

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

28 November 1984

EXAMINER HEARING

IN THE MATTER OF:

Application of HARVEY E. YATES Com-
pany for salt water disposal,
Eddy County, New Mexico.

CASE
3414

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

Jeff Taylor
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Santa Fe, New Mexico 87501

For the Applicant:

Robert H. Strand
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Roswell, New Mexico 88201

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I N D E X

RAY NOKES

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3 MR. STOGNER: Call next Case
4 Number 8414.

5 MR. TAYLOR: The application of
6 Harvey E. Yates Company for salt water disposal, Eddy Coun-
7 ty, New Mexico.

8 MR. STRAND: Mr. Examiner, my
9 name is Robert H. Strand with the firm of Atwood, Malone,
10 Mann and Turner of Roswell, appearing for the applicant,
11 Harvey E. Yates Company, and I have one witness to be sworn.

12 MR. STOGNER: Are there any
13 other appearances in Case Number 8414 this morning?

14 If not, will the witness please
15 stand and be sworn.

16 (Witness sworn.)

17 RAY NOKES,
18 being called as a witness and being duly sworn upon his
19 oath, testified as follows, to-wit:

20 DIRECT EXAMINATION

21 BY MR. STRAND:

22 Q Please state your name and place of resi-
23 dence.

24 A Ray Nokes. I live in Roswell, New Mex-
25 ico.

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Q Mr. Nokes, who are you employed by?

A Harvey E. Yates Company out of Roswell,
New Mexico.

Q And what is your capacity with Harvey E.
Yates Company?

A Reservoir Engineer.

Q Mr. Nokes, have you testified before the
Division in the past?

A Yes, sir.

Q And are your qualifications as an expert
reservoir engineer a matter of record?

A Yes, sir.

MR. STRAND: Mr. Examiner, is
Mr. Nokes considered qualified?

MR. STOGNER: He is so quali-
fied.

Q Please state the purpose of the applica-
tion in Case Number 8414.

A Harvey E. Yates Company is seeking ap-
proval to dispose of water produced in the Delaware forma-
tion from the Stebbins Deep Federal No. 1 and Yates "A" Fed-
eral No. 1 into the Delaware formation of the Stebbins Deep
Federal No. 4.

The Stebbins Deep Federal No. 4 is lo-
cated in Unit letter A, 990 foot from the north, 330 foot
from the east of Section 30, Township 20 South, Range 29
East, Eddy County, New Mexico.

1
2 Q Mr. Nokes, has Harvey E. Yates Company
3 previously filed an administrative application for approval
4 of this injection program?

5 A Yes, sir, we have.

6 MR. STRAND: Mr. Examiner, we
7 will present certain exhibits that are a part of that admin-
8 istrative application and we would ask that the remainder of
9 the administrative application be made a part of the record
in this case.

10 MR. STOGNER: Your request has
11 been noted.

12 Q Mr. Nokes, I refer you what we've desig-
13 nated as Exhibit Number One. Would you please describe
that?

14 A Yes, sir. Exhibit Number One is a plat
15 showing the half mile radius, the one mile radius, and two
16 mile radius.

17 If the Examiner would make note, there
18 are two green dots. Those are one, to the -- to the south-
19 west, the lower green dot, is a producing Delaware well with
20 a disposal system, also, and the upper righthand green dot
21 is the proposed injection well.

22 There are also two other wells there that
23 are highlighted and these are within the half mile radius
that are plugged wells.

24 Q And those wells, plugged wells, penetrate
25 the Delaware formation?

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A Yes, sir.

Q Mr. Nokes, I refer you to Exhibit Number Two. Will you please describe that?

A This is a tabular data sheet for the proposed disposal well, injection well.

Q Mr. Nokes, the first page of Exhibit Number Two is -- does this basically give the information concerning the Stebbins Deep Federal No. 4 Well?

A Yes, sir.

Q And is that the well that you propose to inject fluid --

A Yes, sir, it is.

Q -- into the Delaware formation?

A Yes, sir, it is.

Q I refer you to page two of that exhibit. Will you please describe that?

A This is a schematic of the casing design of the 8-5/8ths and 4-1/2 inch that is in the Stebbins Deep Federal No. 4, and existing perfs, and the existing tubing as it is to date.

Q And that is the current condition of the well?

A Yes, sir.

Q I refer you to page three of that exhibit, which is designated as a completion schedule. Would you please describe that?

A Yes, sir, this is a -- again this is a

1
2 partial listing of the casing, or a complete listing of the
3 casing, and the perforation, existing perforations and the
4 procedure that would be outlined to change out the existing
5 tubing string to a plastic-coated tubing and nickel-plated
6 packer so that it would be a closed system and sealed by a
7 packer system.

8 Q Mr. Nokes, would you as an engineer,
9 would you consider this to be a standard type disposal sys-
10 tem?

11 A Yes, sir. Yes, sir, it is.

12 Q I refer you to what we've designated as
13 Exhibit Number Three. Would you please describe that?

14 A Exhibit Number Three indicates the infor-
15 mation as to the seal, the perforations, the purpose of the
16 well being originally drilled. This was a re-entry but the
17 purpose of the re-entry was to produce, which it was unsuc-
18 cessful in doing so.

19 Q Mr. Nokes, is this information that was
20 previously presented in the administrative application?

21 A Yes, sir, it was.

22 Q I refer you to Exhibit Number Four.
23 Would you please describe that?

24 A Okay. Exhibit Number Four, if I may, Mr.
25 Examiner, there was, by matter of oversight, this is a well
26 tabular information sheet. The listings to the side indi-
27 cate what is being categorized and there are two columns.

28 The column to the left is for the Steb-

bins Deep Federal No. 4, and I apologize that that was not labeled as such.

The column to the right is the Stebbins Deep Federal No. 1, an existing Delaware producer and disposal well.

Q Mr. Nokes, the information on the Stebbins Deep Federal No. 4 is basically the same information as presented in the other exhibit?

A Yes, sir, it is.

Q And the Stebbins Deep Federal No. 1 Well, that also penetrated the Delaware formation?

A Yes, sir, that penetrated the Delaware.

Q And that, is that the currently producing well?

A Yes, sir.

Q Mr. Nokes, there are several schematic diagrams attached also to this exhibit. Would you state for the record what those -- which wells those cover and the details?

A Yes, sir. The page -- second page of Exhibit Number Four is a downhole schematic of our tubing string, our production string, and our disposal string in the Stebbins Deep Federal No. 1. We were unsuccessful to utilize the packer system that was originally in the well so we went ahead and used a 7-inch Baker Loc-Set to isolate our disposal zone from our producing zone.

The upper perforations that are indicated

1 going into the short string there are Delaware perforations.

2 We are producing through the short string
3 by pump and up until a short while ago we were disposing in-
4 to the long string into the Strawn and Morrow perforations
5 previously approved for disposal.

6 Q But as of this time the Strawn and Morrow
7 perfs have been shut off at the packer and are no longer
8 being used for disposal of fluid?

9 A The -- well, whenever the formation will
10 allow, pressure decreases enough, we have been using it in-
11 termittently, but have been trucking most of our water.

12 Q Do you intend to leave that disposal sys-
13 tem open if this application is approved for the Stebbins 4
14 disposal well?

15 A At this point in time we really have not
16 thought very much about it. We're just going to use the
17 Stebbins Deep 4; have this possibly as a back-up in case
18 something happened to the 4 mechanically.

19 Q Mr. Nokes, you have two additional sche-
20 matic diagrams attached to this exhibit. Would you please
21 describe those?

22 A Page three of Exhibit Four is a plugging
23 schematic of the Stebbins Deep Federal 2-Y. It's the south-
24 west offset to the proposed disposal well. It did penetrate
25 the Delaware formation and the plugs that are shown here
were the plugs that were retrieved from files of the Federal
offices and State offices and put in here for schematic pur-

1 poses to show that they were plugged isolating the zone.

2 Q And I believe you have a similar exhibit
3 for the Stebbins "A" Federal?

4 A Yes, sir. The Stebbins "A" Federal is
5 the last page of Exhibit Four. It is also a plugging sche-
6 matic. They did run casing in this well and was cemented.
7 The only thing that I have noticed that does not -- it is on
8 the information at the bottom of the page but it's not drawn
9 in the schematic as such, was the top of the cement on their
10 long string is 2352. That would be just above the second
11 plug from the bottom.

12 This well was plugged and is isolated
13 from the injection strata that we would putting in in -- in-
14 jecting in the Stebbins Deep 4.

15 Q Mr. Nokes, these latter two plugged wells
16 you described are the two wells shown in orange on your
17 plat, Exhibit Number One?

18 A Yes, sir, these are the two wells that
19 are in orange on the -- on the plat.

20 Q Mr. Nokes, what's your proposed average
21 injection rate per day for the Stebbins 4 Well?

22 A The Stebbins will average in the range of
23 about 150, possibly 100 and 250 barrels a day average.

24 Q In your opinion what will the maximum in-
25 jection rate per day be?

A It will -- for that rate we have run some
tests on this well and for that rate it will run about 154

1 to about 160 pounds.

2 Q That's the pressure. What will the maxi-
3 mum injection rate --
4

5 A The maximum injection rate we anticipate
6 for this will be somewhere between 4 and 5, 600 barrels a
7 day; anywhere from 400 to 500, possibly even 600 barrels a
8 day disposal.

9 Q Mr. Nokes, will this be an open or a
10 closed injection system?

11 A It will be a closed injection system.

12 Q What do you anticipate the average injec-
13 tion pressure will be?

14 A Average pressure will run initially
15 around 154, maybe 160 pounds.

16 Once pressurization occurs it will prob-
17 ably stabilize around 280.

18 Q What would you anticipate would be the
19 maximum injection pressure?

20 A We would not exceed the State allowed .2
21 psi per foot.

22 Q Do you have an estimate of what that
23 would come to?

24 A I believe it's 652. It's not in -- I do
25 not believe it's in this but I do have it in the original
application.

Q It is part of the administrative applica-
tion?

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A Yes, sir, uh-huh.

Q Mr. Nokes, I --

A It would be 657 psi.

Q 657?

A 657 to the top perforation, I believe.

Q I refer you what we've designated as Exhibit Number Five. Would you please describe that?

A This is a water analysis from the Stebbins Deep 4 when we were attempting to produce the well. It shows the water evaluation from the Delaware water.

The second page of Exhibit Five is a water analysis of the Yates "A" Federal, which we would be utilizing this well to dispose the Yates "A" production. It is also a Delaware formation well.

And then the last page of Exhibit Five is the produced water presently being produced from the Stebbins Deep Federal No. 1.

Q And am I correct that water from both the Yates "A" Federal and the Stebbins No. 1 will be disposed of into the No. 4 Well?

A Yes, sir.

Q And in your opinion will there be any problem of compatibility between the fluids?

A No, sir, there should not be any problem at all. As a matter of fact, that system has been combined for quite some time in our existing disposal well and have had no problems in our holding tanks.

1 Q Mr. Nokes, would you describe the litho-
2 logic features of the injection formation?

3 A The lithology of the formation we'll be
4 disposing into is a sandstone. Perforations are concen-
5 trated in a Delaware sand. The geologic name is the Permian
6 Delaware Sandstone.

7 It gives the interval on our presentation
8 in Section 8 of being 24 foot of injection interval with a
9 gross pay zone of 50 foot and the top of the Delaware pay
10 being at 3246.

11 Q 3246 subsurface?

12 A Yes, sir.

13 Q Mr. Nokes, have you made an examination
14 to determine whether there are any formations or sources of
15 drinking water in the area overlying or underlying the pro-
16 posed injection formation?

17 A As to fresh water or water wells in the
18 area, there is water well, stock well, that is up in Section
19 20, the only one that we've been able to find that was on
20 record.

21 We talked to Mr. Frank Bradley, who is
22 the Lea County Basin supervisor for the State Engineer's Of-
23 fice.

24 We also talked with a consultant geolo-
25 gist, Mr. Edward Kinney, out of Artesia, and this fresh
 water well that is existing is in the southwest quarter
 southwest quarter of northwest quarter in Section 20 of

1
2 Township 20 South, Range 29 East.

3 Fresh water in that area, the Ogallala is
4 present about 330 foot below surface and Santa Rosa begins
5 around 1200 foot with our communication from Mr. Ed Kinney.

6 Q And those are formations, the Ogallala
7 formation and Santa --

8 A Those are --

9 Q -- Rosa formation --

10 A -- fresh water formations, yes, sir.

11 Q Mr. Nokes, I refer you to what we've de-
12 scribed as Exhibit Number Six. Would you please describe
13 that?

14 A This is the analysis of the fresh water
15 on the water well that was in Section 20 that was just men-
16 tioned.

17 Q Mr. Nokes, as part of this application
18 have reviewed all reasonably available geologic and engin-
19 eering data relevant to the proposed injection well and the
20 surrounding wells that you've described penetrating the Del-
21 aware formation?

22 A Yes, sir.

23 Q And based on that examination do you find
24 any evidence of open faults or other hydrologic connection
25 between the proposed disposal zone and any underground
source of drinking water, the fresh water that you've de-
scribed?

A No, sir, there is none to my knowledge

1
2 that we can find on record or be able to determine from any
3 logs.

4 Q Mr. Nokes, have logs for the Stebbins 4
5 Well, the proposed injection well, previously been submitted
6 to the Division as part of the administrative application?

7 A Yes, sir, it -- they have.

8 Q Mr. Nokes, are you and Harvey E. Yates
9 Company's staff familiar with the Division Rules and Regula-
10 tions relating to operation of injection wells?

11 A Yes, sir, we are.

12 Q Mr. Nokes, do you have any estimate of
13 volume of water currently being hauled from the producing
14 wells?

15 A Yes, sir. In August we -- the average
16 per month is about 421 barrels a month. August we hauled
17 4052 barrels; September we hauled 5583; and through August
18 we hauled 2429 barrels.

19 Q What's the approximate cost per month of
20 that water hauling?

21 A Average cost for the three months was
22 \$4056.42.

23 Q Mr. Nokes, what's the average production
24 per day of oil from the wells that you will be injecting
25 water from?

A Okay. The Stebbins Deep Federal No. 1
is averaging between about 18 and 24 barrels a day.

The Yates "A" Federal is holding around 6

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to 7 barrels a day as far as oil production.

Q In your opinion, Mr. Nokes, would approval of this application make these wells considerably more economical to operate for the applicant?

A Yes, sir.

Q And would it further be your opinion that eventually having to haul this much water would cause premature abandonment of these wells?

A Yes, sir.

Q And do you also feel that would result in permanent loss of otherwise recoverable reserves of oil?

A Yes, sir, I do.

Q Mr. Nokes, is it further your opinion that approval of this application will promote conservation, prevent waste, and protect correlative rights?

A Yes, sir.

Q As part of the administrative application was notice of that application given to offset owners?

A Yes, sir, it was.

Q How many offset owners were there other than Harvey E. Yates Company?

A Exxon is the only one that I am knowledgeable of within the area of interest and they were notified and correspondence was received from them giving a waiver.

Q Mr. Nokes, did you prepare Exhibits Number One through Six and the prior administrative application or were they prepared under your supervision?

1
2 A Yes, sir, they were prepared under my
3 supervision.

4 MR. STRAND: Mr. Examiner, I
5 move admission of Exhibits Number One through Six.

6 MR. STOGNER: Exhibits One
7 through Six will be admitted into evidence.

8 MR. STRAND: And I have nothing
9 further at this time.

10 CROSS EXAMINATION

11 BY MR. STOGNER:

12 Q Mr. Nokes, referring to Exhibit Number
13 One.

14 A Yes, sir.

15 Q I show three other plugged and abandoned
16 wells within the half mile, one over in Unit C, 29, and Unit
17 D and H of Section 30.

18 Could you please explain information on
19 those?

20 A In Section 29?

21 Q Yes, sir.

22 A Yes, sir. Those are shallow completed
23 wells, or shallow attempted wells, Mr. Examiner.

24 Q Shallow, you mean --

25 A They did not penetrate the Delaware.

They did not?

A No, sir. Those wells as such were part

1
2 of, I believe, Martin Yates, he had two or three wells in
3 there.

4 The one that you're referring to is in
5 Unit letter C, I believe. I believe that was about a 900
6 foot well, 940-something foot well, if I remember correctly.

7 MR. STRAND: Gee, Mr. Nokes, I
8 believe it shows, if my map is correct, it's kind of hard to
9 see, it shows 1402, I believe is total depth on it.

10 A Okay, let me see if I've got a bigger map
11 here.

12 I have all of those. Do you know the
13 correct depth on it?

14 Q What I have -- show on here, I see where
15 Mr. Strand was referring to the 1402 and one of the wells is
16 TDed at 1058, but I can't make out which -- what the total
17 depth of the well in Unit H of Section 30 is.

18 Subsequent to the hearing you check into
19 that and show that those weren't -- those particular wells
20 did not reach the proposed --

21 A No.

22 Q -- injection.

23 A No, sir, it looks like it's 942 foot but
24 I stand to be corrected because Xerox is not that clear.

25 Q We'll let it go at that. I'll take your
word for it, sir.

Refer now to Exhibit Number Two. This is
-- gives information on the Stebbins Deep Federal Well No.

1
2 4, your proposed injection well.

3 A Yes, sir.

4 Q This well was plugged and abandoned when?

5 A Initially plugged in '67, I believe, sir.
6 1967.

7 Q So that was essentially spudded and a dry
8 hole.

9 A Yes, sir.

10 Q Okay. Was the 4-1/2 inch surface pipe
11 ran at that time?

12 A No, sir, it was open hole.

13 Q It was open hole all the way down.

14 A Well, they had 8-5/8ths surface but they
15 did not have any production string, as such.

16 Q So when Harvey E. Yates re-entered it in
17 July of '84, that's when the long string was put in?

18 A Yes, sir. We ran 4-1/2, 9/5 pipe, if I
19 remember correctly, and a 9.5 pound, and cemented it from
20 bottom all the way to surface and circulated cement.

21 Q We now may refer to page two of the Exhi-
22 bit Number Four, which is a schematic of the Stebbins "B"
23 Well No. 1. That was the at one time dual completion, Dela-
24 ware production, Strawn Morrow injection well, is that
25 right?

26 A Yes, sir.

27 Q In reviewing the information on this par-
28 ticular well, and especially the cementing of the 7-inch

1
2 long string, do you have a top of cement on that particular
3 string?

4 A On the 7-inch in the Stebbins Deep
5 Federal No. 1?

6 Q Yes, sir.

7 A I do not know if it's on here but I do
8 have it.

9 Q Referring back to page four of the exhi-
10 bit, I show that was 7-inch run to 12,195 foot with 1350
11 sacks of cement, is that right?

12 A Let me grab my file on that, if I could.

13 Q All right.

14 A Okay. In the previous hearing for the
15 Stebbins Deep Federal No. 1 cement was calculated at 11,140.
16 A cement bond log was run initially on the well and showed
17 the top of cement at 11,140 foot for the Morrow.

18 Then it was cemented, cemented again for
19 the Strawn formation and that cement covered from that point
20 above where the CBL showed top of the cement up to 9829
21 foot.

22 Then the well was also perforated for the
23 Delaware in that same Stebbins Deep Federal No. 1 and cement
24 was circulated to surface.

25 Q Repeat that last statement again for me.

26 A Okay. For the Delaware formation that is
27 producing now in the Stebbins Deep Federal No. 1, it was
28 perforated below the zone of interest and cement was circu-

lated back to surface to cover the Delaware formation.

Q What are you reading this off of, or where are you getting this information from?

A This is off of the hearing data that was submitted on the Stebbins Deep Federal No. 1. It's a previous hearing, and it was approved for disposal.

Q Would you please --

MR. STRAND: For the Strawn and Morrow.

Q Would you please make a copy of that information and supply me with that and we'll make that a subsequent part Exhibit Number Four?

A Yes, sir.

Q I would now like to refer to, oh, your schematic of the Stebbins Deep Federal Well No. 2-Y. I believe, if I heard you right before, although the information wasn't on there, this particular well was a long string, which is a 5-1/2 inch?

A No, this one did not have pipeline and I was real --

MR. STRAND: I believe that's the Stebbins Deep Federal --

A That's the A-1, the last page.

Q All right, I misunderstood you before so that straightens me up on that particular question.

MR. STOGNER: I have no further questions of Mr. Nokes.

1
2 Is there any other questions of
3 this witness?

4 CROSS EXAMINATION

5 BY MR. TAYLOR:

6 Q Would you provide for the record a -- I
7 notice that the letter that you sent to Exxon, do you have a
8 copy that they have signed approving your -- your injection
9 well here?

10 For our record we need a copy of the no-
11 tice whereby you sent an application to them and also for
12 the surface owner if it's other than yourselves or Exxon or
13 whoever else.

14 A I can run you a copy of it. I've got the
15 original.

16 Q Okay, you can make us a copy.

17 A It doesn't matter, I can take the copy
18 and you can have the original if you'd like.

19 Q Well, ours is just -- a copy will do with
20 us. The one we've got here they didn't --

21 A This is the one they sent back to us.

22 Q If we can just make a copy of that for
23 our files.

24 A Okay.

25 MR. STOGNER: Are there any
other questions of Mr. Nokes?

If not, he may be excused.

1
2 Mr. Strand, is there anything
3 further in Case Number 8414?

4 MR. STRAND: Nothing further,
5 Mr. Examiner.

6 MR. STOGNER: Does anybody else
7 have anything further in Case Number 8414?

8 If not, this case will remain
9 open pending submission of the subsequent information as
10 requested.

11 (Hearing concluded.)
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C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 8414,
heard by me on November 28 1984.

Michael E. Rogers, Examiner
Oil Conservation Division