CASE 5737: HOWARD BOATRIGHT CO.
FOR AMENDMENT OF ORDER NO.
R-5208, EDDY COUNTY, NEW MEXICO

CASE NO.

5737

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

March 31, 1977

Mr. George E. Eng
The Permian Corporation
P. O. Box 3119
Midland, Texas 79701

Re: State CS SWD Well No. 1
Unit L, Section 17, T21S, R27E
Eddy County, New Mexico

Dear George:

Based on information contained in the letter of August 4, 1976, from the Western Company which was referred to in Commission Case No. 5737 heard September 1, 1976, no increase in wellhead injection pressure above the 600 psi set out in Order No. R-5208-A will be granted at this time. Your written request of March 28, 1977, for such an increase to 1,000 psi did not include sufficient data on which to make such a determination nor does the order provide for administrative approval of increased injection pressure.

Yours very truly,

JOE D. RAMEY
Director

JDR/RLS/fd

THE PERMIAN CORPORATION
1509 W. WALL P. O. BOX 3119
MIDLAND, TEXAS 79701
915-683-4711

March 28, 1977

Mr. Joe D. Ramey
Director
Oil Conservation Commission
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: State CS SWD - State Lease # K-6364
Sec. 17, 21S, R 27E,
Eddy County, New Mexico

Dear Joe:

Please accept this letter as a formal request by The Permian Corporation for an increase in injection pressure on the captioned disposal facility from the present authorized pressure of 620 pounds to 1,000 pounds.

May I hear from you on this matter ?

Yours very truly,

THE PERMIAN CORPORATION

George E. Eng

GEElm

5665
35208
R5208 A

Stimulation Division

August 4, 1976

Mr. Joe D. Ramey, Director
Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

At the request of Mr. W. W. Griffith, we are submitting some pressure data concerning the State CS #1, Eddy County, New Mexico. The Western Company performed a hydraulic fracturing operation on the subject well 7/19/76. The following data was derived from pressures noted during that treatment.

I. Well Parameters

A. Tubing - 2 7/8" set @2,585'
B. Casing - 9 5/8" set @2,989'
C. Open Hole - 8 3/4" from 2,989' to 3,120'
D. Depth used for calculations - 3,100'
E. Frac Displacement Fluid - 10 #/gal. Brine (.519 psi/ft.)
F. Injection Water - ± 8.6 #/gal. (.447 psi/ft.)
G. Instantaneous Shut Down Pressure after Frac - 400 psi

II. Bottom Hole Fracturing Pressure (BHFP)

When a formation has had fluid injected into it at sufficient rate to assure hydraulic fracturing has occurred; one of the more common methods of determining the pressure, at bottom of the hole, at which fracturing will occur (i.e. BHFP), is the use of the following formula --

BHFP = ISDP + HH

Where ISDP is the Instantaneous Shut Down Pressure, HH is the Hydrostatic Head of the fluid in the hole at the time of the ISDP.

BHFP = 400 + 3100 x .519
BHFP = 400 + 1608.9
BHFP = 2008.9 psi

The fluid to be disposed of in the subject well is considerably less dense than that used in calculating the BHFP. Therefore, one must calculate the ISDP that should have been noted if 8.6 #/gal. water were in the hole; to determine the maximum surface pressure that can be reached before the formation will fracture - again referring to the above formula --

BHFP = ISDP + HH
2008.9 = ISDP + .447 x 3100
2008.9 = ISDP + 1385.7
623.2 psi = ISDP

Theoretically, then a surface pressure of anything less than 623 psi would indicate no fracturing. (This figure makes no allowance for friction drop in the tubular goods.)

III. Friction Curves

Attached to this letter are two friction curves. The curves were derived using standard tubular friction curves used in computing friction pressures for job design purposes. The particular curve used in this instance, is based on 9 #/gal. brine and new 2 7/8" - 6.5 lb. tubing.

Curve #1 is an example of a curve that would be used for stimulation purposes. The pressure at -0- BPM injection rate (600 psi) is the surface pressure reading indicating fracturing and the remainder of the curve indicates the effect of tubular friction. Therefore, at any given injection rate - if the observed surface pressure falls below the curve; theoretically, hydraulic fracturing is not taking place.

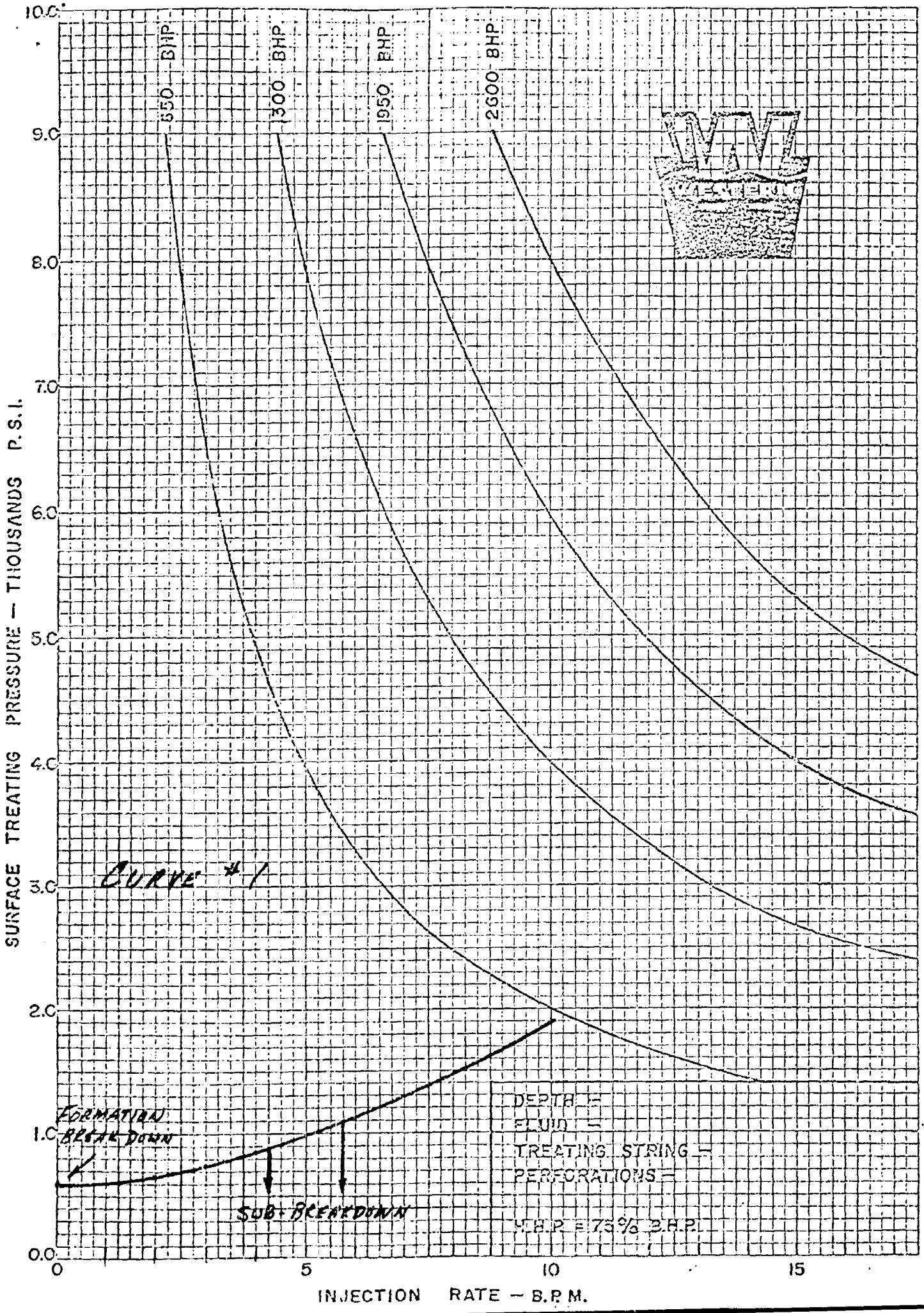
Curve #2 is based on the theory that formation feeding takes place at 400 psi surface pressure. Again, tubular friction pressure is calculated and added in. The curve would indicate an injection rate of 3.5 BPM could be obtained before the surface pressure reached 600 psi. This is, of course, the most pessimistic in that it allows no consideration of tubular friction.

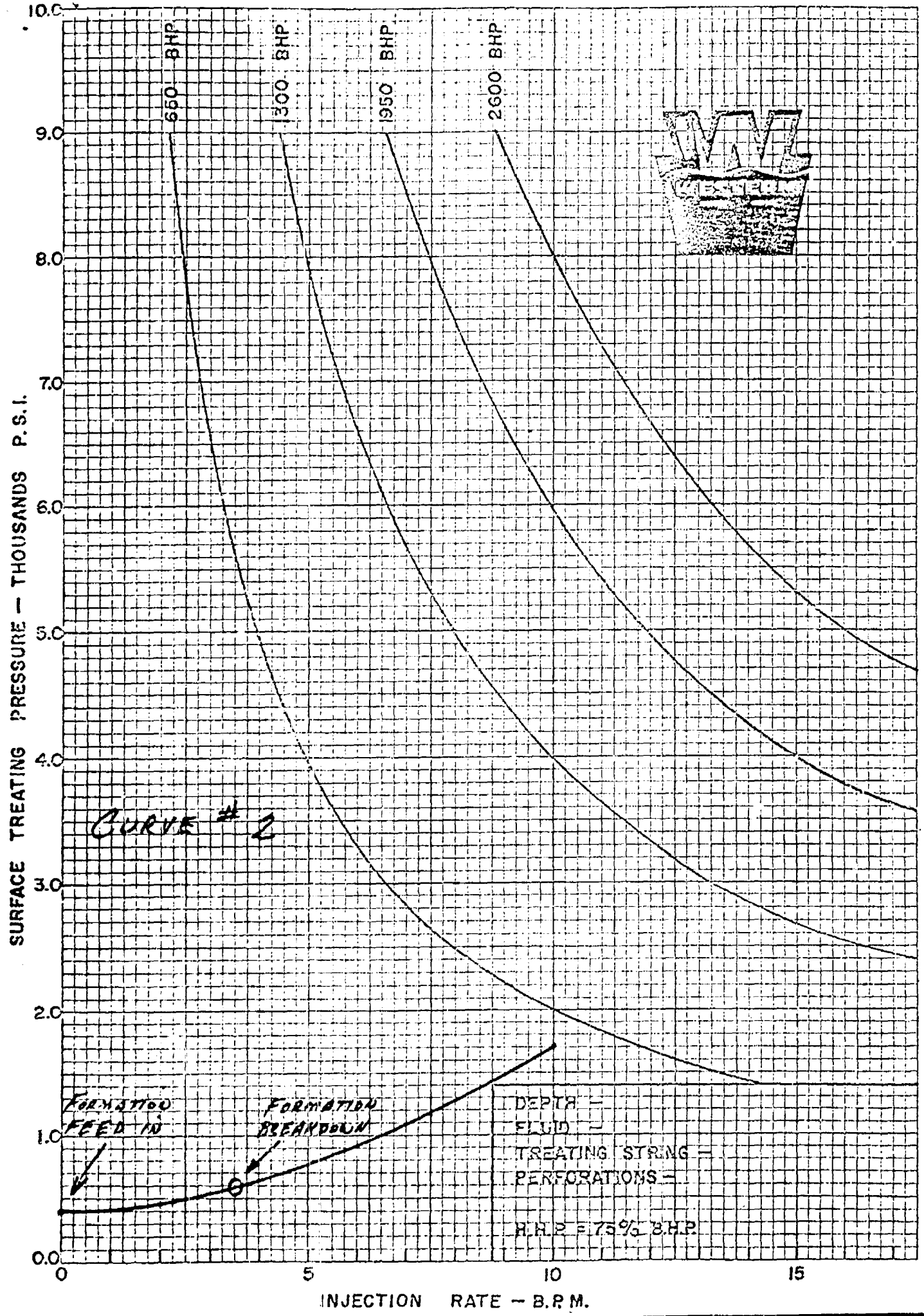
Respectfully,

Bill Wright
Region Technical Manager

BW:hh

Enc.


650 BHP
1300 BHP
1950 BHP
2600 BHP
Curve #1
FORMATION BREAK DOWN
SUB-BREAKDOWN
DEPTH =
FLUID =
TREATING STRING =
PERFORATIONS =
H.H.P. = 75% B.H.P.
SURFACE TREATING PRESSURE — THOUSANDS P.S.I.
INJECTION RATE — B.P.M.
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
5
10
15


650 BHP
1300 BHP
1950 BHP
2600 BHP
Curve # 2
FORMATION FEED IN
FORMATION BREAKDOWN
DEPTH —
FLUID —
TREATING STRING —
PERFORATIONS —
H.H.P. = 75% B.H.P.
SURFACE TREATING PRESSURE — THOUSANDS P.S.I.
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
5
10
15
INJECTION RATE — B.P.M.

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 1, 1976

EXAMINER HEARING

IN THE MATTER OF:

Application of Howard Boatright for amendment of Order No. R-5208, Eddy County, New Mexico. CASE 5737

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: William F. Carr, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant: James E. Snead, Esq.
JONES, GALLEGOS, SNEAD & WERTHEIM, P.A.
Attorneys at Law
215 Lincoln Avenue
Santa Fe, New Mexico

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MR. NUTTER: We will call now Case 5262.

MR. CARR: Case 5262, in the matter of Case 5262 being reopened pursuant to the provisions of Order No. R-4822-B, which order extended the special pool rules for the Southwest Media-Entrada Oil Pool, Sandoval County, New Mexico, including a provision for one-hundred-and-sixty-acre spacing and proration units and a special depth bracket allowable of seven-hundred-and-fifty barrels of oil per day.

MR. NUTTER: Is there any appearance here in Case Number 5262? We will call the case at the conclusion of the docket.

We will call now Case 5737.

MR. CARR: Case 5737, application of Howard Boatright for amendment of Order No. R-5208, Eddy County, New Mexico.

MR. SNEAD: Mr. Hearing Examiner, my name is James E. Snead of the firm of Jones, Gallegos, Snead and Wertheim, Santa Fe and I appear here on behalf of the applicant and I have one witness, Mr. W. W. Griffith, who will testify and needs to be sworn at this time.

MR. NUTTER: Mr. Snead, could you at the outset give us the case number of the original hearing on this?

MR. SNEAD: Yes, sir, I can, 5665.

MR. NUTTER: Go ahead.

(THEREUPON, the witness was duly sworn.)

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W. W. GRIFFITH

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

DIRECT EXAMINATION

BY MR. SNEAD:

Q. Would you state your name, sir?

A. My name is Bill Griffith.

Q. And what is your occupation, Mr. Griffith?

A. I'm a petroleum consultant in Midland, Texas.

Q. What is your connection with the applicant here?

A. I'm vice president of the Howard Boatright Company.

Q. And how long have you occupied that position, sir?

A. Two years.

Q. Can you tell us, sir, whether or not that position calls for you to be active in and familiar with the operations of the company insofar as this particular application is concerned?

A. That is correct.

Q. Now, can you tell us, sir, whether you have ever testified before the New Mexico Oil Conservation Commission in the past?

A. I have not.

Q. Would you give the Commission, sir, your educational background and your work experience?

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A. I have a degree in mechanical engineering from Southern Methodist University and I worked for ten years for the Atlantic Flying Company in the capacity of petroleum engineer, production engineer and drilling engineer. I then worked for five years for Mr. F. B. Fogelson in New Mexico and for the past fifteen years I have been a petroleum consultant in Midland and I work for various independent operators in Texas and New Mexico.

Q. Can you tell us, sir, whether you have had any experience with the particular well which is involved in this application?

A. Yes, I have.

MR. SNEAD: Mr. Examiner, are the witness's qualifications adequate?

MR. NUTTER: Yes, they are.

Q. (Mr. Snead continuing.) Could you tell the Commission, sir, what the purpose of this particular application is?

A. Yes, it is a twofold purpose, one, to increase the maximum limit on the surface injection pressure into the salt water disposal well and, two, to amend the packer setting depth.

Q. Now, you are aware, are you not, sir, that in Commission Case Number 5665 your company applied for and received permission from the Oil Conservation Commission for

an injection pressure of four hundred pounds on this particular well for salt water injection?

A. That's correct.

Q. Now, sir, what is the purpose of your application here to increase that pressure?

A. We have found that after working on the well that the four hundred pounds was actually a zero based pressure. In other words, it required four hundred pounds of surface injection pressure before we could inject any water into this well, past that point little or no additional pressure is required. So what we are trying to do is to amend our base injection pressure from zero to four hundred pounds so that the additional four hundred pounds is the same four hundred pounds but related back to a four hundred pound base instead of a zero base.

Q. And can you tell the Commission, sir, upon what do you base your statement that the four hundred pound pressure authorized is necessary to begin injection?

A. We have two treatment reports from the Western Company, one following an acid treatment of the open-hole injection interval. We treated that with five thousand gallons of acid and our instantaneous shut-down pressure on the acid treatment was four hundred pounds. We then fraced the well with fifty thousand gallons and a hundred thousand pounds of sand and there again our instantaneous shut-down

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pressure at the surface was four hundred pounds and that is the basis.

MR. SNEAD: Mr. Examiner, I believe contained in the records filed with this particular case is a report from the Western Company regarding their fracing operation and instantaneous shut-down pressure experience on this particular well.

MR. NUTTER: Yes, we do have that report from Western.

Q. (Mr. Snead continuing.) Now, sir, can you tell me whether that basically means that a pressure of four hundred pounds initial pressure is necessary to overcome the pressure of the formation in order to begin injection?

A. That is correct. Eventually the water that we are injecting is considerably less than the density of the normal brine water and that is the reason that we have to have the additional pressure to compensate for the difference in the salinity content of the normal formation water and the water that we are injecting into the well.

Q. Now, Mr. Griffith, have you had prepared a series of exhibits which relate to this particular application?

A. We have. We have a structure map of the area.

Q. Now, would you take before you Exhibit Number One, sir, which is the map I think you referred to and explain that to the Commission, sir?

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A. This map shows the position of the injection well which is the No. 1 CS Cities Service well in the southwest quarter of Section 17.

Q. That is indicated on the map by the arrow entitled "disposal well"?

A. That is correct and this map really shows that we have a normal southeast dip to this Delaware structure.

Q. All right, and does that indicate, sir, that the natural migrations of the water would be to the southeast?

A. In general that is correct.

Q. Now, sir, you are aware, are you not, that in the previous docket an appearance was entered in behalf of Yates Petroleum Company expressing some concern about this particular salt water injection well?

A. We understand that.

Q. And can you tell the Commission, sir, where that particular well that they were interested in is located?

A. The Yates well is located approximately three thousand feet due west of the disposal well.

Q. So that it would not be in the southeasterly direction from the salt water disposal well proposed here?

A. That is correct.

Q. Is there anything else about Exhibit Number One that you feel needs explanation to the Commission, sir?

A. I don't think so. This particular interval that we

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are injecting into is a blanket sand, homogeneous sand body, fairly extensive but that is brought out in other exhibits.

Q. Okay. In that connection, Mr. Griffith, can you tell us whether you have been able to obtain logs on other wells in this area upon which you can determine what the structure, the Delaware structure is in this general area?

A. We have a cross section which I think is Exhibit Two.

Q. Okay, would you take before you Exhibit Number Two and explain that to the Commission?

A. Exhibit Two is a cross section showing the proposed or the injection interval in our salt water disposal well and this cross section covers an areal extent of roughly two-and-a-half miles. The zone that we are injecting into at the present is well developed in all of the wells in the area on which we were able to obtain logs.

Q. And can you tell us, sir, in your opinion what it indicates in regard to the nature of the formation involved here?

A. This particular section, as I said, is rather extensive. It's a very homogeneous zone, it's not lenticular, it's a blanket sand, it covers a very large area and that would indicate that we did have a reservoir to inject into which is almost ideally suited for salt water injection, in our opinion.

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Q. Can you tell me, sir, whether your company or you on behalf of your company have made an extensive investigation to locate a suitable salt water disposal well in this particular area?

A. Yes, we have. We are normally in the plugging business and we had been looking for a well in the Carlsbad area for about six months that we could use or that we felt would be usable as a salt water disposal well.

Q. And would you tell the Commission, sir, what in your opinion, the suitability of this particular well is for the purpose intended?

A. Number one, the zone that we intend to inject in, as I said, is rather extensive, it is a homogeneous sand, the porosity is in the range of fifteen to seventeen percent. There is some gas associated with the water which gives us a greater compressibility. This particular well has both the surface pipe and the intermediate casing string, circulated. It is located fairly close to a highway, it is in an area where there is no other disposal well available and it will serve to substantially reduce the cost of disposing of produced water in the area, which in effect then, would increase the recoverable reserves of numerous of the marginal wells in the area.

Q. Can you tell us, sir, whether Exhibit Two needs any further explanation, in your opinion?

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A. I would not think so.

Q. Now, you referred to the particular well involved here and to the manner in which it was completed, will you tell the Commission, sir, whether Exhibit Number Three which you have before you is a diagram of the particular well that is involved here?

A. That is correct.

Q. Would you explain that to the Commission?

A. The diagram shows the surface casing and the cementing program on it, the intermediate casing and the cementing program on it; it shows the location of the Baker Model B packer, also the location of the tubing string. The plug-back depth is illustrated in the bottom and the open-hole section is shown.

Q. Now, with regard to the setting of the packer, the modification of the approval of the Commission for the location of that particular packer, can you tell the Commission, sir, where that packer is set and what relationship it has to the formation that is involved in your proposed salt water injection well?

A. In our original application we had shown a packer setting depth of twenty-nine, eighty-nine which is a few feet above the shoe of the nine-and-five-eighths-inch casing and after we had prepared the well, set the packer, this is covered in a letter which I had written to the Conservation

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Commission. We ran a gauge ring to see if we could get our packer down and apparently, I think at this point that we had some heavier pipe on bottom, probably some forty-three pound casing and I could not get my gauge ring to go so I then instead of setting the packer at the bottom of the casing shoe, I set the packer at the top of the Delaware section which has been reported to me by Cities Service geologists at twenty-five feet. So instead of setting the packer at twenty-nine, eighty-nine, I set it at twenty-five, eighty-five, which is five feet below the top of the Delaware zone.

Q. So that your packer is now set below the top of the Delaware zone, which is the zone in which the salt water is to be injected?

A. Correct.

Q. Now, did you say, sir, that you believe that you encountered heavier pipe on the bottom of the well than the casing and that you thought?

A. The records that we had indicated that the pipe was nine-and-five-eighths, thirty-two and forty pounds but it indicated also that the thirty-two pound pipe was set on bottom which is not normal and I simply did not pay sufficient attention to that and I feel like now that the casing is forty and forty-three pound and my gauge ring was for thirty-two and forty pound casing and I didn't wish to take the chance of not getting a proper packer setting or setting that

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packer prematurely.

Q. Tell us whether in your opinion the setting of the packer at its present location would have any adverse effect upon the formation or any tendency to pollute the areas not involved in the Delaware formation?

A. No, the first zone of porosity is the zone that is below the intermediate casing string. That zone was production tested by Cities Service and in their opinion there was nothing above that zone to the top of the Delaware that was productive and they didn't test anything other than this zone.

Q. Sir, would you tell the Commission what the effect upon the reservoir your proposed injection would be insofar as the amount of time necessary to displace the water that's there?

A. Well, we have another exhibit.

Q. Is that Exhibit Number Four?

A. Number Four, yes, sir.

Q. Would you explain that?

A. Which is fairly basic. We have taken the log from the State CS No. 1 and have calculated the net feet of pay in the injection zone and the average porosity and we have calculated the volume of water which would be in place under one surface acre in this zone. It amounts to sixty-seven thousand, eight hundred and eighteen barrels of water, plus an estimated twenty cubic feet of gas per barrel and roughly

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our injection rate is estimated at forty thousand barrels of water a month. If we displace all of the water underneath and around this injection well, it would take us about five-and-a-half years to displace forty acres. What I'm trying to say is that there is a tremendous amount of reservoir available in and around this well to inject water into.

Q. All right, there has been some expression of concern, I think, in a letter by Yates to the Commission in this particular case regarding the danger of this injection well either corroding the casing of the Yates well or, in fact, causing the casing to collapse. Can you tell us, sir, what in your opinion the facts are in that regard?

A. Well, as far as collapsing a casing, the Yates' well is equipped with a string of five-and-a-half casing. I do not know positively what the design of that casing string is but the least design would be five-and-a-half, seventeen-pound K-55 casing which has a collapse pressure of fifty-three hundred and twenty pounds which means that you would have to exert an exterior pressure of fifty-three hundred and twenty pounds against a zero interior pressure and I don't think that would be a consideration. As far as corrosion is concerned, I can understand that. Fluid movement by that casing string could cause over a long period of time some external corrosion, primarily due to electrolysis, just fluid

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movement but the normal life of these Morrow wells in this general area, as a matter of fact we have been plugging wells out here for Cities Service that have been on production for six years. A ten-year life for a Morrow well would be exceptional in this area and in that period of time we will not have any of our injection water anywhere closely approaching the borehole of the Yates well.

Q. You indicated in Exhibit Number Four, sir, that the distance that the water would have moved or displacement in five-and-a-half years is six hundred and sixty feet. Can you tell us, sir, how far the Yates' well is from the proposed well?

A. It's approximately three thousand feet.

Q. Now, sir, can you tell us, based on your knowledge and background of this particular area, what your opinion is with regard to the possibility of the eight hundred pounds pressure causing vertical fracturing in the formation or causing water to move to the surface in the area of your injection well?

A. To cause vertical fracturing you have to exceed the overburden pressure which normally is taken to be one pound per foot of depth. what we are proposing is a maximum pressure which would limit us to total pressure in the reservoir, including hydrostatic. Combined hydrostatic head and surface pressure of eight hundred pounds would give us

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a gradient of point seven pounds per foot. The eight hundred pounds would give us an additional gradient over the hydrostatic head of point two five pounds per foot. So what we are requesting is a maximum total pressure in the reservoir of point seven pounds per foot.

Q. Well, now you said that the hydrostatic head was point seven, would you go through that again, please?

A. The bottom-hole pressure gradient in this reservoir is point four four pounds per foot. Now, this has been taken from drill stem tests conducted in this well by Cities Service. We are proposing to add a total of point two five pounds per foot to that which would give us approximately point seven pounds per foot.

Q. It would be slightly under point seven pounds?

A. Point six nine, yes, correct.

Q. That would be the total pressure gradient?

A. Gradient, yes. Hydrostatic plus surface pressure.

Q. Now, in their report Western indicated that the surface pressure to begin injecting fracture fluid into the formation was six hundred and twenty-three pounds, I believe?

A. That's correct.

Q. And they also indicate there that it does not take into account the pressure drop because of friction in the tubing?

A. That is correct.

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Q. Now, can you tell us, sir, what, including the friction drop in the tubing, would be a minimum necessary to begin injection of salt water?

A. According to the Western Company six hundred and fifty pounds would be the minimum.

Q. And can you tell us, sir, whether you have an opinion as to whether or not that is the minimum that could be used to satisfactorily begin injection of salt water into this formation?

A. That is correct.

Q. And can you tell us, sir, whether in your opinion the eight hundred pounds of pressure that you propose is a reasonable pressure necessary in order to have a satisfactory salt water disposal well?

A. We so believe, yes, sir.

Q. In your opinion, sir, would such a pressure in any way be contrary to good conservation practices in this particular area?

A. No.

Q. Can you tell us whether it would contribute to the recovery on an economical basis of the reserves that are in the area?

A. Well, we have production in New Mexico and we are paying at this point as high as seventy-five cents a barrel to dispose of our water. We feel that the location of this

salt water disposal well will allow something in the range of thirty to thirty-five cents to be charged for disposal water, including trucking. If a well is making five or six barrels of water for every barrel of oil and you can cut the salt water disposal costs in half, certainly you are going to extend the economic life of a marginal and sub-marginal well.

Q. You are aware, are you not, Mr. Griffith, that Yates proposes to monitor the annulus pressure in the casing of their particular well to determine whether there is any adverse effect occurring?

A. I think that certainly should be done.

Q. And can you tell us, sir, whether you have any opinion as to whether or not that would satisfactorily protect that company against either corrosion or collapse of the casing in their well?

A. I would certainly think so. I don't believe we are asking for anything in the way of injection pressure that would cause that to occur but it certainly should be monitored. We are not asking them to relinquish any of their rights, any of their civil rights, as far as that is concerned.

MR. SNEAD: We have no further questions and move the admission of Exhibits One through Four into evidence.

MR. NUTTER: Boatright Exhibits One through Four will be admitted into evidence.

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(THEREUPON, Boatright Exhibits One through Four were admitted into evidence.)

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Griffith, were you able to obtain from Cities Service the casing record on this well?

A. Yes, sir, I was.

Q. And they didn't show any forty or forty-three pound casing down at that depth?

A. No, sir, they showed thirty-two pound casing, which having thought about it, that's not normal and I'm not positive that that is the case. All I know is that our gauge ring stopped at twenty-seven hundred feet. It could be that we had some cement in the pipe and it could be that it was heavier pipe. I cannot at this point tell you for certain which of these things caused the gauge ring to stop.

Q. It could be collapsed casing too?

A. No, sir, it couldn't be collapsed casing because it is totally cemented and we had been in there with an eight-and-three-quarter bit.

Q. I see.

A. We have been in and out of there with an eight-and-three-quarter bit.

Q. Down past that packer --

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A. Oh yes, you see we drilled out that cement plug and dressed it off down to a depth of thirty-one hundred and eighty feet and in my letter I said that we drilled the cement plug with eight-and-three-quarter bits and cleaned out to thirty-one, eighty. Now, I did not run a cement scraper prior to setting the packer. The gauge ring with an OD of eight point eight seven five was run and that tool stopped at twenty-seven hundred feet and this is only conjecture on my part, either due to heavier pipe being on bottom or cement from the plug still adhering to the walls of the casing.

This decision to set the packer, of course, was mine and it was an error, I will admit, but as far as having any adverse effect on the disposal well I still don't believe that it has.

Q. And the packer setting depth of -- what is it twenty-five, eighty-five?

A. Yes, sir, twenty-five, eighty-five.

Q. Is below the top of the Delaware Mountain group?

A. That is correct. And everything that is in the Delaware, below that point, down to the base of the casing does not appear to be productive from the log. Cities Service didn't consider it as they didn't attempt to do any additional testing in those zones.

Q. What zone did they actually test in the well?

A. They tested this interval and they also tested an

interval lower in the Delaware.

Q. They did test this same interval where you are proposing to dispose?

A. Yes, sir.

Q. What was the yield there on their DST?

A. They didn't run a drill stem test, they ran a production test on that interval. They tested the interval from twenty-nine, eighty-nine to thirty-one, twenty. They swabbed no oil, twenty barrels of water, seventeen-and-a-half barrels of formation water in ten hours. The shut-in tubing pressure -- they shut the well in -- the shut-in tubing pressure the next morning was thirty-seven pounds, they swabbed no oil, thirteen point eight barrels of formation water in seven hours. We can add this to the records. I have a copy of it on one of my letters.

Q. I think as long as you have read it in that is sufficient, I just want to know what the formation yielded.

A. Yes. They recovered no oil and formation water only.

Q. Okay, now, in one of your letters you mentioned that the chloride content of this native water in the Delaware formation here is a hundred and thirty thousand parts per million, where did you get that figure?

A. Cities Service ran a water an [illegible] on a sample of water obtained from this production test and the density is one point one six oh [illegible] H seven point nine; iron, faint

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trace; H2S, faint trace; Chlorides a hundred and thirty parts per million.

Q. Maybe we should just admit that, is that part of that previous report?

A. Yes, sir.

Q. Why don't we admit that as an exhibit then we will have all of those figures?

(THEREUPON, a discussion was held off the record.)

Q. (Mr. Nutter continuing.) And that was on that swab test that you had given us of seventeen-and-a-half barrels in seven hours or something?

A. Yes.

Q. Well, now, Mr. Griffith, the Commission on previous occasions has adopted a rule of thumb which would limit injection pressures on wells to two-tenths of a pound per foot of depth to the top of the injection interval. In this case, being that the open hole starts at twenty-nine, eighty-nine, that would calculate to approximately six hundred pounds surface injection pressure by the Commission's rule of thumb limit. Now, you have stated that four hundred pounds fluid commences entering the formation?

A. That is correct, sir.

Q. And it takes little additional pressure to put additional fluid into the formation?

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A. That is correct.

Q. Do you have any idea at this time how much fluid you will be disposing of in this well?

A. To start with we expect to be disposing of a thousand barrels a day. I would imagine that over the next two or three years that might increase to as much as two thousand to twenty-five hundred barrels a day.

Q. I think I know, but just for the sake of the record, I would like to get it straight, this well is being completed as a disposal well as part of a commercial disposal venture, is this correct?

A. Yes, sir, that is correct.

Q. And water will be brought from leases here and there and disposed of in this particular well?

A. That is correct.

Q. So really you don't know how much there would be, whatever can be obtained for disposal and whatever the well will take?

A. Yes, whatever is practical and economical, yes, to dispose of in this area.

Q. And also you really don't know what the salinity of the disposal water is going to be because it will be coming from different sources, won't it?

A. That is correct, sir, we only base this on what Permian Corporation tells us that they now have as a general

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water. We assume -- they are bringing water in or can bring water in from numerous areas around Carlsbad. We assume that they will merely get an increase in percentage from these various areas, not any additional water.

Q. I think one of your letters mentioned that the disposal water would be approximately sixty thousand parts per million?

A. That's correct.

Q. But if they were disposing of water produced from some Delaware field someplace it may be a hundred and thirty thousand parts per million?

A. That is correct but the combination of waters as now injected would be sixty thousand parts per million, it could change.

Q. Now, when you completed the well and ran tests on it, did you determine the injectivity of the well at various pressures and the volumes that could be put into the formation?

A. The only information I actually have on that are these two treatment reports from the Western Company. Now, the Permian Corporation did run injectivity tests on the well and I do not have that information precisely. In general at two barrels a minute it required six hundred and fifty pounds surface pressure down this two-and-seven-eighths tubing.

Q. How many barrels per day is two barrels per minute?

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A. Two barrels a minute would be a hundred-and-twenty barrels, it would be about twenty-five hundred to three thousand barrels a day.

Q. That's at six-hundred-and-fifty pounds?

A. That's correct and that's if the pump ran continuously.

Q. Now, you state that you've got a blanket sand here so if you've got all of this porosity that's spread over such a wide area you shouldn't have to have a build up in injection pressures as time goes on?

A. That is correct.

MR. NUTTER: Are there any further questions of Mr. Griffith?

MR. SNEAD: Mr. Examiner, I had a question I wanted to ask him.

MR. NUTTER: Okay.

REDIRECT EXAMINATION

BY MR. SNEAD:

Q. Mr. Griffith, with regard to your two barrels per minute, I believe you testified to?

A. Yes.

Q. Can you tell us whether as a practical matter you would propose to inject at a constant rate as opposed to injecting at a more rapid rate on not a constant basis?

A. Well, I would say in general that Permian would

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probably install a pump that would have a capacity of three to four barrels a minute, that was why we requested the additional pressure. In other words, it won't be a steady, constant rate, the pump will be on sometimes and it will be off sometimes, it will be an alternating injection pattern, I believe.

Q. So the higher injection pressure will be brought about by the fact that it will be injected at a more rapid rate?

A. Yes, it will be an intermittent injection. They can't tell when they will be bringing the water in and if they bring in several loads during one hour they will have to increase the injection rate perhaps to three barrels but if there is no water being brought in, say, during the night the injection rate will be zero barrels a minute but the average injection rate will probably be around two barrels a minute maximum.

MR. NUTTER: Now, Mr. Griffith, will you equip this well and turn it over to Permian ready to go?

A. The Permian Corporation will install the surface --

MR. NUTTER: Do you know what their plans are, will they have a big tank there and the trucks will bring water in and put the water in the tanks?

A. Yes, they will have at least a thousand barrels of surface capacity, holding capacity.

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MR. NUTTER: Then will this tank have automatic float switches to turn on the injection pumps when the water reaches a certain level and then remain on until the water fell to a certain level?

A. Yes, sir, that is correct.

MR. NUTTER: Are there any further questions of the witness? He may be excused.

(THEREUPON, the witness was excused.)

MR. SNEAD: Could the daily well history initial report be entered as Exhibit Number Five?

MR. NUTTER: Boatright's Exhibit Number Five will be entered into evidence.

(THEREUPON, Boatright's Exhibit Number Five was admitted into evidence.)

MR. NUTTER: Do you have anything further, Mr. Snead?

MR. SNEAD: I have nothing further.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 5737? If not we will take the case under advisement.

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REPORTER'S CERTIFICATE

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

Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5737, heard by me on 9/1, 1976.

New Mexico Oil Conservation Commission, Examiner

OIL CONSERVATION COMMISSION

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

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

September 22, 1976

Mr. James Snead
Jones, Gallegos, Snead
& Wertheim
Attorneys at Law
215 Lincoln Avenue
Santa Fe, New Mexico

Re: CASE NO. 5737
ORDER NO. R-5208-A

Applicant:

Howard Boatwright Company, Inc.

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5737
Order No. R-5208-A

APPLICATION OF HOWARD BOATRIGHT
COMPANY FOR THE AMENDMENT OF ORDER
NO. R-5208, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 18, 1976, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 21st day of September, 1976, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Howard Boatright Company, on April 27, 1976, obtained Commission Order No. R-5208, which order authorized applicant to utilize its State CS Well No. 1, located in Unit L of Section 17, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, to dispose of produced salt water into the Delaware formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 2975 feet, with injection into the open-hole interval from approximately 2979 feet to 3180 feet and subject to the provision that the wellhead injection pressure shall not exceed 400 psi.

(3) That the applicant seeks the amendment of said order to permit setting of the packer in the aforesaid well at a depth of 2585 feet, and further to increase the maximum wellhead injection pressure from 400 psi to 800 psi.

(4) That the proposed change of packer-setting depth will not cause waste nor violate correlative rights and should be approved.

(5) That the proposed increase in wellhead injection pressure from 400 psi to 800 psi, in combination with the hydrostatic head of disposal water to the top of the openhole interval at 2979 could result in a well bore interface pressure sufficient to create vertical fractures in the formation and the escape of disposal fluids from the Delaware formation into other overlying formations and should be denied.

(6) That insofar as the Commission can determine, a surface wellhead injection pressure of 600 psi will not cause formation fracturing, will not cause injury to offsetting leases or properties, nor otherwise cause waste or violate correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That Order (1) on Page 2 of Commission Order No. R-5208 is hereby amended to read in its entirety as follows:

> "(1) That the applicant, Howard Boatright Company, Inc., is hereby authorized to utilize its State CS Well No. 1, located in Unit L of Section 17, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, to dispose of produced salt water into the Delaware formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 2585 feet, with injection into the open-hole interval from approximately 2979 feet to 3180 feet;
>
> "PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer."

(2) That Order (2) on Page 2 of Commission Order No. R-5208 is hereby amended to read in its entirety as follows:

> "(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 600 psi."

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

dr/

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General Court Reporting Service
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Phone (505) 982-9212

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 18, 1976

EXAMINER HEARING

IN THE MATTER OF:

Application of Howard Boatright Company for amendment of Order No. R-5208, Eddy County, New Mexico. CASE 5737

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: William F. Carr, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

MR. STAMETS: We will call Case 5737.

MR. CARR: Case 5737, application of Howard Boatright Company for amendment of Order No. R-5208, Eddy County, New Mexico.

Mr. Examiner, we have received a request that this case be continued to the Examiner Hearing to be held at this place on September 1, 1976.

MR. STAMETS: This case will be so continued.

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Phone (505) 982-9212

REPORTER'S CERTIFICATE

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

Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5737, heard by me on 8-18, 1976.

, Examiner
New Mexico Oil Conservation Commission

CLARENCE E. HINKLE
W. E. BONDURANT, JR. (1914-1973)
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR
C. D. MARTIN
PAUL J. KELLY, JR.

JAMES H. BOZARTH
RONALD G. HARRIS
JAMES H. ISBELL
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TELEPHONE (505) 622-6510

MR. ISBELL LICENSED
IN TEXAS ONLY

MIDLAND, TEXAS OFFICE
521 MIDLAND TOWER
915 683-4691

August 17, 1976

File

Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention: Dan Nutter or
Richard L. Stamets

Re: Case No. 5737
Howard Boatwright Co.
August 18

Gentlemen:

This will refer to my telephone conversation today with Dan Nutter relative to the above case. Mr. Norman Sorrell, attorney for The Permian Corporation, called me and requested that he be associated with our firm in connection with this case.

I learned from my conversation with Dan Nutter that the case has been re-advertised for September 1 and I assume that it will not be heard on the 18th; however, if Mr. Sorrell desires to go ahead with a partial hearing of this matter as to that portion covered by the advertisement of the hearing for the 18th, it will be satisfactory to enter our appearance of record with Mr. Sorrell and we would appreciate your having the record reflect such appearance.

Yours sincerely,

HINKLE, BONDURANT, COX & EATON

By _____

CEH:cs

YATES DRILLING COMPANY
YATES BUILDING — 207 SOUTH 4TH ST. — (505) 746-3558
ARTESIA, NEW MEXICO 88210

S. P. YATES, PRESIDENT
B. W. HARPER, SEC.-TREAS.
JACK W. McCAW, ASST. SEC.-TREAS.

August 17, 1976

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

continued to Sept. 1

Re: Case 5737, Docket 23-76
Application of Howard Boatwright Company
for Amendment of Order No. R-5208
Eddy County, New Mexico

Gentlemen:

Yates Drilling Company is operator of the Avalon Federal #2, a Morrow gas well offsetting the proposed disposal well described in the referenced cases. The Avalon Federal #2 is located 1980 FSL and 1980 FEL of Section 18-T21S-R27E.

Yates Drilling Company has no objection at this time to the proposed change in the injection pressure limitation from 400 to 800 psig. However, we will monitor the condition of our production casing, and, in particular, the annulus pressure of the Avalon Federal #2. If changes occur which may be attributable to the proposed injection of disposal waters, we will inform the Commission and the Operator of the disposal well, and may request another hearing be held at that time to evaluate continued water injection.

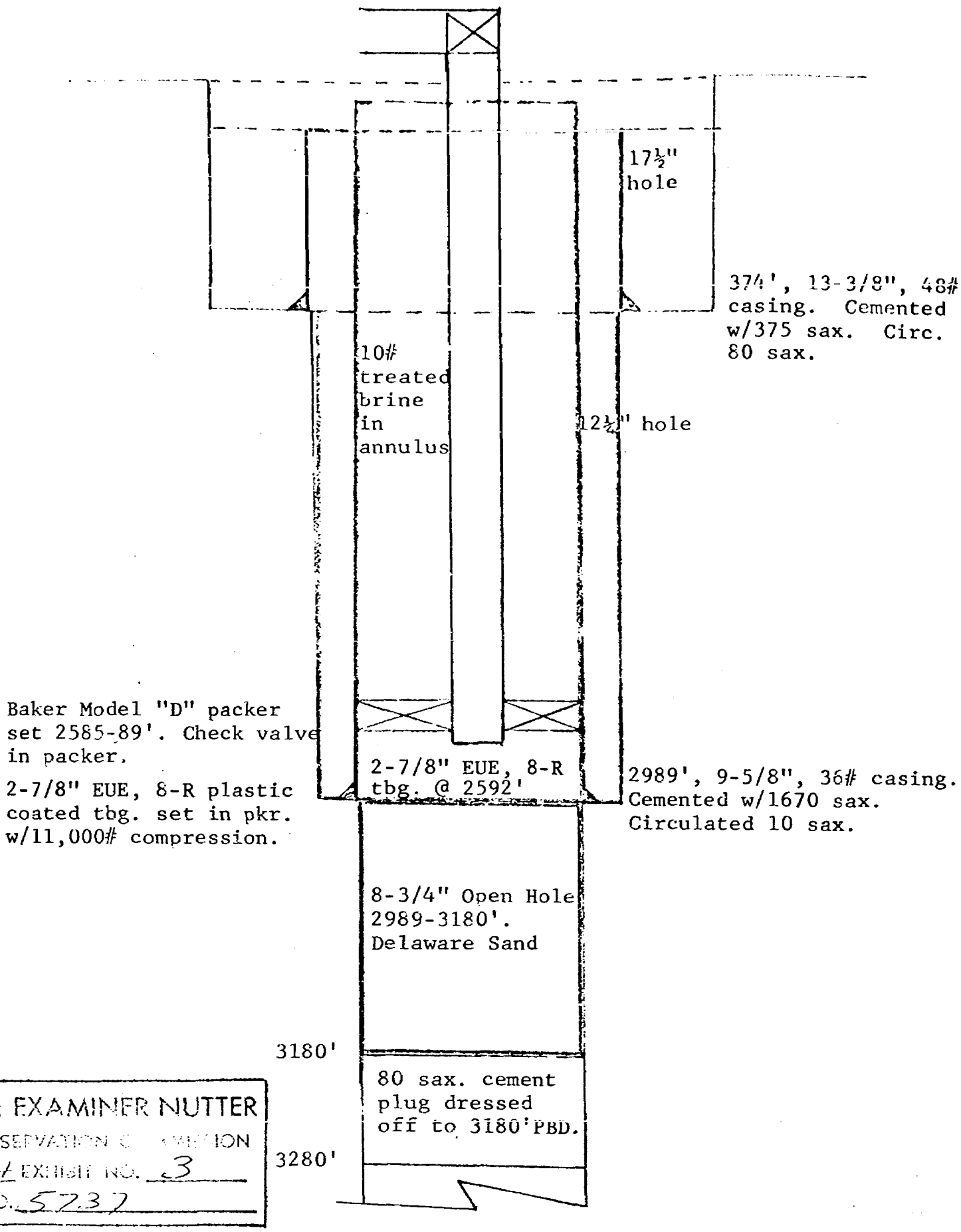
Yours truly,

YATES DRILLING COMPANY

Peyton Yates
Engineer

PY:jg

STATE "CS" #1
CASING, TUBING & PACKER INSTALLATION FOR SWD.



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Bootright EXHIBIT NO. 3
CASE NO. 5237

State "CS" #1 - SWD Injection Zone.

Zone #1. 3018-52. 34' Net. Ave. porosity 15.5%.
#2. 3081-3104. 23' Net. Ave. porosity 17%.

43,560 cu. ft. per ac. ft.
7.481 gals. per cu. ft.
5.614 cu. ft. per 42 gal. bbl.
7758 bbls. per ac. ft.

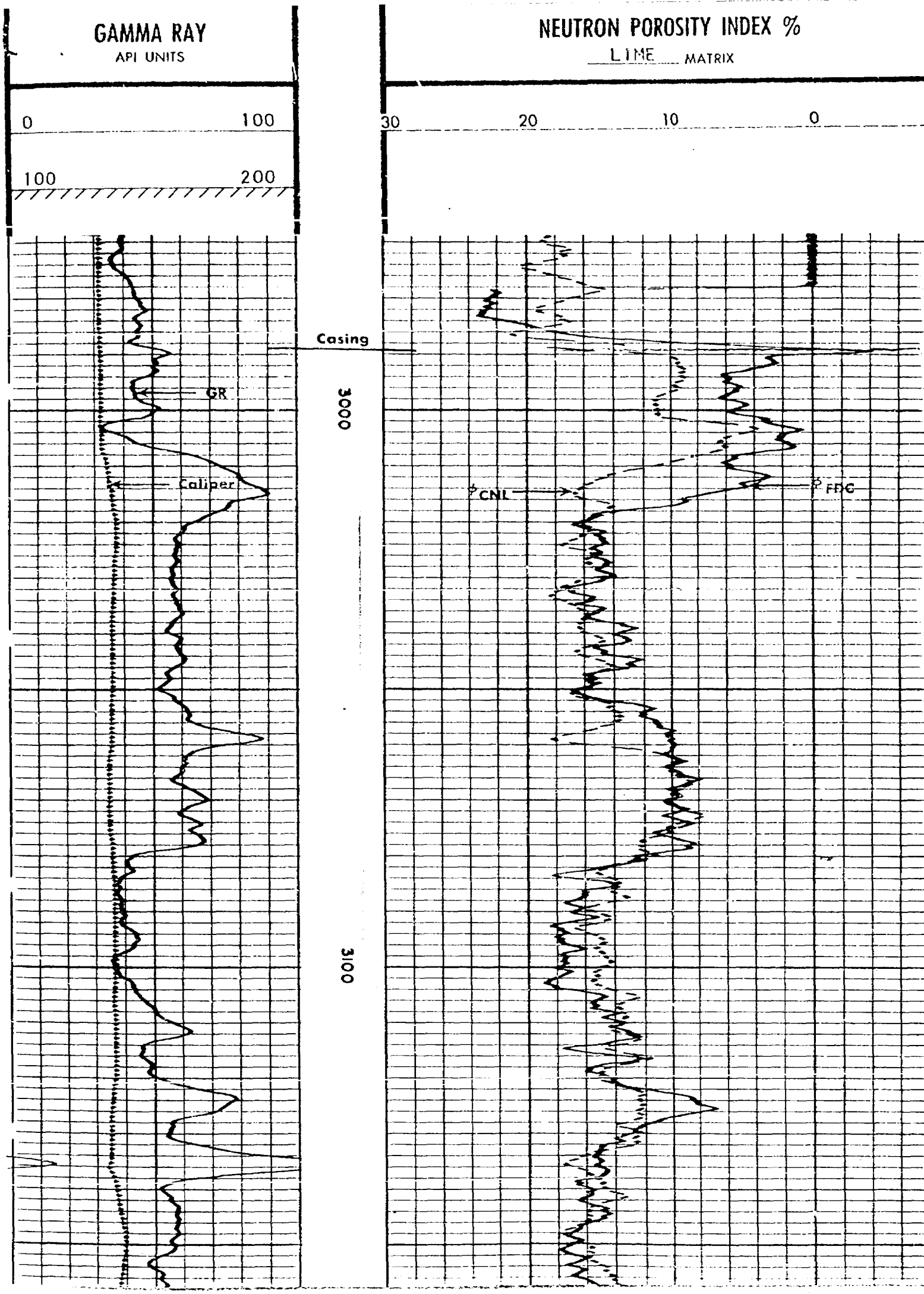
FVF = 1.05.

Zone #1. 7758 (15.5)/1.05 = 1145 bbls./ac. ft. x 34 = 38,930 bbls./ac.
Zone #2. 7758 (17.0)/1.05 = 1256 bbls./ac. ft. x 23 = 28,888 bbls./ac.

Each surface acre contains 67,818 bbls. of water in the Delaware zone from 2989-3180' plus gas in the estimated ratio of 20 cu. ft. per bbl., or 135,636 cu. ft.

Discounting the compressibility of the gas volume, and assuming that our average monthly injection rate will be 40,000 bbls. of water, it would take us 67.8 months -- 5½ years, to displace the water from a 40 acre unit around the injection well -- a distance of 660'.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Bostwick EXHIBIT NO. 5
CASE NO. 5737


GAMMA RAY
API UNITS
0
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200
GR
Caliper
Casing
3000
3100
NEUTRON POROSITY INDEX %
LIME MATRIX
30
20
10
0
φCNL
φFDC

32-46 (5-74)

CITIES SERVICE OIL COMPANY

2620' 2 7/8

Daily Well History – Initial Report

INSTRUCTIONS: Submit an Initial Report on or before the first Wednesday after spudding. Complete applicable data and begin in the appropriate space a daily chronological record of drilling activity. Daily work prior to spudding should be summarized giving inclusive dates only. Include in the initial summary the exact surface location of the drill site and if the well is directionally drilled, also report bottom hole location at projected TD. Description of work performed on the Initial Report after spud date should be a complete report of each days Drilling Activity. Significant workovers may also be recorded on an Initial Report.

LEASE / UNIT NAME & WELL NO.		OPERATOR		REGION	
State CS No. 1		Cities Service Oil Co.		Southwest	
COUNTY - PARISH - STATE - PROVINCE		FIELD OR PROSPECT NAME		AFE NUMBER	APPRO. NO.
Eddy County, New Mexico		Burton Flat		9-3071488	
NET ACRES IN DRLG. BLK.	PROJECTED TD & DEEPEST OBJECTIVE FORMATION		SEC. REC. PROJECT NO.	AUXILIARY COST CENTER	
320	11,650' Morrow		--	1-4279914	
SPUD DATE & HOUR	KIND OF RIG	DEPTH OF WATER	OFFSHORE GROUP	API WELL NUMBER	
7-1-75 1600 MDT	Rotary	--	--	30 015 21546	
ELEVATION	ORIGINAL COST ESTIMATE	DRLG. COST INTEREST IF DIFFERENT FROM GROSS WI		CO. GROSS WI	NET REV. INT.
KB 19.00 GL 3200	$668,248	-		100%	87.5%

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
7-2-75 290'	Drlg (290' in 14 hrs) Red Beds and Anhy. DSS 1. Mud wt 8.5#/ gal, vis 50. 1/2 deg at 213'. Pump press 300# x 58 SPM. Rotary speed 48 RPM, wt on bit 50,000#. Bit No. 1: 17-1/2" HTC OWC, jets 3-11, 0'-IC 290' in 14 hrs. MIRU Big West rig 11. Spudded 17-1/2" hole. Full circ. 413' of 13-3/8" csg H40 48# ST&C "A" gr on location. Location staked by John West Engr Co 1980' FSL, 660' FWL, Sec 17-21S-27E, Eddy County, New Mexico. Contractor: Big West Drlg Co. Mud supplier: Baroid. D&E development well. Objectives: Wolfcamp, Canyon, Strawn, Atoka and Morrow. CTD: $7303.
7-3-75 374'	TD (84' in 3-1/2 hrs) Red Beds and Anhy, 13-3/8" csg at 374'. DSS 2. WOC Mud wt 8.5#/gal, vis 50. 1/4 deg at 374'. Pump press 300# x 54 SPM. Rotary speed 80 RPM, wt on bit 20,000#. Bit No. 1: 17-1/2" HTC OWC, jets 3-11, 0'/374'/374' in 15-1/2 hrs T1 B1 FG. Full circ. Mixed no mud. Drld to TD 374' at 1000 MDT 7-2-75. C&CH. POOH Ran 10-1/3 jts 13-3/8" OD 48# 8 rd H40 ST&C "A" gr w/shoe and float collar on 1st jt. (Tally 354.20'). Set at 374.00' and cmtd w/375 sx Class "C" w/2% CaCl. PD at 1450 MDT 7-2-75. Bumped plug w/800# - ok. Circ 80 sx to pit. Used 4 centralizers 334' to 206'. Strap welded shoe and float. 4 cmt baskets 242-138'. 134' Ruff Coated. Leon Bergerstrom w/NMOCC witnessed job. CMIC: Hayes. CTD: $20,141.
7-4-75 780'	Drlg (406' in 19-3/4 hrs) Anhy and Sd. DSS 3. FW. 1/2 deg at 666'. Pump press 1600# x 58 SPM, rotary speed 48 RPM, wt on bit 10-30,000#. Bit No. 2 12-1/4" HTC X44 232'-IC. Tstd csg and BOP to 500# ok. Full circ. Gas 0 F wtr 6 loads. Wtr well didn't run. 9-5/8" will be on loc Sat. CTD: $25,673.
7-5-75 1130'	Drlg (350' in 18.5 hrs) Anhy and Sd. DSS 4. FW. 1-1/4 degs at 1070'. Pump press 1600#x58 SPM. Rotary speed 48 RPM, wt on bit 30,000#. Bit No. 2 12-1/4" HTC X44, jets 3-11, 374'/1077'/703' in 33 hrs T4 B8 1/4" OG. Bit No. 3 12-1/4" HTC J55, jets 3-12, 1077'-IC 53' in 6 hrs. Full circ. No gas. 1 load FW. No pump wtr well. CTD: $30,190.

SUBMIT ONE COMPLETED COPY TO E&P GENERAL OFFICE – TULSA

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

INSTRUCTIONS: Interim Reports shall be completed and submitted with the Final Report for the well. Interim Reports are required for oil drilling wells and may also be used for recording daily work on significant workovers. The description of work performed on Interim Reports should be a complete report of each days Drilling Activity. On significant wells the Tulsa Office may request Interim Reports as a sheet is filled out.

LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	**FIELD OR PROSPECT NAME**	**AFE NUMBER**
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
7-6-75 1660'	Drlg (530' in 23-3/4 hrs) Anhy and Sd, 13-3/8" csg at 374'. DSS 5. FW. 1-1/4 degs at 1546'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 10-40,000#. Bit No. 3: 12-1/4" HTC J55 1077'-IC 597' in 29-3/4 hrs. Lost circ at 1440'. Drlg w/o circ. 76 jts 9-5/8" 3114.78' on loc. CTD: $37,128/$668,248.
7-7-75 2215'	Dry drlg (555' in 20-3/4 hrs) Sd and Dolo. DSS 6. FW. 1-1/4 degs at 2060'. Pump press 700# x 58 SPM. Rotary speed 48 RPM, wt on bit 40,000#. Bit No. 3: 12-1/4" HTC J55, jets 3-10, 1077'/1138'/50-1/2 hrs. No circ. Trip at 2060' to change BH assembly. CTD: $45,654.
7-8-75 2715'	Dry drlg (500' in 23-3/4 hrs) Dolo and Lm. DSS 7. FW. 1 deg at 2586'. Pump press 700# x 50 SPM. Rotary speed 48 RPM, wt on bit 40,000#. Bit No. 3: 12-1/4" HTC J55 1077'-IC 1638' in 72-3/4 hrs. No circ - mixed 13 paper. CTD: $53,304.
7-9-75 3000'	285' in 11-3/4 hrs Sd Lm, DSS 8. 9-5/8" csg at 2989'. WOC. FW. 1/4 deg at 3000'. Pump press 700# x 58 SPM. Rotary speed 48 RPM, wt on bit 40,000#. Bit No. 3: 12-1/4" HTC J55, jets 3-10, 1077'/3000'/1923' in 83-1/2 hrs T4 B4 FG. Dry drld to TD 3000' at 1700 MDT 7-8-75. C&CH. Made WT into surface pipe. Went back to btm - no fill. Spotted pill of mud on btm. POOH. Ran 9-5/8" csg as follows: 67 - jts 9-5/8" OD 36# 8R K55 LT&C "A" grade w/shoe and float collar on 1st jt 2774.34' 5-1/2 - jts 9-5/8" OD 32# 8R H40 ST&C "A" grade 224.99' 72-1/2 - jts tally 2969.33' Set below zero 19.80' pipe set at 2989.13' Cmtd w/875 sx Halliburton Lite w/5# Gilsonite and 1/4# Flocele followed by 200 sx Class C w/2% CaCl. Bumped float w/1000# - ok. PD at 0435 MDT 7-9-75. Cmt did not circ. Used 4 Halliburton baskets 1604, 1564, 1524 and 1484' and 4 B&W centralizers 2979-2819'. Strap welded guide shoe & float collar. 4 btm jts Ruff Coated. (Prep to run temp svy at 1030 MDT 7-9-75). Leon Bergstrom w/NMOCC witnessed job. CMIC: Bussell. CTD: $57,804.
7-10-75 3000'	Sd and Lime. DSS 9. WOC. Ran TS. TC at 1240'. Ran 1" to 1160' in annulus and displaced following cmt stages to complete cmt job: No. 1: 50 sx Class C w/4% CaCl. Tagged at 1160'. No fill. No. 2: 50 sx Class C w/4% CaCl. Tagged at 1047'. 113' fill. (broke circ w/stage no 2) No. 3: 495 sx Class C w/4% CaCl. Cmt circ 10 sx.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY - PARISH - STATE - PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
7-10-75 contd.	Job complete at 1945 MDT 7-9-75. Used total of 595 sx in 3 stages. Leon Bergstrom w/NMOCC witnessed job. CMIC: Bussell. CTD: $95,526/ $668,248.
7-11-75 3145'	Drlg (145' in 7-1/2 hrs) Lm and Anhy, 9-5/8" csg at 2989'. DSS 10. FW. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 40,000#. Bit No. 4: 8-3/4" HTC J55 3000'-IC 145' in 7-1/2 hrs. Press tested BOP's and ck to 5000# - ok. Press'd 9-5/8" to 1500#-ok. Drld FC and 1/2 shoe jt. Press'd to 1500#-ok. Drld rest of shoe jt and 5' new formation to 3005'. Press'd w/Halliburton to 350# at 1/2 B/M for 15 min (eq mud wt 10.5#/gal)-ok. Started drlg ahead w/8-3/4" RB w/full circ. CMIC: Bussell. CTD: $98,859.
7-12-75 3815'	Drlg (670' in 23-1/2 hrs) Lime. DSS 11. FW. 1/2 deg at 3461'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4 8-3/4" HTC J55 3000'-IC 815' in 30 hrs. Full circ. CTD: $107,100.
7-13-75 4375'	Drlg (560' in 23-3/4 hrs) Lime. DSS 12. FW. 1/2 deg at 3966'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4 8-3/4" HTC J55 3000'-IC 1375' in 37-3/4 hrs. Full Circ. CTD: $114,088.
7-14-75 4845'	Drlg (470' in 23-3/4 hrs) Lime. DSS 13. FW. 3/4 deg at 4440'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4 8-3/4" HTC J55 3000'-IC 1845' in 61-1/2 hrs. Full circ. CTD: $120,169.
7-15-75 5300'	Drlg (455' in 23-3/4 hrs) Ls. DSS 14. FW, 10 pH. 1 deg at 4910'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4 8-3/4" HTC J55 3000'-IC 2300' in 101-1/4 hrs. Full circ. CTD: $125,940.
7-16-75 5685'	Drlg (385' in 23-1/2 hrs) Ls. DSS 15. FW, 10 pH. 1 deg at 5400'. Pump press 1500# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4: 8-3/4" HTC J55 3000'-IC 2685' in 124-3/4 hrs. Full circ. Mixed no mud. CTD: $130,820.
7-17-75 6025'	Drlg (340' in 20-1/2 hrs) Ls. DSS 16. FW, 10 pH. 1-1/4 degs at 5820', 1-1/2 degs at 6016'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 4: 8-3/4" HTC J55 3-12 jets 3000'-6016' 3016' in 145-1/2 hrs T5 B5 FG. Bit No. 5: 8-3/4" HTC J55 3-12 jets 6016'-IC 9' in 1 hr.
	BT at 6016'. Full circ. CTD: $135,152.

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CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	APE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH		DESCRIPTION OF WORK PERFORMED
7-18-75	6430'	Drlg (405' in 24 hrs) Ls, 9-5/8" csg at 2989'. DSS 17. FW, 10 pH. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 214' in 25 hrs. Full circ. CTD: $140,987/ $668,248.
7-19-75	6810'	Drlg (380' in 23-1/2 hrs) Lm. DSS 18. FW, 10 pH. 1-1/2 degs at 6610'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 794' in 48-1/2 hrs. Full circ. CTD: $145,911.
7-20-75	7120'	Drlg (310' in 23-1/2 hrs) Lm. DSS 19. FW. 1-1/2 degs at 6830'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" HTC J55 6016'-IC 1104' in 72 hrs. Full circ. CTD: $149,849.
7-21-75	7495'	Drlg (325' in 23-1/2 hrs) Ls. DSS 20. FW, 10.5 pH. 1-3/4 degs at 7300'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 1479' in 95-1/2 hrs. Full circ. CTD: $153,946.
7-22-75	7855'	Drlg (360' in 23-1/2 hrs) Ls. DSS 21. FW, 10 pH. 1-3/4 degs at 7810'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 1839' in 119 hrs. Full circ. CTD: $158,374.
7-23-75	8185'	Drlg (330' in 22-1/4 hrs) Ls. DSS 22. FW, 10 pH. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 2169' in 141-1/2 hrs. Full circ - no gas flare. CTD: $162,713.
7-24-75	8510'	Drlg (325' in 23-1/2 hrs) Ls. DSS 23. FW, 10 pH. 1-3/4 degs at 8300'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 2494' in 164-3/4 hrs. Full circ. CTD: $166,788.
7-25-75	8735'	Drlg (225' in 22-3/4 hrs) Sh and Ls. DSS 24. Mud wt 10.0#/gal, 10 pH. BW. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 2719' in 187-1/2 hrs. Full circ. No gas flare. Displaced fresh wtr w/brine wtr at 8500'. CTD: $171,870.
7-26-75	8985'	Drlg (250' in 23-1/4 hrs) Lm and Sh, 9-5/8" csg at 2989'. DSS 25. Mud wt 10.0#/gal, vis 28, 11 pH, chlorides 185,000 ppm. 1-3/4 degs at 8810'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HTC J55 6016'-IC 2969' in 210-3/4 hrs. Full circulation - no gas. CTD: $175,915/$668,248.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	API NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH		DESCRIPTION OF WORK PERFORMED
7-27-75	9168'	Drlg (183' in 15-1/2 hrs) Lm and Sh, 9-5/8" csg at 2989'. DSS 26. Mud wt 10.0#/gal, vis 28,11 pH, chlorides 185,000 ppm. BW. 1-3/4 degs at 9040'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 5: 8-3/4" HRC J55 3-12 Jets 6016'-9040' 3024' in 215-1/2 hrs T5 B5 FG. Bit No. 6: 8-3/4" Smith F57 3-13 Jets 9040'-IC 121' in 10-1/2 hrs. Full circulation - no gas flare. Bit trip at 9040'. CTD: $178,665/$668,248.
7-28-75	9460'	Drlg (292' in 23-3/4 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 27. Mud wt 10.0#/gal, vis 28, 11pH, chlorides 185,000 ppm. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 9040'-IC 420' in 34-1/4 hrs. Full circulation - no gas. CTD: $182,945/$668,248.
7-29-75	9710'	Drlg (250' in 23-1/4 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 28. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 185,000 ppm. BW. 1-3/4 degs at 9520'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 3-13 Jets 9040'-IC 670' in 57-1/2 hrs. Full circulation - no gas flow. CTD: $254,885/$668,248.
7-30-75	9980'	Drlg (280' in 23-3/4 hrs) Sh and Lm, 9-5/8" csg 2989'. DSS 29. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 185,000 ppm. BW. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 7: 8-3/4" Smith F57 9040'-IC 950' in 81-1/4 hrs. Full circulation - no gas flare. CTD: $258,579/$668,248.
7-31-75	10275'	Drlg (285' in 23-1/2 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 30. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 180,000 ppm. BW. 2 degs at 10,021'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 9040'-IC 1235' in 104-3/4 hrs. Full circulation - no gas flare. CTD: $262,314/$668,248.
8-1-75	10505'	Drlg (230' in 22 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 31. Mud wt 10.0#/gal, vis 28, chlorides 180,000 ppm. BW. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 9040'-IC 1465' in 126-3/4 hrs. Full circulation - no gas flare. 5-1/2 csg 294 jts 11749.08' on location. CTD: $265,720/$668,248.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	APE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH		DESCRIPTION OF WORK PERFORMED
8-2-75	10750'	Drlg (245' in 23-1/4 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 32. 2 degs at 10,570'. Pump press 1600# x 58 SPM, rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 9040'-IC 1710' in 150 hrs. Full circ - no gas flare. CTD: $269,228/$668,248.
8-3-75	10845'	Drlg (95' in 11-1/2 hrs) Sh, Lm and salt, 9-5/8" csg at 2989'. DSS 33. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 170,000 ppm. 2 degs at 10,809'. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 6: 8-3/4" Smith F57 9040-10809' 1769' 1769' in 158-1/2 hrs T8 B7 FG. Bit No. 7: 8-3/4" Smith F57 3-13 Jets 10809'-IC 37' in 6 hrs. Full circ - no gas flare. CTD: $270,541/$668,248.
8-4-75	11055'	Drlg (210' in 23-3/4 hrs) Sh and Lm, 9-5/8" csg at 2989'. DSS 34. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 170,000 ppm. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000. Bit No. 7: 8-3/4" Smith F57 10809'-IC 246' in 29-3/4 hrs. Full circ - no gas flare. CTD: $273,319/$668,248.
8-5-75	11255'	Drlg (200' in 23-3/4 hrs) Sd, 9-5/8" csg at 2989'. DSS 35. Mud wt 10.0#/gal, vis 28, 10 pH, chlorides 170,000 ppm. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 7: 8-3/4" Smith F57 10,809'-IC 446' in 53-1/2 hrs. Full circ - no gas flare. CTD: $276,299/$668,248.
8-6-75	11400'	Drlg 11,400' (145' in 23 hrs) Sd, Lm & Sh, 9-5/8" csg at 2989'. DSS 36. Mud wt 10.0#/gal, vis 30, API WL 12 cc, 10 pH, chlorides 170,000 ppm. 2 degs at 11,3[illegible]. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 7: 8-3/4" Smith F57 10,809'-IC 501' in 76-1/2 hrs. Full circ - no gas flare. CTD: $279,680/$668,248.
8-7-75	11530'	Drlg (130' in 21-3/4 hrs) Sd and Sh, 9-5/8" csg at 2989'. DSS 37. Mud wt 10.0#/gal, vis 32, API WL 12 cc, 10 pH, chlorides 170,000 ppm. Pump press 1600# x 58 SPM. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 7: 8-3/4" Smith F57 10,809'-IC 721' in 98-1/4 hrs. Full circ - no gas flare. CTD: $281,793/$668,248.

CITIES SERVICE OIL COMPANY — **Daily Well History – Interim Report**

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State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
8-8-75 11557'	27' in 10 hrs Sh and Sd, 9-5/8" csg at 2989'. DSS 38. Mud wt 10.0#/gal, vis 32, API WL 10 cc, FC 1/32, 10 pH, chlorides 156,000 ppm. Pump press 1600#. Rotary speed 48 RPM, wt on bit 45,000#. Bit No. 7: 8-3/4" Smith F57 10,809'/11,557' 747' in 108-1/4 hrs T7 B6 1/4" OG. Reached TD w/ 8-3/4" hole at 1600 MDT 8-7-75. Made WT. No fill. C&CH and POOH. RU Schlumberger. Started logging at 0130 MDT 8-7-75. CTD: $283,793/ $668,248.
8-9-75 11557'	0" Sh and Sd. DSS 39. Circ. Mud wt 9.9#/gal, vis 33, API WL 8 cc, 10.5 pH, chlorides 120,000 ppm. Pump press 500# x 40 SPM. Bit No. 7: 8-3/4" Smith F57 (rerun) 11,557'-IC 0' circ. Finished logging. RD Schlumberger. RIH w/drlg assembly. Lost returns. Circ and mixing LCM. Have partial returns at RCP 500#. Mud slightly gas cut. (When hole is in condition will DST Morrow zone 11,450-11,557'). CMIC: Sackash. CTD: $306,176.
8-10-75 11557'	0' Sh and Sd. DSS 40. DST No. 1. Mud wt 9.8#/gal, vis 33, API WL 8.5 cc, chlorides 155,000 ppm. Pump press 1400# x 58 SPM. Circ and mixed mud and LCM for 12 hrs. Full returns. No gas. POOH. PU Halliburton test tools and RIH to DST Morrow SS 11,449-11,557'. Will open tool at daylite. CMIC: Sackash. CTD: $309,636.
8-11-75 11557'	0' Sh and Sd. DSS 41. Circ. Mud wt 10#/gal, vis 33, API WL 8 cc, FC film, 9.5 pH, chlorides 150,000 ppm. Pump press 500# x 40 SPM. Bit No. 7: 8-3/4" Smith F57 (rerun) 11,557' circ. DST No. 1: 11,449-11,557' (108') Morrow SS. 3/4" BHC, 1/4" TC, 1200' WB. Tool opened w/a good blow at 0535 MDT 8-10-75. GTS in 11 mins w/FDPP increasing to 220# in 13 mins. Tool closed at 5:48 am for 60 min ISIP. Reopened for final flow at 0648 MDT w/a strong blow on 1/2" ck. Well died in 25 mins w/FDPP decreasing from 60# to zero and GR decreasing from 500 MCF to zero in 25 mins. Tool open 60 mins. Closed tool at 0748 MDT for 120 min FSIP. No fluid to surface during test. Released pkrs at 0948 MDT. Tools on bank at 1500 MDT. Rec 1200' WB and 3480' formation wtr 64,000 ppm chlorides. Sample chamber at 11,415' contained 1400 cc formation wtr 64,000 ppm chlorides and 3.05 cu ft gas at 1500# and 175 degs F. BHP's as follows:

	Top Chart @ 11,428'	Bottom Chart @ 11,554'
IMCP	5912#	5892#
13 min IF	948-1034#	1009-1093#
60 min ISIP	4533#	4557#
60 min FF	1013-1653#	1072-1729#
120 min FSIP	4469#	4536#
FMCP	5891#	5850#
BHT	175 degs F	175 degs F

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State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	APE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
8-11-75 cont	Laid down test tools and WIH w/drlg assembly. On btm at 0030 MDT 8-11-75. C&CH. CMIC: Sackash. CTD: $312,386/$668,248.
8-12-75 11557'	0' Sd and Sh, 9-5/8" csg at 2989'. DSS 42. Running csg. Mud wt 10#/gal, vis 34, API WL 8 cc, FC film, 10 pH, chlorides 155,000 ppm. Pump press 1500# x 58 SPM. Bit No. 7: 8-3/4" Smith F57 (rerun) 11,557' circ. Full circ. Fin C&CH. Made WT. No fill. LDDP. RU csg tools and started running 5-1/2" csg at 0300 MDT. CMIC: Woodall, Creamer and Bussell. CTD: $315,136.
8-13-75 11557'	0' Sd and Sh, 5-1/2" csg at 11,557'. DSS 43. WOC and RDR. Mud wt 10#/gal, vis 34, API WL 8 cc, FC film, 10 pH, chlorides 155,000 ppm. Fin running and cmtg 5-1/2" csg as follows: 1 - Halliburton float shoe 1.70 1 - jt 5-1/2" OD 20# N80 8R LT&C A gr 35.95 1 - Halliburton float collar 1.50 29 - jts 5-1/2" OD 20# N80 8R LT&C A gr 1031.38 258-1/2 - jts 5-1/2" OD 17# N80 8R LT&C A gr 10464.97 288-1/2 - jts 11537.20 KB 19.80 5-1/2" set at 11557.00 Cmtd w/350 sx Class H w/0.6% CFR2 and 5# KCl/sack. PD at 1430 MDT 8-12-75. Bumped float w/1900# - ok. Used 12 Halliburton centralizers, btm 600' Ruff Coted. Ran temp svy. TC at 10,220'. Released rig at 2300 MDT 8-12-75. Drop temp from report WOCU. CMIC: Wodall and Creamer. CTD: $389,289.
9-3-75	GIH w/RB and tbg. MIRU completion unit. Del 400 jts 2-7/8" tbg to loc. RIH w/4-5/8" RB and 5-1/2" csg scraper on 250 jts 2-7/8" EUE 8R 6.5# N80 tbg w/AB mod cplgs. SION at 1900 MDT 9-2-75. CMIC: Bussell. CTD: $394,969.
9-4-75	Prep to perf Morrow SS. Fin GIH w/4-5/8" RB and csg scraper on 2-7/8" EUE 8R 6.5# N80 tbg w/AB mod cplgs to PBTD 11,514'. PU to 11,463'. Circ hole w/fresh wtr w2% KCl added. Spotted 80 gals 10% Acetic acid w/additives 11,463-11,377'. Closed preventer and tested csg to 1000#-ok. POOH. RU Welex. Ran GR-CCL-CBL 11,483-10,300'. Top cmt at 10,300'. Cmt bond good 11,483-10,350' and fair bond 10,350-10,300'. CMIC: Bevers. CTD: $399,653.

32-47 (6-74)

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State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
9-5-75 11557'	PBTD 11,514' Sd and Sh, 5-1/2" csg at 11,557', Morrow SS perfs 11,450-11,463'. Prep to az Morrow SS perfs. RU Welex. Jet perf Morrow SS w/2 shots per interval 11,450'; 11,451; 11,455; 11,461; 11,462 and 11,463'. Total of 12 0.40" holes w/19" penetration. RIH w/tbg as follows: 1 - 2-3/8" EUE 8R collar 0.40 1 - 5-1/2" x 2-3/8" EUE Baker A2 lok set pkr 3.14 1 - 2-3/8" EUE 8R x 2-7/8" EUE 8R X-over collar 0.40 367 - jts 2-7/8" EUE 8R N80 6.5# tbg w/AB mod cplgs 11320.29 1 - donut 0.66 Tally 11324.89 Set below 0 20.00 Pkr set at 11344.89 NU wellhead. RU swab. Swbd 66 BLW in 13-1/2 hrs lowering FL from surface to 10,400' (900' fl in hole). No fluid entry. Well gasses weakly after each swab pull and dies. TSTM. CMIC: Bevers and Bussell. CTD: $403,528/$668,248.
9-6-75	Backflowing treatment. Swbd 8 BLW in 6 hrs lowering FL from 10,400' to 10,900'. Weak blow of gas after each swab pull and dies TSTM. RU Western Co. Acidized Morrow SS perfs down tbg w/1500 gals 7-1/2% MS w/ additives. Used 1000 SCF/bbl N_2 in acid and flush and 18 7/8" RCNCB's. Press'd annulus to 1000# - ok. Well balled out. Max 7200#, min 4700#, AIR 4.3 B/M. TL&T 78 BLW. ISIP 4700#, 15 min SIP 3500# and started backflowing to pit. Flare started burning in 1-1/2 hrs. Flwd 50 BLW in 16 hrs, 1" ck, FTP 40-50#. Gas rate increasing but not measured. Still CU load wtr. 28 BLWTR. CMIC: Bevers. CTD: $407,471.
9-7-75	Testing. Flwd 28 BLW, 68 BFW, 24 hrs, GR 150-200 MCFD, 1" ck, FTP 40-50#. All load rec. CMIC: Bevers. CTD: $445,891.
9-8-75	Testing. Flwd 115.5 BFW, 24 hrs, GR 200 MCFD, 1" ck, FTP 20#. CMIC: Bevers. CTD: $447,091.
9-9-75	Prep to squeeze Morrow perfs. Flwd GR 200 MCFD, 61 BFW, 8 hrs, 1" ck, FTP 20#. RU Tracer Surveys, Inc. Ran temp decay and tracer svy. Logger's TD 11,479'. Both svys indicated channeling up to 11,435' and down to 11,479' w/indication channeling going deeper. RU swab. Swbd 48 BFW in 12 hrs w/ FL 7500' from surface. Well gasses after each swab pull and dies. Wtr analysis: density 1.035 H2S None Magnesium 365 pH 6.6 Bicarb 1037 Chlorides 30,000 iron sl trace Calcium 1400 Typical Morrow form wtr. CMIC: Bussell. CTD: $486,681.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	**FIELD OR PROSPECT NAME**	**AFE NUMBER**
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
9-10-75 11557'	PBTD 11,514' Sd and Sh, 5-1/2" csg at 11,557', Morrow SS perfs 11,450-11,463'. Prep to squeeze Morrow perfs. Swbd 24 bbls FW in 3 hrs w/FL 8000' from surface. Weak gas blow after each swab pull and dies. Loaded tbg w/55 bbls fresh wtr w/2% KCL. Unseated Baker lok set pkr and POOH. RIH w/RTTS to 11,255' and SION at 1900 MDT 9-9-75. CMIC: Bussell. CTD: $487,981/$668,248.
9-11-75	WOC. Morrow SS perfs 11,450-11,463' (squeezed off). RU Halliburton. Loaded hole w/26 bbls wtr w/2% KCl. Set RTTS at 11,255' in 10 pts compression. Press'd annulus to 1500# - ok. PIF at 3 B/M at 2600#. Mixed and pmpd 75 sax Class H w/6# KCl and 0.8% Halad 22 followed by 50 sax Class H w/0.3% HR4 (total 125 sax). Max 4200# (walking squeeze) w/45 sax in formation, 20 sax in 5-1/2" csg below RTTS, reversed out 60 sax. Reset RTTS and repress'd to 4200# - ok. Released RTTS and POOH. Job complete at 1400 MDT. RU reverse eqpt. CMIC: Bussell. CTD: $492,390.
9-12-75	Prep to test squeeze job. RIH w/4-5/8" RB, csg scraper and 6 3-1/2" DC's on 2-7/8" EUE tbg. Drld soft cmt 11,255-11,346'. Press'd to 1000# - ok. Drld hard cmt 11,346-11,468'. Bit fell through at 11,468' and washed down to 11,490'. C&CH. SION at 1930 MDT 9-11-75. CMIC: Bevers. CTD: $494,203.
9-13-75	Press test squeeze to 1000# - ok. Circ hole w/2% KCL fresh wtr w/additives. Spotted 100 gals 10% Acetic acid 11,490-11,390'. POOH w/bit. Perf 2 sh/ft 11,460-11,465'. Total 10 holes w/4" csg gun (0.40" holes and 19" penetration). RIH w/pkr and tbg as follows: 1 - 2-3/8" 8 rd tbg collar 0.40 1 - 5-1/2" x 2-3/8" Baker lok-set A-2 pkr 3.14 368 - jts 2-7/8" 8 rd 6.5# N80 tbg w/AB mod cplgs 11355.62 Total tally 11359.16 Zero correction 20.00 Pkr set at 11379.16 with 12,000# wt. Nippled up wellhead. Swbd 35 BLW in 6 hrs lowering FL to 6000'. SI. CMIC: Bevers and Bussell. CTD: $497,328.
9-14-75	Prep to acidize. Swbd 37 BLW in 9 hrs lowering FL to 11,100'. Swbd dry. No fluid entry - no gas show. CMIC: Bussell. CTD: $498,078.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
9-15-75 11557'	PBTD 11,514' Sd and Sh, 5-1/2" csg at 11,557', Morrow SS perfs 11,450-11,463' (squeezed off). Swbg treatment. 16 hr SITP and SICP zero. (Have 600# on 9-5/8" x 5-1/2" annulus from Wolfcamp zone). Swbd 4 BLW in 4 hrs w/FL at 11,100'. Swbd dry. No gas show. RU Western Co. Acidized Morrow SS perfs w/1500 gals 7-1/2% MS acid w/additives. Used 14 7/8" RCNCB's and 1000 SCF N_2/bbl. Press annulus to 1100# - ok. Max press 6800#, min 5200, ISIP 4000#, AIR 4.6 B/M. TL&T 77 BLW, 5 min SIP 3300#, 10 min SIP 3000#, 20 min SIP 2700#. Backflowed 31 BLW to pit on 1" ck. Well dead in 2 hrs. RU swab. Swbd 15 BLW in 6 hrs lowering FL from 6000' to 9000'. Weak blow of gas TSTM. Completion unit broke down. Left well open overnite. 31 BLWTR. CMIC: Bussell. CTD: $501,178/$668,248.
9-16-75	Swbg. Repaired completion unit. Resumed swbg. (FL at 3000' from surface in 11 hrs). Swbd 31 BLW, 16 bbls formation wtr in 24 hrs lowering FL from 3000' to 10,800', GR 38.14 MCFD, 1" ck, flwg in heads after each swab run at 0-10# FTP. All load rec. Lost 2 swab cups and btm nut off swab at 4 pm. (They are trapped in btm of tbg on top of pkr). Wtr analysis after recovering all load: Density 1.025 at 74 degs Iron Strong trace NAK 1719 Ca 1800 Mg 608 CL 24,000 pH 6.1 H_2S None Typical Morrow formation wtr. CMIC: Bevers. CTD: $503,428.
9-17-75	Swbg test. Swbd and flwd 7 BFW, 11 hrs, GR 49.42 MCFD, 1" ck, FTP 0. Making 1 swab run per hr from 10,800'. SION at 1800 MDT 9-16-75. CMIC: Bussell. CTD: $504,178.
9-18-75	Tstg. 12 hr SITP 1250#. Bled to pit. Ran swab 1 time. FL 4000' from surface. Unit broke down. Flwd 28 BFW, GR 49.42 MCFD in 11 hrs, 1" ck, FTP 0. SION. CMIC: Bussell. CTD: $504,928.
9-19-75 11557'	PBTD 11,514' Sd and Sh, 5-1/2" csg at 11,557', Morrow SS perfs 11,460-11,465'. Prep to GIH w/EZ drill retainer. 12 hr SITP 1400#, GR 49.42 MCFD, 6 BFW, 3 hrs, 1" ck, FTP 0. Loaded tbg w/2% KCL fresh wtr. Released pkr and POOH. SION. CMIC: Bevers. CTD: $505,878/$668,248.

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY - PARISH - STATE - PROVINCE	FIELD OR PROSPECT NAME	API NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
9-20-75	WOC. RIH w/Halliburton EZ drill retainer on 2-7/8" EUE N80 tbg. Loaded hole and broke circ. Set retainer at 11,255'. Press'd annulus to 1000# ok. PIF 2 B/M at 4200#. Mixed and pmpd 75 sax Class H w/0.8% Halad 22. Displaced 20 sax in form at 5000# max. Left 15 sax in csg below retainer and reversed out 40 sax. POOH w/tbg and seal assembly. SIH w/tbg open ended. SION. CMIC: Bevers. CTD: $509,384/$668,248.
9-21-75	Shut down. RIH w/258 jts open ended tbg to 11,000'. NU wellhead and released completion unit and SI at 1200 MDT 9-20-75. Drop temporarily from report WO plugging unit. CTD: $509,700/$668,248.
10-14-75 11557'	PBTD 11255', Sd & Sh, 5-1/2" csg @ 11557', Morrow SS Perf's 11460-11465'. Squeezed off - preparing to perforate upper morrow. MIRU completion unit. Install BOP. POOH w/2-7/8" N-80 6.5# AB modified tbg. RIH w/4-5/8" RB, 6-3-1/2 DC on 2-7/8" tbg. Ran 158 jts. Changed out tbg line. SION. Dropped temporarily from report 9-21-75. WOCU. CTD: $512,050/$668,248. CMIC: Bevers.
10-15-75 11557'	PBTD 11255', Sd & Sh, 5-1/2" csg @ 11557, Morrow SS Perfs 11460-465' - squeezed off - POOH w/tbg to perforate Upper Morrow. Finish changing out tbg line. RIH w/RB on 2-7/8" tbg & drld Howco EZ drill retainer @ 11255' & cement to 11320'. Circ hole clean. Pulled 2 stds & SION. CTD: $516,050/$668,248. CMIC: Bevers.
10-16-75 11557'	PBTD 11320' Sd & Sh, 5-1/2" csg @ 11557', Morrow SS Perfs 11460-465'. Squeezed off, Morrow SS Perfs 11163-11287'. Swabbing back load water. Pressure csg to 1000# - held OK. Spotted 124 gal 10% Acetic acid w/ additives 11287-310'. POOH & layed down DC. Perf 2 SPF w/4" csg gun 11163, 165, 167, 169, 171, 173, 175, 197, 199, 281, 283, 284 and 11287'. Total 28 holes. RIH w/1 - 2-3/8" 8rd collar, Baker Loc-Set pkr, 2-3/8 x 2-7/8 Xover and 356 jts 2-7/8" 8rd 6.5# N-80 AB Mod tbg (Tally 10979.04'). Set @ 10999.04'. Set pkr w/14000# wt. NW Wellhead. Swabbed 58 BLW in 11 hrs lowering FL to 9000'. Small amount of gas after each swab run. CTD: $518,090/$668,248. CMIC: Bevers & Bussell

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CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH		DESCRIPTION OF WORK PERFORMED
10-17-75	11557'	PBTD 11320', Sd & Sh, 5-1/2" csg @ 11557', Morrow SS Perfs 11460-465'. Squeezed off, Morrow SS Perfs 11163-287'. Flowing test & prep to acidize. Swab 1 hr. FL @ 9000'. Swab line pulled in two. Left 3000' line, sinker bar & swab in hole. Loaded tbg w/2% KCL fresh water. POOH w/tbg & pkr. Rec line sinker bar & swab. RIH w/5bg & pk. - 2-3/8" tbg coupl., Schlum Quick Flow Nipple, Baker Loc-set pk & 356 Jts 2-7/8" 6.5# N-80 AB Mod tbg (Tally 10979.48'). Set @ 10999.48' w/14,000# on pkr. NU & dropped bar. GTS in 35 min - no fluid. F 144 MCF/D for 11 hrs. FTP 10# on 1" choke. CTD: $520,840/$668,248. CMIC: Bevers
10-18-75		Testing - Flowing back treatment. Acidized with 2000 gals 7-1/2% MSA w/1000 cu ft N_2 per bbl & 56 ball sealers. Max press 4800#, Min 4000#, AIR 5#/M, ISIP 4050#, 5 min SIP 3800#, TL&T 88 bbls. Opened wall to pit. Flow 60 BLW, Gas rate 580 MCF/D, 3/4" ck., FTP 40# in 6 hrs. 18 BLW to recover. CTD: $524,080/$668,248. CMIC: Bevers
10-19-75		Testing. F Tr. Dist., 10 BLW, Gas rate 579 MCF/D, FTP 40#, 3/4" ck in 24 hrs. 8 BLW to recover. CTD: $524,580/$668,248. CMIC: Bevers
10-20-75		Flowing to pit. Testing. F 0 Distillate, 5 BLW, Gas rate 500 MCFD, FTP 40#, 1" choke, 24 hrs - 3 BLW to rec. CTD: $524,580/$668,248. CMIC: Bevers
10-21-75	11557'	PBTD 11320' Sand, 5-1/2" csg @ 11557', Upper Morrow SS Perf 11163-11287'. Testing. Flowed to pit 0 dist, 1 BLW, G.R. 500 MCFD, 1" choke. FTP 40#, 2 hrs. Then shut well in. 3-1/2 hrs SITP 2800#. Flowed through test equip. 0 dist, 2 BLW, G.R. 120 MCFD, 16/64" choke, FTP 750#, BP 600#. 2 hrs. All load recovered. SION. CTD: $526,100/$668,248. CMIC: Bevers
10-22-75	11557'	PBTD 11320' Sand, 5-1/2" csg @ 11557', Upper Morrow SS Perf 11163-11287'. Testing. Flowed through test equip 0 fluid. G.R. 152 MCFD 16/64" choke, FTP 720#, BP 590# 16 hrs. CTD: $526,100/$668,248. CMIC: Bevers

CITIES SERVICE OIL COMPANY — Daily Well History – Interim Repor

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	**FIELD OR PROSPECT NAME**	**AFE NUMBER**
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH		DESCRIPTION OF WORK PERFORMED
10-23-75	11557'	Testing. 6-1/2 hr SITP 3000#. Flwd through test eqpt 0 fluid, GR 123 MCFD 24 hrs, 16/64" ck, FTP 750#, BP 600#. CMIC: Bevers. CTD: $526,250.
10-24-75		PBTD 11,320' Sand, 5-1/2" csg at 11,557', Upper Morrow SS perfs 11,163-11,287'. Testing. Flwd 0 fluid, GR 65 MCFD, 24 hrs, 16/64" ck, FTP 750#, BP 600#. CMIC: Bevers. CTD: $526,250/$668,248.
10-25-75	11,557'	TD 11,577', PBTD 11,320 SD, 5-1/2" csg at 11,557'. Upper Morrow 55 perfs 11,163-11,287-testing. Flowed through test equipment. 0 fluid GR 90 MCFD, 16/64" choke, FTP 750#, BP 600#. CTD: $526,250/$668,248. CMIC: Bevers
10-26-75		Flowed through test eqpt., 0 fluid, GR 87 MCFD, 16/64" choke, FTP 200#, BP 575#. CTD: $526,250/$668,248. CMIC: Woodall
10-27-75		Flowed through test eqpt, 0 fluid, GR 85 MCFD, 16/64" choke, FTP 700#, BP 575#.
10-28-75	11,557	TD 11,557', PBTD 11,320' SD, 5-1/2" csg at 11,557'. Upper Morrow SS perfs 11,163-11,287' - Moving in Plugging Unit. Flowed Morrow Zone through test equipment. 0 fluid, GR 87 MCFD, 16/64" choke. FTD 200#, BP 575#. CMIC: Bevers. CTD: $526,250/$668,248.
10-29-75	11,557	TD 11,557'. PBTD 11,320' SD, 5-1/2" csg at 11,557', Upper Morrow SS perfs 11,163-11,287 - Pulling tubing - MiRU Bontright plugging unit. Loaded tbg w/F.W. Inst. BOP. Released Baker Lok Set packer and pulled 200 jts 2-7/8" eue N-80 tbg w/AB mod. cplys. CMIC: Bevers. CTD: $526,900/$668,248.
10-30-75	11,557	TD 11,557', PBTD 11,320 SD, 5-1/2" csg 11,557', Upper Morrow SS perfs 11,163-11,287 - POOH w/ tubing to plug Morrow. Well unbalanced w/gas pockets. Run back to bottom. C & CH w/250 bbls BW. POOH w/232 jts 2-7/8" eue tubing. SION. CMIC: Bevers. CTD: $529,644/ $668,248.
10-31-75	11,557	TD 11,557', PBTD 11,320 SD, 5-1/2" csg at 11,557'. Upper morrow SS perfs 11,163-11,287 - Running open ended tubing. Fin POOH w/2-7/8" EUE tbg. Set CIBP on WL at 11,100' and dumped 7 Sax cement w/dump bailer on CIBP. Top of cement plug at 11,050'. SHT w/2-7/8" tbg to displace hole w/mud laden fluid. SION. CMIC: Bevers. CTD: $531,812/$668,248.

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CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY – PARISH – STATE – PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-1-75 11557'	Fin GIH w/2-7/8" EUE tbg to 11,000'. Displaced hole w/10#/gal mud. SOOH w/tbg. SION. CMIC: Bevers. CTD: $532,554/$668,248.
11-2-75	Fin POOH w/tbg. NU hydraulic csg jacks and welded on lift nipple. SI until Monday. CMIC: Bussell. CTD: $533,342.
11-3-75	SD over Sunday. CTD: $533,342.
11-4-75	Prep to lay down 5-1/2" csg. Bled 9-5/8 x 5-1/2 annulus to pit and loaded w/100 bbls 10#/gal BW. Picked up pipe w/jacks. Located free point by stretch method at 9500'. Shot off 5-1/2" csg w/jet csg cutter at 9479'. NU BOP's. SION. CMIC: Bussell. CTD: $534,674.
11-5-75	Laying down 5-1/2" csg. Could not free 5-1/2" csg cut off at 9479'. RU wireline. Cut 5-1/2" csg 15' higher at 9464'. Pulled and laid down 132 jts 5-1/2" OD 17# 8R N80 LT&C (5280'). SION. CMIC: Bussell. CTD: $537,041.
11-6-75	Prep to displace cmt plugs. Fin laying down 5-1/2" csg. Total recovery 235 jts 5-1/2" OD 17# N80 8R LT&C csg 9562.11'. RIH w/2-7/8" EUE tbg open ended. SION. CMIC: Bussell. CTD: $539,131.
11-7-75	Displacing cmt plugs. RIH w/2-7/8" EUE tbg OE to 9504'. Broke circ. Displaced 40 sack cmt plug 9504-9404' at csg cut pt. Displaced 80 sack cmt plug across top of Wolfcamp 8825-8625'. Laid down 56 jts tbg. SION. CMIC: Bussell. CTD: $540,000.
11-8-75	WOC. Displaced 40 sack cmt plug across top of 2nd Bone Sprgs sand 7100-7000' through open ended tbg. Displaced 40 sack cmt plug across top of 1st Bone Sprgs sand 6350-6250'. Displaced 40 sack cmt plug across top of Bone Sprgs 5025-4925'. Displaced 80 sack cmt plug 4650-4450'. POOH w/ tbg. SI until Monday morning. CMIC: Bussell. CTD: $540,708.
11-9-75	WOC. CTD: $540,708.
11-10-75	Prep to dress off top of cmt plug. CTD: $540,708.
11-11-75	RIH w/8-3/4" RB and 16 5-3/4" DC's on 129 jts 2-7/8" EUE tbg. Tagged cmt plug at 4447'. Drld 12' of soft cmt 4447-4459'. Drld 31' of hard cmt 4459-4490'. C&CH. Set down 52,000# wt on plug - ok. Pulled bit up into 9-5/8" csg. SION. CMIC: Bussell. CTD: $541,457.
11-12-75	Prep to test Delaware Sand 4325-4490'. Ran to btm w/46 jts 2-7/8" EUE tbg. Tagged at 4490'. No fill. C&CH. POOH. PU Halliburton test tools w/48 hr bombs. RIH to 3000' and SION. (Have 5 5-3/4 OD DC's below tool and 11 above). CMIC: Bussell. CTD: $544,474.

CITIES SERVICE OIL COMPANY

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LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-13-75 11557'	PBTD 4490' Lm, 9-5/8" csg at 2989'. Prep to plug off tested interval in Delaware Sand. DST No. 2: 4325-4490' (165') Delaware Sd. 3/4" BHC, 1/8" TC, no wtr blanket. Opened tool at 0745 MST 11-12-75 w/a fair blow increasing to 3# during 15 min preflow. Closed tool at 0800 MST for 90 min ISIP. Reopened tool at 0930 MST w/a good blow on 1/8" ck increasing to 5# during 60 min final flow. No gas to surface. Closed tool for 120 min FSIP at 1030 MST. Released pkr at 1230 MST. On bank at 1830 MST. Rec 1970' of formation wtr that titrates 80,000 ppm chlorides. Sample chamber at 4289' contained 2300 cc wtr and 1 cu ft gas at 500#. BHP's as follows:

	Top Chart at 4304	Bottom Chart at 4487
IMCP	2107#	2191#
15 min preflow	223-459#	337-556#
90 min ISIP	1843#	1929#
60 min final flow	630-1029#	700-1067#
120 min FSIP	1869#	1929#
FMCP	2107#	2191#
BHT	100 degs F	100 degs F

	SION. CMIC: Bussell. CTD: $546,833/$668,248.
11-14-75	Prep to spot cmt plugs. LD 12 5-3/4" DC's. Ran 145 jts 2-7/8" EUE tbg to 4375'. SION. CMIC: Bussell. CTD: $547,352.
11-15-75	WOC. Spotted 40 sack cmt plug through OE'd 2-7/8 EUE tbg 4375-4275' across top of Delaware Sand interval covered in DST #2. Spotted 80 sack cmt plug 3280-3080'. POOH w/tbg. SI over weekend. CMIC: Bevers. CTD: $548,009.
11-16-75	WOC.
11-17-75	WOC.
11-18-75	RD Boatright csg pulling eqpt. RU X-pert comp unit. RU reverse eqpt. RIH w/8-3/4 RB and 4 5-3/4" DC's on 2-7/8" EUE tbg. Tagged cmt plug at 3075. Drld 5' soft cmt 3075-3080' and 40' hard cmt 3080-3120'. C&CH and POOH. LD drill collars. CMIC: Bussell. CTD: $549,117.

CITIES SERVICE OIL COMPANY

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State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-19-75 11557'	PBTD 3120' Lm, 9-5/8" csg at 2989', Delaware OH 2989-3120'. Prep to swab Delaware zone. Rigged down csg pullers. Rigged up pulling unit. RIH w/ RTTS on 2-7/8" EUE 8R 6.5# N80 tbg w/AB mod cplgs. Set btm of tail pipe at 3072.02', SN at 3071' and RTTS at 2848' in 12,000# compression. RU to swab. SION at 1800 MST 11-18-75. CMIC: Bevers. CTD: $550,503/ $668,248.
11-20-75	Testing. 14 hr SITP 0. Swbd 0 oil, 20 BLW, 17.2 bbls formation wtr in 10 hrs lowering FL from surface to SN at 3071'. Fluid entry 100' in 1 hr shut down. No gas. (Wtr sample to lab for analysis). SION at 1700 MST 11-19-75. CMIC: Bevers. CTD: $551,103.
11-21-75	14 hr SITP 37#. Swbd 0 oil, 13.8 bbls formation wtr in 7 hrs. Swbg from SN at 3071. RU Western Co. Acidized Delaware OH w/ 1500 gals 7-1/2% modified mud acid w/additives. Press'd annulus to 1000# - ok. Max press 1700#, min 750#, ISIP 700#, AIR 2.3 B/M. TL&T 76 BLW. RU swab. Swbd 0 oil, 76 BLW and 26.2 bbls formation wtr in 15 hrs. 400' fl in hole. Making 2 swab runs/hr. Formation wtr analysis: Density 1.160 pH 7.9 Iron Faint trace H_2S Faint trace Chlorides 130,000 ppm CMIC: Bussell. CTD: $553,153.
11-22-75	PLugging well. Swbd 0 oil, 0 gas and 31 bbls formation wtr from Delaware zone in 6 hrs swbg from SN at 3071'. Loaded tbg. Released RTTS and POOH. RIH w/2-7/8" EUE tbg OE'd to 3025'. Circ hole w/mud laden fluid. Sptd 40 sx Class C cmt plug 3025-2925' 1/2 in and 1/2 out of 9-5/8" csg seat at 2989'. LD 2-7/8" EUE tbg in singles. SION. CMIC: Bevers. CTD: $554,720.

CITIES SERVICE OIL COMPANY

Daily Well History – Final Report

INSTRUCTIONS: Submit a Final Report on or before the first Wednesday after filing regulatory agency completion report or a well is P&A. A Final Report should be submitted also when a well is TA or drilling operations are suspended for an indefinite or appreciable length of time even though a reg. agency completion report is not filed. When operations are resumed on wells reported as suspended or TA, a second Final Report must be submitted as if the well had not been suspended or TA. On workovers when a regulatory agency completion report is not required upon completion, report completion and representative test data in spaces provided. Description of work performed on workovers and the plugging of wells other than drilling wells may summarized giving inclusive dates, on the Final Report form in which case Initial and Interim Reports are not required. Each Final Report for drilling wells and significant workovers must be accompained by appropriate Interim Reports. Complete only applicable data.

LEASE / UNIT NAME AND WELL NO.		OPERATOR	REGION
State CS No. 1		Cities Service Oil Co.	Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	ESTIMATED 100% D & E COST AT COMP.	AFE NUMBER
Eddy County, New Mexico	Burton Flat	$555,035	9-3071488
PROJECT NAME	RIG RELEASE DATE - HOUR	CLASS OF WELL	COMPANY GROSS WI
----------	8-12-75 2300 MDT	OIL ☐ GAS ☐ SERV ☐	100%

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-23-75 11557'	Shale, 9-5/8" csg at 2989'. P&A, Cut off csghead. Set 10 sx Class C cmt plug in top of 9-5/8" csg from btm of cellar to 58'. Inst 4" dry hole marker. Hauled tbg and csghead to Hobbs Yard. Released pulling unit. Drill dev well.

TD-MEASURED	PBTD	TVD

POTENTIAL TEST DATA

DATE	RESERVOIR	PRODUCING INTERVAL	TBG PR	CSG PR	CHK. SIZE	BOPD	MCF/D	% WTR.	GOR	CORR. GR.	TEST TIME
	Plugged and	abandoned.									

PRODUCTION ESTIMATE (COMPLETE EVEN IF WELL IS SHUT IN)

RESERVOIR	BOPD	MCF/D	BWPD	DATE ON PRODUCTION ESTIMATED (OR ACTUAL)	DATE THE PERMANENT WELL HEAD WAS INSTALLED
Plugged and	abandoned.				

PROCEDURE REF. 123.0.19 SUBMIT ONE COMPLETED COPY TO E&P GENERAL OFFICE – TULSA

Dockets Nos. 25-76 and 26-76 are tentatively set for hearing on September 15 and 29, 1976. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 1, 1976

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

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

CASE 5747: Application of Atlantic Richfield Company for a non-standard gas proration unit, unorthodox location, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a previously established 185-acre non-standard Eumont gas proration unit comprising the SW/4 and SW/4 NW/4 of Section 19, Township 21 South, Range 36 East, Lea County, New Mexico, to be simultaneously dedicated to applicant's State "F" DE Wells Nos. 1 and 3, at unorthodox locations in Units E and K, respectively, of said Section 19.

CASE 5748: Application of TERRAPET Management Corporation for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled at a point 990 feet from the South and West lines of Section 31, Township 14 South, Range 28 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico.

CASE 5749: Application of Southern Union Supply Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Gallagher State "8" Well No. 3, proposed to be drilled at a point 660 feet from the South line and 1980 feet from the East line of Section 8, Township 17 South, Range 34 East, West Vacuum Field, Lea County, New Mexico.

CASE 5750: Application of Cities Service Oil Company for an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Southeast Maljamar G-SA Unit-Tract 1 Well No. 4 to be located 1355 feet from the South line and 1135 feet from the East line of Section 30, Township 17 South, Range 33 East, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico.

CASE 5751: Application of Phillips Petroleum Company for a special allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a capacity allowable for its U. S. Minerals Well No. 4 located in Unit O of Section 30, Township 17 South, Range 33 East, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, said well being a direct offset to an active waterflood project.

CASE 5752: Application of Bettis, Boyle & Stovall for a special allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a capacity allowable for its V. H. Justis Well No. 2 located in Unit D of Section 20, Township 25 South, Range 37 East, Jalmat Oil Pool, Lea County, New Mexico, said well being a direct offset to an active waterflood project.

CASE 5262: (Reopened)

In the matter of Case 5262 being reopened pursuant to the provisions of Order No. R-4822-B, which order extended the special pool rules for Southwest Media-Entrada Oil Pool, Sandoval County, New Mexico, including a provision for 160-acre spacing and proration units and a special depth bracket allowable of 750 barrels of oil per day. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing and why the special depth bracket allowable should not be rescinded.

CASE 5737: (Continued & Readvertised)

Application of Howard Boatright for amendment of Order No. R-5208, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5208 which authorized salt water disposal into the Delaware formation through applicant's State CS Well No. 1, located in Unit L of Section 17, Township 21 South, Range 27 East, Eddy County, New Mexico. Applicant seeks to increase the maximum injection pressure for said well from 400 psi to 800 psi, and also to amend the specified packer setting depth from 2975 feet to 2585 feet.

CASE 5736: (Continued from August 18, 1976, Examiner Hearing)

Application of BCO Inc. for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Basin Dakota Gas Pool and Lybrook-Gallup Oil Pool and undesignated Greenhorn and Mancos production in the wellbore of its Dunn Well No. 2, located in Unit F of Section 10, Township 23 North, Range 7 West, Rio Arriba County, New Mexico.

YATES DRILLING COMPANY
YATES BUILDING – 207 SOUTH 4TH ST. – (505) 746-3558
ARTESIA, NEW MEXICO 88210

S. P. YATES, PRESIDENT
S. W. HARPER, SEC.-TREAS.
JACK W. McCAW, ASST. SEC.-TREAS.

August 17, 1976

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

Re: Case 5737, Docket 23-76
Application of Howard Boatwright Company
for Amendment of Order No. R-5208
Eddy County, New Mexico

Gentlemen:

Yates Drilling Company is operator of the Avalon Federal #2, a Morrow gas well offsetting the proposed disposal well described in the referenced cases. The Avalon Federal #2 is located 1980 FSL and 1980 FEL of Section 18-T21S-R27E.

Yates Drilling Company has no objection at this time to the proposed change in the injection pressure limitation from 400 to 800 psig. However, we will monitor the condition of our production casing, and, in particular, the annulus pressure of the Avalon Federal #2. If changes occur which may be attributable to the proposed injection of disposal waters, we will inform the Commission and the Operator of the disposal well, and may request another hearing be held at that time to evaluate continued water injection.

Yours truly,

YATES DRILLING COMPANY

Peyton Yates
Engineer

PY:jg

YATES DRILLING COMPANY
YATES BUILDING – 207 SOUTH 4TH ST. – (505) 746-3558
ARTESIA, NEW MEXICO 88210

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Eddy County, New Mexico

Gentlemen:

Yates Drilling Company is operator of the Avalon Federal #2, a Morrow gas well offsetting the proposed disposal well described in the referenced cases. The Avalon Federal #2 is located 1930 FSL and 1980 FEL of Section 18-T21S-R27E.

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Yours truly,

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Engineer

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JACK W. McCAW, ASST. SEC.-TREAS.

August 17, 1976

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

Re: Case 5737, Docket 23-76
Application of Howard Boatwright Company
for Amendment of Order No. R-5208
Eddy County, New Mexico

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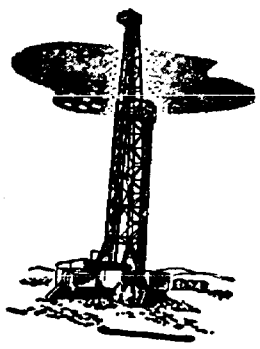
Yours truly,

YATES DRILLING COMPANY

Peyton Yates
Engineer

PY:jg

YATES DRILLING COMPANY
YATES BUILDING – 207 SOUTH 4TH ST.
ARTESIA, NEW MEXICO · 88210



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

HOWARD BOATRIGHT CO., INC.
811 FIRST NATIONAL BANK BLDG.
MIDLAND, TEXAS 79701

PH 915/683-2113 • MIDLAND

PH 915/362-7235 • ODESSA

August 2, 1976

RECEIVED
AUG - 4 1976
OIL CONSERVATION COMM
Santa Fe

Oil Conservation Commission
State of New Mexico
P.O. Drawer DD
Artesia, New Mexico 88210

ATTENTION: Mr. W. A. Gressett
Supervisor, District II

Re: State CS #1
17-21-27
Eddy County, New Mexico

Dear Mr. Gressett:

In reply to your letter of July 28, 1976, we have requested that our insurance company provide the required plugging bond for recompletion of the subject well. The Permian Corporation will provide a bond for their operation of the facility.

The change in packer setting depth is requested for the following reason:

It was reported by Cities Service that 9-5/8", 36# casing was set @ 2989' and cement circulated. We drilled out the cement plugs with 8-3/4" bits and cleaned out to 3180'. A scraper was not run. Prior to setting the packer, a gauge ring with an O.D. of 8.875 was run. This tool stopped at 2700', either due to heavier pipe being on bottom or cement from the plug still on the pipe. The Baker Model "D" (32#-40#) packer was set on wire line at 2585' (top of the Delaware zone) rather than at the approximate depth of 2975' proposed in the C-101 and approved in the Commission order R-5208. A new hearing for change in maximum surface pressure limit has been scheduled for August 18th. We should like to request that an ammended packer setting depth be included in this new hearing.

Very truly yours,

William W. Griffith

WWG/jc
cc: Mr. Joe D. Ramey, Director
Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico 87501

Mr. George Eng
The Permian Corporation
P.O. Box 3119
Midland, Texas 79701

CASE 5735: Application of Continental Oil Company to amend Order No. R-1234, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Rule 19 of the Special Rules for the Warren Tubb Gas Pool promulgated by Order No. R-1234, to provide for an increase in the gas-oil ratio limitation for oil wells in said pool to some figure not to exceed 10,000 to one.

CASE 5736: Application of BCO Inc. for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Basin Dakota Gas Pool and Lybrook-Gallup Oil Pool and undesignated Greenhorn and Mancos production in the wellbore of its Dunn Well No. 2, located in Unit F of Section 10, Township 23 North, Range 7 West, Rio Arriba County, New Mexico.

CASE 5737: Application of Howard Boatright Company for amendment of Order No. R-5203, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5203 which authorized salt water disposal into the Delaware formation through applicant's State CC Well No. 1 located in Unit L of Section 17, Township 21 South, Range 27 East, Eddy County, New Mexico. Applicant seeks to increase the maximum wellhead injection pressure for said well from 400 psi to 800 psi.

CASE 5709: Application of Tahoe Oil and Cattle Company for an exception to the provisions of Order No. R-3221, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks, as an exception to the provisions of Commission Order No. R-3221, permission to construct and operate an earthen salt water disposal pit in the NE/4 SW/4 of Section 2, Township 20 South, Range 30 East, Eddy County, New Mexico.

CASE 5738: Application of Hayes Oil Company for a non-standard proration unit and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 240-acre non-standard gas proration unit comprising the NE/4 and N/2 SE/4 of Section 18, Township 20 South, Range 26 East, Eddy County, New Mexico, to be dedicated to a Morrow test well proposed to be drilled at an unorthodox location for said unit at a point 1980 feet from the South line and 660 feet from the East line of said Section 18.

CASE 5739: Application of William G. McCoy for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox gas well location of its McCord Well No. 1 to be drilled at a point 660 feet from the North and East lines of Section 22, Township 23 South, Range 26 East, South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico.

CASE 5740: Application of Gulf Oil Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying Section 28, Township 24 South, Range 26 East, Eddy County, New Mexico, to be dedicated to applicant's White City Penn Gas Com. Unit No. 3 Well No. 1, to be drilled at a point 2310 feet from the North and West lines of said Section 28. 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. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5741: Application of Gulf Oil Corporation for directional drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority for the directional drilling of three wells on its Central Drinkard Unit, Drinkard Pool, Lea County, New Mexico, all in Section 33, Township 21 South, Range 37 East, as follows: Well No. 406, surface location 2200 feet from the South line and 1470 feet from the East line, bottom-hole location 2390 feet from the South line and 870 feet from the East line; Well No. 407, surface location 1475 feet from the South line and 1440 feet from the East line, bottom-hole location 1110 feet from the South line and 700 feet from the East line; Well No. 420, surface location 2300 feet from the South line and 1520 feet from the East line, bottom-hole location 1790 feet from the North line and 1030 feet from the East line. All of the above wells would be bottomed within 100 feet of the above-described bottom-hole locations.

CASE 5742: Application of Gulf Oil Corporation for a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 160-acre non-standard Blinebry gas proration unit comprising the S/2 NW/4 and W/2 NE/4 of Section 28, Township 21 South, Range 37 East, Lea County, New Mexico, to be simultaneously dedicated to applicant's Eunice King Wells Nos. 5 and 24, located, respectively, 1874 feet from the North and West lines, and 2086 feet from the North line and 760 feet from the West line of said Section 28. Applicant further seeks authority to later substitute its Eunice King Well No. 15, located 2086 feet from the North and West lines of said Section 28 for the aforesaid Well No. 5 in the above-described simultaneous dedication.

CASE 5743: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit John W. Adams, Executor of Estates of R. W. and June Adams; and Ruth McGahey, Fred McGahey and David McGahey dba Adams & McGahey, American Employers' Insurance Company, and all other interested parties to appear and show cause why the following wells located in Township 21 North, Range 30 East, Harding County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program:

Gonzales Well No. 2, located in Unit P of Section 9; Adams & McGahey Well No. 1, located in Unit B of Section 16; and Gonzales "A" Well No. 1, located in Unit H of Section 32.

BILL GRESSET /

Dan
Order R-5208 says that the packer to be set @ approx. 2975, and according to the enclosed C-103 they set it @ 2585.
What do you think about this?

Bill
Tell him this case is going to be reopend to consider chg'g the pressure limit and we will go into this at that time.

Case 5737

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. DRAWER DD · ARTESIA
88210

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

July 28, 1976

Howard Boatright Co., Inc.
811 First National Bank Bldg.
Midland, TX 79701

Re: State CS
#1-L, 17-21-27
Eddy County, NM

Gentlemen:

To date, this office has not received approval of your Bond covering the re-entry of the subject well.

However, according to Form C-103, recently submitted, you have re-entered the well and prepaired it for water disposal. Further, according to said Form C-103, the well was not completed in accordance with Commission Order R-5208.

Please contact this office immediately concerning this matter.

Sincerely yours,

W. A. Gressett

W. A. Gressett
Supervisor-District II

WAG/th

copy to
The Permian Corp.
Box 1183
Houston, TX 77001

D. S. Nutter
P. O. Box 2088
Santa Fe, NM 87501

Case 5737

RECEIVED

JUL 12 1976

O. C. C.
ARTESIA, OFFICE

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FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: K-6364

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL [ ] GAS WELL [ ] OTHER. Re-entry. SWD.

7. Unit Agreement Name:

2. Name of Operator: Howard Boatright Co., Inc.

8. Farm or Lease Name: State CS

3. Address of Operator: 811 First Nat'l. Bank Bldg., Midland, Texas, 79701

9. Well No.: 1

4. Location of Well: UNIT LETTER L, 1980 FEET FROM THE S LINE AND 660 FEET FROM THE W LINE, SECTION 17 TOWNSHIP 21-S RANGE 27-E NMPM.

10. Field and Pool, or Wildcat: Und. Burton Flat Mor.

15. Elevation (Show whether DF, RT, GR, etc.): 3233 DF

12. County: Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [ ]	
OTHER [ ]		OTHER Drill out. Complete as SWD [X]	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

6-30-76. Move in reverse unit & pulling unit. Drill out plugs and clean out to cement plug @ 3180'. Acidize 8-3/4" O.H. section from 2989-3180' with 5,000 gals. of 15% acid. Flush w/300 bbls. Set Baker Model "D" packer on wire-line @ 2585'. Ran 82 jts. new internally plastic coated 2-7/8" EUE, 8-R, J-55 tubing plus coated Baker 2½" x 6' flow tube, 1-set seals and locator sub. Set in packer @ 2585' w/11,000# of compression. Loaded back side w/10# treated brine. Installed plastic coated master valve & plastic coated well head. Pressure gauges installed on tubing & casing. Well completed for SWD into Delaware zone. State of N.M., Case No. 5665. Order No. R-5208.

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

SIGNED [signature] TITLE V. Pres. DATE 7-12-76.

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Case 5737

HOWARD BOATRIGHT CO., INC.
811 FIRST NATIONAL BANK BLDG.
MIDLAND, TEXAS 79701

PH 915/683-2113 • MIDLAND

PH 915/332-7135 • ODESSA

July 20, 1976

Mr. Joe D. Ramey, Director
Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico 87501

Re: Case No. 5665
Order No. R-5208
State CS #1, Eddy County.

Dear Mr. Ramey:

The subject well has been completed in the Delaware zone for use as a salt-water disposal well. Completion interval is in open hole from 2989-3180'. This zone has been acidized with 5,000 gallons and fraced with 50,000 gallons jelled brine and 100,000# of 20-40 sand. Expenditures to date have been $43,000. Additional costs for surface storage and injection equipment will be $17,000, for a total final investment of $60,000.

The acid treatment was down 2-1/2" tubing at a rate of 9-1/2 barrels per minute and a pressure of 700#. The acid was flushed with 10# brine and the ISDP was 400#. The well was later fraced down the 9-5/8" casing string using 9.2# jelled brine with a sand content of 2-1/2# per gallon. Flush was with 10# brine. Average treatment rate was 50 barrels per minute at an average pressure of 550#. The ISDP was 400#. The 10 minute SIP was 350#.

From tests run by Cities Service in the subject well, it has been determined that the bottom-hole pressure gradient in the Delaware section is 0.44# per foot, or sufficient to support a full column of Delaware formation water that has a chloride content of 130,000 ppm. -- this from water analysis of samples from the subject well. As the average chloride content of our disposal water is in the range of 60,000 ppm., we have found by injection tests that the "load pressure", or pressure required to start disposal into the Delaware zone is approximately 400#. Past this point, little additional pressure is required to inject water into this extensive reservoir.

Our form C-108 was filed 3-8-76, and showed as estimated approximate injection pressure of 400#. This figure was set as the maximum pressure permitted in the Commission's order R-5208, dated 4-27-76. Because it

Amendment of Order R-5208 to increase the max well head inj press from 400 psi to 800 psi

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has now been determined that 400# is the minimum surface pressure required to overcome reservoir bottom-hole pressure and to begin injection with average disposal water, it is requested that this maximum surface pressure limit be increased to 800#, which is actually only 400# as related to a zero base. This new maximum would represent only 0.25# of surface injection pressure per foot on injection depth.

Very truly yours.

W. W. Griffith

WWG/jc

cc: Mr. W. A. Gressett
Supervisor, District II
P.O. Drawer DD
Artesia, New Mexico 88210

Mr. George Eng
The Permian Corporation
1509 West Wall
Midland, Texas 79701

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32-47 (L-74)

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Repo

INSTRUCTIONS: Interim Reports shall be completed and submitted with the Final Report for the well. Interim Reports are required for all drilling wells a may also be used for recording daily work on significant workovers. The description of work performed on Interim Reports should be a complete report of ea days Drilling Activity. On significant wells the Tulsa Office may request Interim Reports as a sheet is filled out.

LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-13-75 11557'	PBTD 4490' Lm, 9-5/8" csg at 2989'. Prep to plug off tested interval in Delaware Sand. DST No. 2: 4325-4490' (165') Delaware Sd. 3/4" BHC, 1/8" TC, no wtr blanket. Opened tool at 0745 MST 11-12-75 w/a fair blow increasing to 3# during 15 min preflow. Closed tool at 0800 MST for 90 min ISIP. Reopene tool at 0930 MST w/a good blow on 1/8" ck increasing to 5# during 60 min final flow. No gas to surface. Closed tool for 120 min FSIP at 1030 MST Released pkr at 1230 MST. On bank at 1830 MST. Rec 1970' of formation wtr that titrates 80,000 ppm chlorides. Sample chamber at 4289' containe 2300 cc wtr and 1 cu ft gas at 500#. BHP's as follows:

	Top Chart at 4304	Bottom Chart at 4487
IMCP	2107#	2191#
15 min preflow	223-459#	337-556#
90 min ISIP	1843#	1929#
60 min final flow	630-1029#	700-1067#
120 min FSIP	1869#	1929#
FMCP	2107#	2191#
BHT	100 degs F	100 degs F

SION. CMIC: Bussell. CTD: $546,833/$668,248.

11-14-75	Prep to spot cmt plugs. LD 12 5-3/4" DC's. Ran 145 jts 2-7/8" EUE tbg to 4375'. SION. CMIC: Bussell. CTD: $547,352.
11-15-75	WOC. Spotted 40 sack cmt plug through OE'd 2-7/8 EUE tbg 4375-4275' across top of Delaware Sand interval covered in DST #2. Spotted 80 sack cmt plug 3280-3080'. POOH w/tbg. SI over weekend. CMIC: Bevers. CTD: $548,009.
11-16-75	WOC.
11-17-75	WOC.
11-18-75	RD Boatright csg pulling eqpt. RU X-pert comp unit. RU reverse eqpt. RIH w/8-3/4 RB and 4 5-3/4" DC's on 2-7/8" EUE tbg. Tagged cmt plug at 3075. Drld 5' soft cmt 3075-3080' and 40' hard cmt 3080-3120'. C&CH and POOH. LD drill collars. CMIC: Bussell. CTD: $549,117.

32-47 (6-74)

CITIES SERVICE OIL COMPANY

Daily Well History – Interim Report

INSTRUCTIONS: Interim Reports shall be completed and submitted with the Final Report for the well. Interim Reports are required for all drilling wells and may also be used for recording daily work on significant workovers. The description of work performed on Interim Reports should be a complete report of each day's Drilling Activity. On significant wells the Tulsa Office may request Interim Reports as a sheet is filled out.

LEASE / UNIT NAME AND WELL NO.		REGION
State CS No. 1		Southwest
COUNTY-PARISH-STATE-PROVINCE	FIELD OR PROSPECT NAME	AFE NUMBER
Eddy County, New Mexico	Burton Flat	9-3071488

DATE AND DEPTH	DESCRIPTION OF WORK PERFORMED
11-19-75 11557'	PBTD 3120' Lm, 9-5/8" csg at 2989', Delaware OH 2989-3120'. Prep to swab Delaware zone. Rigged down csg pullers. Rigged up pulling unit. RIH w/ RTTS on 2-7/8" EUE 8R 6.5# N80 tbg w/AB mod cplgs. Set btm of tail pipe at 3072.02', SN at 3071' and RTTS at 2848' in 12,000# compression. RU to swab. SION at 1800 MST 11-18-75. CMIC: Bevers. CTD: $550,503/ $668,248.
11-20-75	Testing. 14 hr SITP 0. Swbd 0 oil, 20 BLW, 17.2 bbls formation wtr in 10 hrs lowering FL from surface to SN at 3071'. Fluid entry 100' in 1 hr shut down. No gas. (Wtr sample to lab for analysis). SION at 1700 MST 11-19-75. CMIC: Bevers. CTD: $551,103.
11-21-75	14 hr SITP 37#. Swbd 0 oil, 13.8 bbls formation wtr in 7 hrs. Swbg from SN at 3071. RU Western Co. Acidized Delaware OH w/ 1500 gals 7-1/2% modified mud acid w/additives. Press'd annulus to 1000# - ok. Max press 1700#, min 750#, ISIP 700#, AIR 2.3 B/M. TL&T 76 BLW. RU swab. Swbd 0 oil, 76 BLW and 26.2 bbls formation wtr in 15 hrs. 400' fl in hole. Making 2 swab runs/hr. Formation wtr analysis: Density 1.160 pH 7.9 Iron Faint trace H_2S Faint trace Chlorides 130,000 ppm CMIC: Bussell. CTD: $553,153.
11-22-75	PLugging well. Swbd 0 oil, 0 gas and 31 bbls formation wtr from Delaware zone in 6 hrs swbg from SN at 3071'. Loaded tbg.. Released RTTS and POOH. RIH w/2-7/8" EUE tbg OE'd to 3025'. Circ hole w/mud laden fluid. Sptd 40 sx Class C cmt plug 3025-2925' 1/2 in and 1/2 out of 9-5/8" csg seat at 2989'. LD 2-7/8" EUE tbg in singles. SION. CMIC: Bevers. CTD: $554,720.

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THE PERMIAN CORPORATION
1509 W. WALL P. O. BOX 3119
MIDLAND, TEXAS 79701
915-683-4711

July 21, 1976

Mr. Peyton Yates
Yates Drilling Company
207 S. 4th Street
Artesia, New Mexico 88210

Dear Mr. Yates:

This correspondence has reference to our telphone call of July 20 whereby we discussed the New Mexico Oil Conservation Commission case Number 5665, Order Number R-5208 regarding The Permian Corporation's installation of a State CS No. 1 Salt Water Disposal facility located near the city of Carlsbad in Eddy County, New Mexico.

As we discussed, the application was filed with the Oil Conservation Commission at Santa Fe asking for permission to install such a disposal well, a surface pressure of 400 pounds was noted in the proposal. The work we have done on this location since the application was filed with the Commission indicates that abiding by the Commission's ruling will make it virtually impossible for us to dispose of the water with the present surface pressure limitation. It takes approximately 400 pounds just to inject into the formation and we would ask that you waive your objects to this requirement and allow us to petition the Commission for an increase in surface pressure to 800 pounds. The engineering data and a brief summary of the work done to date on the well are included in a letter written by our consultant, Mr. W. W. Griffith to Mr. Joe D. Ramey, a copy of which is attached hereto along with other information.

During our conversation you indicated that you would work with us on this matter and we would certainly appreciate you waiving this pressure requirement and allowing us to inject water at a slightly higher pressure than was indicated in our initial application. As you know, there is a definite need for a disposal facility in the Carlsbad area and we feel that our installation here would be a real service to all the producers in this area of Eddy County. We intend to put in a first class facility and operate it in a first class manner so if you could assist us in completing this project we would certainly be very appreciative.

Yours very truly,

THE PERMIAN CORPORATION

George E. Eng

GEElm

cc: Mr. Joe Ramey, Mr. W. W. Griffith, Mr. Ray Smith

DRAFT

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5737

Order No. R- 5208-A

APPLICATION OF HOWARD BOATRIGHT
COMPANY FOR THE AMENDMENT OF ORDER
NO. R-5208, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 18, 1976, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of September, 1976, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Howard Boatright Company, on April 27, 1976, obtained Commission Order No. R-5208, which order authorized applicant to utilize its State CS Well No. 1, located in Unit L of Section 17, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, to dispose of produced salt water into the Delaware formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 2975 feet, with injection into the open-hole interval from approximately 2979 feet to 3180 feet and subject to the provision that the wellhead injection pressure shall not exceed 400 psi.

(3) That the applicant seeks the amendment of said order to permit setting of the packer in the aforesaid well at a depth of 2585 feet, and further to increase the maximum wellhead injection pressure from 400 psi to 800 psi.

(4) That the proposed change of packer-setting depth will not cause waste nor violate correlative rights and should be approved.

(5) That the proposed increase in wellhead injection pressure from 400 psi to the maximum wellhead injection pressure from 400 psi to 800 psi.

(5) That the proposed increase in wellhead injection pressure from 400 psi to 800 spi, in combination with the hydrostatic head of disposal water to the top of the openhole interval at 2979 could result in a well bore interface pressure sufficient to create vertical fractures in the formation and the escape of disposal fluids from the Delaware formation into other overlying formations and should be denied.

(6) That insofar as the Commission can determine, a surface wellhead injection pressure of 600 psi will not cause formation fracturing, will not cause injury to offsetting leases or properties, nor otherwise cause waste or violate correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That Order (1) on Page 2 of Commission Order No. R-5208 is hereby amended to read in its entirety as follows:

"(1) That the applicant, Howard Boatwright Company, Inc., is hereby authorized to utilize its State CS Well No. 1, located in Unit L of Section 17, Township 21 South, Range 27 East, NMPM, Burton Flats Field, Eddy County, New Mexico, to dispose

of produced salt water into the Delaware formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 2585 feet, with injection into the open-hole interval from approximately 2979 feet to 3180 feet;

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

(2) That Order (2) on Page 2 of Commission Order No. R-5208 is hereby amended to read in its entirety as follows:

"(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 600 psi."

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

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