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

19 December 1984

EXAMINER HEARING

IN THE MATTER OF:

Application of Champlin Petroleum Company for two waterflood projects, Chaves County, New Mexico.	CASE 8437

BEFORE: Gilbert P. Quintana, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

MR. QUINTANA: We'll call next Case 8437.

MR. TAYLOR: The application of Champlin Petroleum Company for two waterflood projects, Chaves County, New Mexico.

Applicant has requested that these cases be continued.

MR. QUINTANA: Case 8437 will be continued until January 16th, 1985.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8437 heard by me on Dec. 19 1984

Gilbert P. Quintana, Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date JANUARY 16, 1985 Time: 8:00 A.M.

NAME	REPRESENTING	LOCATION
William F. Carr	Campbell and Black, P.A.	Santa Fe
Bob Hudson	Bygrave	Santa Fe
Susan Reno	Southern Union Exp	Dallas
Tammy Simmons	Gas Co of NM	Abq
J.R. Carter Jr	Champlin Pet. Co.	Houston
A.B. Stringer	"	"
W.T. Kellahin	Kellahin & Kellahin	Santa Fe
E.R. Manning	El Paso Natural Gas	El Paso, TX
Don Read	El Paso Exploration Co.	Farmington, N.M.
John F. Nance	El Paso Natural Gas Co.	El Paso, TX
Randy G. Patterson	Yates Petroleum Corp	Artesia NM
Dave Boneau	Yates Petroleum Corporation	Artesia, NM
Billy Don Davis	Champlin Petroleum Co.	Houston, Tx.
Chad Dickerson	Dickerson Fleck & Vandiver	Artesia
David Hundley	TXO Production Corp	Midland
Bruce Insalaco	TXO Production Corp	Midland
Richard Bates	TXO	Midland

NEW MEXICO OIL CONSERVATION COMMISSION

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SANTA FE, NEW MEXICO

Hearing Date JANUARY 16, 1985 Time: 8:00 A.M.

NAME	REPRESENTING	LOCATION
Robert L. Bayless	Self	Farmington
John F. Eichelmann	El Paso Natural Gas Co.	Santa Fe
Paul G. White	Blanco Engineering, Inc	Artesia, N.M.
Dan Nutter	Hartman	Santa Fe

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16 January 1985

EXAMINER HEARING

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Application of Champlin Petroleum Company for two waterflood projects, Chaves County, New Mexico. CASE 8437

BEFORE: Gilbert P. Quintana, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For Champlin: W. Thomas Kellahin
Attorney at Law
KELLAHIN & KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 88210

I N D E X

BILLY DON DAVIS

E X H I B I T S

MR. QUINTANA: We'll call next Case 8437.

MR. TAYLOR: The application of Champlin Petroleum Company for two waterflood projects, Chaves County New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have one witness to be sworn.

MR. QUINTANA: Are there other appearances in Case 8437?

If not, will the witnesses appearing in Case 8437 please stand and be sworn in at this time?

(Witness sworn.)

BILLY DON DAVIS,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Davis, for the record would you please state your name and occupation?

A My name is Billy Don Davis. I'm a petro-

leum engineer for Champlin Petroleum Company.

Q Mr. Davis, have you previously testified before the Oil Conservation Division of New Mexico?

A No, I have not.

Q Would you describe for the Examiner when and where you obtained your degree in engineering?

A I obtained my degree in engineering from Texas A & M in December of 1975.

I was employed in January of 1976 as a petroleum engineer for Amoco Production Company in Odessa and have been employed since that time with Amoco and later with Champlin Petroleum for about nine years now as a petroleum engineer.

Q Would you describe for the Examiner what your area of responsibility is for Champlin as a petroleum engineer insofar as this application is concerned?

A At the present time I am in charge of special projects, presentation to regulatory bodies, and handling any type of problems that may occur within the division that I work in.

Q Would you describe briefly what Champlin is seeking to accomplish with this application?

A Champlin Petroleum wishes to instigate a waterflood on their State 5 and State 5-A Leases in the Chaveroo Field, which is located in Chaves County, New Mexico.

Q Have you made a study of the engineering

facts surrounding this application?

A Yes, sir, I have.

MR. KELLAHIN: We tender Mr. Davis as an expert petroleum engineer.

MR. QUINTANA: Mr. Davis is considered an expert petroleum engineer.

You may proceed.

A Thank you.

Q Mr. Davis, let me direct your attention to what we've marked as Champlin Exhibit Number One and have you first orient the Examiner as to what portion of southeastern New Mexico this project is located in.

A Exhibit Number One is a montage showing upper -- in the upper lefthand corner of the box showing the location of Chaveroo Field, which is located in both Roosevelt and Lea Counties.

The area we're interested in -- excuse me, Roosevelt and Chaves Counties. The area we're located in is Chaves County with this application.

To the right is a map of a portion of the Chaveroo Field. The center of the map details the two wells that we wish to convert from producers to injectors.

The outside circle details the two mile radius.

The interior circles detail a one-half mile radius around each of the proposed wells.

Q All right, sir, let's go to Exhibit Number

Two and have you identify that.

A Exhibit Number Two is a production map which is an expanded view of the one-half mile radius area, and it details each of the leases in Section -- actually a nine section area with the center being concentrated on the State 5 and State 5-A Lease.

It details a half mile area of review, also showing the proposed injectors, showing current production, which is as of, for Champlin leases, as of November, 1984, detailing current production and cumulatives. For outside operated leases it's showing current production and cumulatives as of June, 1984.

Q Would you summarize for the Examiner some of the background information that you have used in terms of the Chaveroo San Andres Pool to determine that these wells are candidates for injection wells and that the immediate area is one that you believe suitable for waterflooding?

A Champlin has had a waterflood going to the north of this -- of this State 32 Lease, and in the State 32 Lease.

We have had very marginal success with that waterflood. There appears to be a better interconnection of pay to the south side of the field. We believe the leases are getting down to where they're averaging about 2 to 3-1/2 barrels a day per well and before we reach what we consider an economic limit we wish to attempt to waterflood to see if there is some additional benefit that we can pick

up there.

Q What is the spacing for the Chaveroo Field?

A 40 acres.

Q And has the immediate area been drilled to a density of 40-acre wells?

A Mostly, yes. There is one 40-acre location on the Section Number 5 that has not been completed.

There is, as you go toward the south and toward the southeast, you're getting below what we call the water contact. You start producing significant amounts of water.

Q Do you have an opinion as to whether or not this portion of the Chaveroo Field has been produced for a sufficient period of time in order to recover its primary reserves?

A Yes, sir, it has been.

Q Within the area scribed by the two circles, designated by the Commission as the area of review, --

A Yes.

Q -- have you identified any plugged and abandoned wells that penetrated the San Andres formation?

A Yes, sir. At the present time there is one well. It's located in the State 32 Lease at the very top of the area of review on the State -- for the State 5-A Well No. 1. It's -- the well that has been plugged and abandoned is the State 32 Well No. 8. It was abandoned by

Champlin in the middle of last year.

Q Was that well abandoned and plugged in accordance with the current plugging and abandoning requirements of the Oil Conservation Division?

A Yes, sir.

Q In your opinion is that well properly plugged and abandoned so as not to be a conduit for the migration of produced waters to some other interval?

A Yes, sir. It has been plugged properly.

I do have in later exhibits showing the plugging report and a schematic of that plug.

Q All right. Within the area of review are there any wellbores drilled below the San Andres formation?

A No, sir.

Q Have you made an inquiry of the District Office of the Oil Conservation Division to determine whether or not they have identified any problem wells within the area of review?

A Yes, sir. I contacted with Mr. Jerry Sexton in the District Office, discussed this application, and he indicated that he knew of no problem wells within the area.

Q All right, sir, let's go to Exhibit Number Three and have you identify that.

A Exhibit Number Three is what we're calling a type log. It is actually a sidewall neutron porosity log of the State 5-A Well No. 1.

In the log, which goes from surface to total depth of the well, which was at 4430, and details each of the -- each of the horizons within the wellbore.

Q Within the San Andres interval what is the general portion of that interval that's found to be productive in the area?

A Usually it's somewhere from around -- it varies, but around 4200 to around 4400 is the top of the -- top and bottom of the productive intervals.

Q Let's go to Exhibit Number Four, now, Mr. Davis, and have you identify what that exhibit is.

A Exhibit Number Four is the Form C-108 that was submitted by our Midland District Office, which is the application for this waterflood.

Q And have you reviewed the application and all the exhibits that have been prepared pursuant to this form?

A Yes, sir, they've been submitted to me for review.

Q Will you turn to the wellbore schematic for the first of the two injection wells, the one on the State A Lease --

A Yes, sir.

Q -- and describe for us the method you'll use to convert this for injection?

A At the present time the well is a producing well with a pumping unit. We plan to pull the rods,

pump, and tubing; replace -- do a small acid Xilene (sic) type clean-up job to insure that the wellbore is clean of corrosion and anything that might be injected back into the formation, and install 2-3/8ths fiberglass tubing with a packer, such that we can get better control upon the inject -- of the zone that's going to be injected to protect the back side from any possible corrosion, and inject into the San Andres formation.

Q What is done with the annular space between the tubing string and the casing string?

A We will be filling it with a fluid that will oppose any type of corrision that might occur. It would be what we commonly call packer type fluid.

Q Will there be a gauge on the surface or some other device on the surface to detect pressure leaks?

A Yes, sir, there will be two gauges, one on the tubing side showing the injection pressure, and a gauge on the back side so that we can indicate if there is any type of casing -- tubing leak or packer leak.

Q Turn now to the schematic for the Section 5 Lease and describe that for us.

A This is a schmatic of the proposed wellbore arrangement after we've instigated our injection program.

The procedure for doing the injection into this Well No. 5 is the same as previously discussed.

Q All right, sir. I believe that completes

the pertinent information for Exhibit Number Four, Mr. Davis.

Let's go on to Exhibit Number Five. All right, sir, would you describe Exhibit Number Five for us?

A Exhibit Number Five is a -- indicates all the wells within the area of review for the State 5 Well 8 No. 1. This is the area of review that was detailed on the production map which was Exhibit Number Two.

Q And Exhibit Number Six, would you identify that for us?

A This is the same type of exhibit but it's for the area of review for the State 5 Well No. 5 and details all the wellbores within that area.

Q All right, sir, and now would you turn to Exhibit Number Seven?

Would you describe for us what information is included within Exhibit Number Seven?

A Exhibit Number Seven includes all public information on the wells that are indicated within the area of review on the -- on Exhibit Number Five and Exhibit Number Six.

The first two are non-operated wells, or Champlin does not operate it. We have the scout tickets, copies of them.

The additional wells are included that are operated by Champlin. We've included all the Forms C-105 indicating the initial completion.

The one well that was plugged and abandoned is included as the last well.

Q All right, let's turn to that attachment.

A Okay, that's the State 32 Well No. 8. I have my own schematic drawn indicating how -- what the current wellbore looks like, the way it was abandoned.

Q Just a minute, let's make sure we're with you.

It's the fourth page from the end of the package of --

A That's correct.

Q -- exhibits.

Q All right, sir, would you describe for us the way this well has been abandoned?

A We have -- the perforations were from 4214 to 4428. We have set a cast iron bridge plug at 4100, capping it with cement. The top of the cement was tagged at 4042.

We perforated the casing at 1700 to 01, pumped 30 sacks of cement into the perforations and tagged cement within the casing at 1558.

We perforated the casing at 419 to 20, established circulation on the 4-1/2 and 8-5/8ths inch annulus, pumped 150 sacks into the cement -- into the perforations, and left the 4-1/2 and 4-1/2 and 8-5/8ths annulus full of cement.

Q All right, sir.

A We also installed a dry hole marker.

Q And this is the only plugged and abandoned well within the area of review.

A That's true.

Q All right, sir, let's turn to Exhibit Number Eight now.

A Exhibit Number Eight is a secondary reserve estimation for the conversion of the two wells.

Based upon our experiences on the northern partial unit that we installed for waterflooding, we had a secondary to primary ratio of 0.5 to 1.

We have not waterflooded this southern end so there is questions, will this be an accurate estimation of what we expect to perform.

The State 5 Well No. 5, we have an average recovery per well for the nine wells within the 9-spot cf only 36,000 barrels of oil. Cumulative primary production allocation to the 9-spot would be a little less than 130,000 barrels of oil.

Assuming a secondary to primary ratio of 1 to R2.5, your secondary reserves estimates range from 130,000 to 65,000.

Current production allocated to the nine producers within the 9-spot is only 9 barrels of oil a day.

Based upon our experience to the north we've seen upwards of a threefold increase in production when we do get the secondary response, but it has required a

time delay of from one-half to one year, if we did get the secondary recovery response.

The same type of information is presented on the State 5-A Well No. 1.

The average recovery is 34,000. The cumulative primary production is a little better, it's 165,000.

The assumed secondary -- with an assumed secondary/primary ratio of .5 to 1, your reserves are 82,000 to 65,000. Current production allocated for the nine producers within the 9-spot is 8 barrels of oil a day.

Q All right, sir, if you'll turn to Exhibit Number Nine and identify that exhibit.

A Exhibit Number Nine is a reservoir information data sheet. It details the formation, the San Andres formation in the Chaveroo San Andres Field. The source for this information came from The Oil and Gas Fields of the Southeastern New Mexico, which is a 1966 supplement published by the Roswell Geological Society from Roswell, New Mexico.

The pay zone is the San Andres. It details the discovery well, the trap type, the lithology, some general reservoir data information, shows a normal completion practice, shows the normal well spacing, which is 40 feet -- 40 acres, and the depth to the bottom or deepest fresh water zone in the area is -- is 170 feet.

Q Would you turn now to Exhibit Number Ten and describe for the Examiner what the general injection

operation will be for this project?

A We have -- these are questions that are asked on Item Number Seven on the Form C-108.

Our proposed daily rate of fluid to be injected will be averaging 500 barrels of water per day per well with a maximum of 1000 barrels of water per day.

The system is a closed system.

Our proposed injection pressures will average, we believe, around 600 psi with a maximum of around 850 psi. That is equivalent to a .2 psi per foot to the top of the perforations.

The source of our injection water is produced San Andres water collected by Champlin Petroleum within the field from operated and one non-operated lease.

We do not expect any compatibility problems since it is going to be a closed injection system and an analysis of the produced water is shown in the previous exhibit, the reservoir data section of the geological data, and I have included as an exhibit a water analysis report.

Q Mr. Davis, the proposed method of operation would include using make up water from some other formation other than the San Andres.

A That is correct.

I have on Exhibit Number Ten, I do have appended the injection well testing program which was outlined by me to the D. W. Talley, Jr., who is in our West Texas District, telling -- detailing the type of testing and

operating procedure I want on the waterflood.

Q All right, sir, let's turn then to Exhibit Number Eleven and without going through it in detail, if you'll summarize for us the information contained on that exhibit.

A This is the interoffice correspondence I've previously referenced.

It details the series of step rate tests, pressure fall off tests, and injection well profile testing that I want completed on -- on the project. There's quite a few tests that are done at the first of the project and then after a time it spreads out to where we have one to two year intervals between tests.

Q All right, sir. Would you identify for us Exhibit Number Twelve?

A Exhibit Number Twelve details the proposed stimulation program. This is -- just details what I said previously about we're planning to give it a small acid, 500 gallon 15% hydrochloric acid and 500 gallons Xilene (sic) to remove wellbore and near wellbore damage.

Q And Exhibit Number Thirteen.

A Exhibit Thirteen is the water analysis report that I previously have alluded to.

This was taken from one of Champlin's wells, the 32-14. It was taken in March, 1977.

It compares very closely with the water sample that was supplied by the Roswell Geological Society.

Q All right, sir, and would you identify for us Exhibit Number Fourteen?

A Exhibit Number Fourteen is from Ray Graham, who's Director of the Oil and Gas Division of the Commissioner for Public Lands.

It details who the beneficiaries are in our State 5 and State 32 leases -- section.

State 32 section the beneficiary is the common schools and in Section 5 the beneficiary is the University.

Q Let's turn now to Exhibit Number Two, which was the production map, Mr. Davis.

A Yes, ma'am -- yes, sir.

Q Within the area of concern, have you identified -- have you notified and obtained waivers from all offsetting operators other than Champlin?

A Yes, sir, we've obtained waivers from all offset operators.

Q And the surface owner at the well location is the State of New Mexico?

A That is correct.

Q And you have Mr. Graham's approval on the surface location?

A Yes, sir.

Q The injection wells are operated on a lease by lease basis, are they not, Mr. Davis?

A That's correct.

Q And in your opinion is the proposed method of operation one that will not violate the correlative rights of any working interest or royalty interest owner?

A That is correct.

Q The State of New Mexico is the royalty owner. The working interest and overriding royalties are either identical or the same within the area of operation?

A Yes.

Q Were Exhibits One through Fourteen prepared by you or compiled under your direction and supervision?

A Yes, sir.

Q In your opinion will approval of this application be in the best interests of conservation, prevention of waste, and the protection of correlative rights?

A Yes, sir.

MR. KELLAHIN: I move the introduction of Exhibits One through Fourteen.

MR. QUINTANA: Exhibits One through Fourteen will be accepted as evidence.

CROSS EXAMINATION

BY MR. QUINTANA:

Q Mr. Davis, are there any fresh water wells in the area that you have seen?

A No, sir, there is no fresh water samples

-- wells in -- within the area.

We've had a visual inspection of the area attempting within that area trying to find them and we have not.

Q When you do convert these wells, would it be too much trouble for you to do a pressure test on the casing before you commence injection? By a pressure test I mean if you would put 300 pounds on the casing for a half an hour and if it falls off (not clearly understood.)

A Yes, sir, that is a common practice that we utilize. We will be happy to do it.

Q I just want to make sure.

MR. QUINTANA: No further questions of the witness.

Does anybody have any questions of the witness?

MR. TAYLOR: Yes, sir, I have a question.

CROSS EXAMINATION

BY MR. TAYLOR:

Q Is it your testimony that your application will protect fresh water sources in the area?

A The manner in which we have completed the wells and diligently maintain our operations, I believe we do protect any possible fresh water source within the area.

Q Would it be possible for you to check I

believe the records of the State Engineer to make sure there are no fresh water wells in the area that you're missing just by visual observation?

A Yes, sir.

Q I believe they have a method where you can just call them or either write a letter and they have a list of any fresh water wells.

A I contacted Jerry Sexton down in the District Office in Hobbs, New Mexico, and -- because this is my first time to be before this body to find out all the information.

We did talk about that and he said that in this area, because we did have the visual inspection, he did not believe it would be necessary to contact the State Engineer. I believe he's in Roswell, New Mexico.

I can follow -- at that time I took that as being okay.

Q Well, sure, but I mean some fresh water wells may not be obvious to the surface, I suppose.

MR. KELLAHIN: You can check again.

A We will be happy to check again.

MR. TAYLOR: That's all I have.

MR. QUINTANA: Okay, you may be excused.

A Thank you.

MR. QUINTANA: Is there any-

thing further in Case 8437?

If not, it will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

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Oil Conservation Division, Examiner