC: May I respond, Mr.

Examiner?

MR. STAMETS: Certainly.

MR. KILPATRIC: Quite briefly, it's

our position that Mr. Kellahin's client, Mr. Etcheverry, doesn't have standing in this case and that he's not the land-owner or an offset operator. He's merely the surface lessee and he has not shown any damage or any injury.

I believe that to limit the use for the injection capabilities of this well would be to -- probably to -- not in the interest of preventing waste, and that there are other wells that are in the same position as our two producing wells that would be uneconomical unless they could find a place to dispose the water, and this injection well is capable of that disposal, it ought to be used. We ought to have the ability to use it.

MR. STAMETS: Anything further?
We'll take the case under advisement.

(Hearing concluded.)

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.

Sary W. Boyl CSR

do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case .o. 7738, heard by he proceedings in 1982.

Oil Conservation Division