STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

COPY

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

CASE NO. 14187

APPLICANT OF MERIT ENERGY COMPANY TO EXPAND WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO

4 PEA wells
(AOR) 5 34 ACTIVE
38 TOTAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID K. BROOKS, Legal Examiner
WILLIAM V. JONES, Technical Examiner
TERRY WARNELL, Technical Examiner

October 2, 2008

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID K. BROOKS, Legal Examiner, WILLIAM V. JONES, Technical Examiner, and TERRY WARNELL, Technical Examiner, on Thursday, October 2, 2008, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico.

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2008 OCT 8 PM 4 20

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Examiner Hearing
CASE NO. 14187

A P P E A R A N C E S

FOR THE APPLICANT:

Gary W. Larson, Esq.
ATTORNEY AT LAW
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Santa Fe, New Mexico 87504

MR. JONES: Let's go back on the record this morning. And I think this is the last case of the day.

I call Case 14187, Application of Merit Energy Company to Expand a Waterflood Project, Eddy County, New Mexico.

Call for appearances.

MR. LARSON: Gary Larson of Hinkle, Hensley, Shanor and Martin, Santa Fe office for Merit Energy. I have one witness.

MR. JONES: No other appearances? Will the witness please state your name and stand to be sworn.

JUSTIN EDWARD FINDLEY

after having been first duly sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. LARSON:

Q. Will you state your full name for the record.

A. Justin Edward Findley.

Q. And where do you reside, Mr. Findley?

A. Dallas, Texas.

Q. And by whom are you employed and in what capacity?

A. I'm employed by Merit Energy Company out of Dallas, Texas, and I hold the title of operations engineer.

Q. And generally speaking, what are your

responsibilities as operations engineer?

A. Operations engineer for Merit Energy, it's rather broad. We are in charge of all the operations in our respective fields, my being Merit's assets in New Mexico. We're in charge of all engineering as far as completions and drilling, and if need be, reservoir work, production work, all workovers, well maintenance. While we do have a land department -- we did at one point have a geologist and a regulatory department -- we are heavily involved with all those matters as well.

Q. And is your focus primarily on Merit's operations in New Mexico?

A. Yes, sir.

Q. And could you briefly summarize your educational and employment background?

A. I graduated in December of 2006 with a BS in petroleum engineering from Texas Tech University. Prior to graduation, I did four summer internships, engineering based, for oil and gas operators, three being in West Texas/New Mexico area and one being in East Texas.

Upon graduation, I immediately went to work for Merit Energy Company in Dallas as operations engineer of their New Mexico assets.

Q. And were you personally involved in the preparation of Merit's application to convert three of its

wells for injection?

A. Yes, sir.

MR. LARSON: Mr. Hearing Examiner, based on Mr. Findley's education and professional experience, I move that he be qualified as an expert in petroleum engineering.

MR. JONES: Mr. Findley is qualified as an expert in petroleum engineering.

Q. (By Mr. Larson): Can you briefly describe the history of Merit Energy?

A. Merit Energy was founded in Dallas, Texas in 1989 as an oil and gas company, as a private company. Since then, they've grown to a rather well-sized private company, with assets in most oil and gas producing states. In the late '90s they made their first acquisition in New Mexico and have been there ever since.

Q. And what is the primary business focus of Merit Energy?

A. The primary business focus is obviously oil and gas, but going after mature -- older and mature -- depleted oil and gas fields. We're a very low-risk company. We won't go outside and do any wildcats or anything of that nature. We grow through acquisitions.

Our acquisitions team, when they run the economics, they feel extremely comfortable they can get a certain return for our partners. So once again, it's very low risk, going

after older, depleted, more mature oil and gas fields.

Q. Would it be fair to say the primary focus is secondary recovery?

A. Yes, sir.

Q. And I'll direct your attention to Merit's Exhibits 1, 2 and 3. Could you identify those for the record?

A. Yes, sir. I believe these are the authority to start our Keel and West waterflood and the subsequent expansion of the waterflood.

Q. And did Merit actually submit three separate applications for administrative approval, one for each well?

A. Yes, sir.

Q. And were the wells identified? And I'll refer to them as the application even though they are three separate documents. Were these wells originally drilled as producers?

A. Yes, sir.

Q. Where are the wells located?

A. Townships 17 South, Range 31 East, in the Grayburg-Jackson field, which is between Maljamar and Loco Hills, New Mexico.

Q. And why is Merit seeking authority to convert these wells for injection?

A. This is one of the few areas in the Grayburg-Jackson field that has not been properly flooded in this immediate area. We felt that by converting these three

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wells, we could enhance our pressure maintenance as well, as well as getting the actual reserves that will not be able to be accessed without the conversion.

Q. And I'll next direct your attention to Exhibit No. 4. And do you know why Ms. Hodge of Merit sent this e-mail to Wesley Ingram at the BLM and Mr. Jones at the OCD?

A. I believe it was to request conversion of the three identified subject wells.

Q. And was it to correct an error in the application where she had answered "no" to the question of whether you were seeking an expansion in the waterflood?

A. Could you repeat that, please?

Q. Sure. Actually, what she was intending to do there was to correct a misstatement in the application in answer to the question that it was actually to expand the waterflood project?

A. Correct. Yes, sir.

Q. Okay. Is Merit the sole operator of the Keel-West waterflood?

A. We are, yes, sir.

Q. I'll next direct your attention to Exhibit Nos. 5, 6, 7, 8 and 9. These are all Division orders, are they not?

A. Yes, sir.

Q. And what is the subject matter of these Division

orders?

A. I believe to convert the three wells to injection.

Q. Let's start with Exhibit 5. What is that?

A. It was to expand the Keel-West waterflood.

Q. And was Exhibit 5 the creation of the waterflood?

A. Yes, sir, it was the creation of it.

Q. And the subsequent orders deal with expansion out of the waterflood?

A. Yes, sir.

Q. How many wells is Merit currently operating in the Keel-West waterflood?

A. In the Keel-West, a combined total of 228 wells.

Q. And how many of those are producers?

A. I believe 126 wells.

Q. And have any of the three wells that are the subject of Merit's current application been the subject of a previous application for conversion?

A. Yes, sir, they have.

Q. And I'll refer your attention now to Exhibit No. 10. This is an application by Devon Energy to convert two of the wells, the J.L. Keel B 77 and the H.E. West No. 35; is that correct?

A. Yes, sir.

Q. And was that application denied?

A. It was denied.

Q. And in your review of the application, what is your understanding of why the Division denied the application for those two wells?

A. It's Merit's opinion that it was denied due to the fact that the Keel B 28 was not adequately plugged in 1979. And reviewing everything as a company, that's what we believe.

Q. And Merit purchased these leases from Devon; is that correct?

A. Yes, sir.

Q. And what's the current status of the Keel B 28?

A. Currently, the Keel B 28, we've been analyzing alternatives to re-enter that well to properly plug the well. In that analysis, we've looked at it a few different ways of re-entering it through the well bore. And also we've looked at ways of possibly drilling a directional well into the well bore to properly plug the well to the State's requirements.

First, we're looking at mainly making sure that the ability to properly plug the well is there, and then we're looking at it from an economic and operations standpoint as well. Because anyone who has reviewed the matter, it's obvious it's going to be a difficult workover.

Q. And does Merit understand that the Keel B 28 must be adequately plugged before it's going to be allowed to inject into the three wells that are the subject of the application?

A. Absolutely.

Q. And in the process of preparing the application, did Merit identify the names and types of all wells within a half-mile radius of each of the three wells?

A. Yes, sir, we did.

Q. And who at Merit accomplished that task?

A. Our land department was in charge of identifying all interest owners, and from there we were able to contact them.

Q. Okay. I'll next direct your attention to Exhibit No. 11. Can you tell us what these three documents depict?

A. Yes, sir. These are just maps depicting the half-mile radius of the three subject wells.

Q. And are all of the wells in the area of review identified in this exhibit?

A. Yes, sir.

Q. And you mentioned that Merit's land department identified all interest owners in the area of review?

A. Yes, sir.

Q. And did the land department perform the identification under your supervision and control?

A. Yes, sir, they did.

Q. And did Merit send letters to these interest owners notifying them of the submission of the application and

providing them with a copy of the application?

A. Yes, sir, they did.

Q. And did any of the interest owners contact Merit after receiving the application?

A. No, sir.

Q. I'll refer you now to Exhibit No. 12. Could you identify that for the record?

A. Yes, sir. This is the affidavit of publication that we sent to the Carlsbad newspaper.

Q. And this is publication notice that the application had been submitted?

A. Yes, sir.

Q. And who's the surface owner in the area of review?

A. It's the New Mexico BLM.

Q. Is it federal or New Mexico?

A. Federal. I'm sorry, federal lease.

Q. And did Merit submit sundry notices to the BLM of its intent to convert these wells to waterflood?

A. Yes, sir.

Q. And did Merit also send written notices of the hearing today to the BLM and the other interest owners in the area of review?

A. Yes, sir.

Q. Referring to Merit Exhibit 14 -- or I'm sorry --

13. Could you identify these documents?

A. Yes, sir. These are the letters that we sent out to the interest owners.

Q. Okay. And one of those is the BLM office in Carlsbad?

A. Correct. Yes, sir.

Q. And the other two are Marbob Energy and Westall Ray Operating?

A. Yes, sir.

Q. And what is the interest of Marbob Energy?

A. Marbob is on the Grayburg-Jackson list -- or on the Grayburg-Jackson lease. They have the deep rights, and we have the shallow rights.

Q. And what's the interest of Westall Ray Operating?

A. They're right off the edge of the Grayburg-Jackson field to the south of the Keel-West lease.

Q. And since Merit sent written notice to the BLM and Marbob and Westall, have you received any notification from either the BLM or these two operators that they oppose your application?

A. No, sir.

Q. Again, in conjunction with preparing the application, did Merit conduct a geological evaluation?

A. We did, yes, sir. It was done by our in-house geologist.

Q. And the geologist worked under your supervision and control?

A. Yes, sir.

Q. And can you identify the formations that Merit proposes to inject into?

A. The two formations are going to be the Grayburg and the San Andres formations.

Q. Could you identify for us Merit Exhibit No. 14?

A. Yes, sir. These are the three type logs for the three subject wells showing the zone of interest for injection.

Q. So you've got one type log for each well?

A. Yes, sir, that's correct.

Q. And what are the depths of injection?

A. The depths are primarily between 3,000 and 3800 feet.

Q. It varies slightly for each one?

A. Each one does vary slightly. Maybe I didn't communicate the exact pay, but this is in the Grayburg-Jackson formation -- Grayburg and San Andres formation.

Q. And did you prepare these type logs?

A. I downloaded them off the ATD website, these specific ones.

Q. And is the injection zone identified in these type logs continuous?

A. Yes, sir.

Q. And in your opinion, from a geologic standpoint, has the reservoir been reasonably defined by previous development and waterflood?

A. Yes, sir.

Q. And what is the source of the injection fluids for the proposed injection?

A. The source of injection fluids is primarily produced water from our produced, Merit-operated offset wells, the majority of it being 80 and 90 percent chemically treated. We do get make-up from freshwater wells 12 miles northeast of the Grayburg-Jackson field. We do rigorous chemical analysis by a third party through our chemical company to make sure that all water is compatible.

Q. And referring back to these series of Division orders that approve the creation and expansion of the Keel-West waterflood, was it established in those orders that there are no freshwater aquifers above or below the Grayburg-Jackson pool?

A. Yes.

Q. Are you currently aware of any information to the contrary?

A. No, sir.

Q. In your opinion, will Merit's proposed injection pose a threat to any freshwater supplies?

A. No, sir.

Q. Would you refer now to Exhibits No. 15 and 16, and could you identify those documents?

A. Yes, sir. These are an accumulation of our strike and dip maps, our cross sections, and then the map on top of each is a map showing which wells were used in the cross section.

Now, the wells in both the strike and dip go through the immediate area of interest between the Keel B -- 77 Keel B 57 and West B 35.

Q. In your opinion, is the project area a good candidate for further expansion of the waterflood?

A. Yes, sir, it is.

Q. And what do you base that opinion on?

A. We base that on our original oil in place, the moveable oil. We've done our calculations to show that each pattern on average in the immediate area has between 635 MBO, and we believe through expansion that we can, on a very conservative estimate, gain 40 MBO through the conversion of these three injection wells.

Q. And what year did Merit assume operatorship of Keel-West waterflood?

A. From 2004 from Devon Energy.

Q. And since 2004, has Merit done any infill drilling?

A. No, sir.

Q. Does Merit anticipate adding wells to the waterflood in the future?

A. Yes, sir, we are.

Q. And could you describe generally the construction of the three wells that Merit seeks to convert to production?

A. Generally, the three wells are very similar: 8 5/8 surface casing was set between 420 and 550 feet, depending on the subject well; top of cement at surface in all three cases, followed by 5 1/2 casing; top of cement at surface in all three cases as well.

Q. And in the process of preparing the application, did you analyze available well data for the other wells in the area of review?

A. Yes, sir, we did.

Q. And besides the Keel B 28, are there any other plugged wells in the area of review?

A. Our two, the Keel B 8 and Keel B 15.

Q. And in your opinion, were those wells properly plugged?

A. Yes, sir, they were.

Q. So you don't see a need to do any rework on any of those wells?

A. No, sir.

Q. Are there any oil or gas zones underlying or overlaying the proposed injection zone?

A. Yes, sir. There's no zones below. We do have Seven-Rivers formation at about between -- it varies -- but between 1600 and 2100 feet throughout the Grayburg-Jackson field, specifically in the Keel-West. I'm not sure exactly what depths those are, but the Seven-Rivers formation lies above.

Q. Okay. And in your opinion, is each of Merit's proposed injection wells adequately cased in cement?

A. Yes, sir.

Q. And in the application, what does Merit indicate as the proposed average volume of fluids to be injected into the three wells?

A. We proposed around 200 barrels of water a day.

Q. And what is the proposed maximum?

A. 400 barrels of water a day.

Q. And will the system be open or closed?

A. It will be open.

Q. Is that consistent with prior operations in that waterflood?

A. Yes, sir. It's consistent with the field.

Q. What's Merit's proposed average injection pressure?

A. Between 1900 and 2000 PSI.

Q. And what is the proposed maximum?

A. Between 2100 and 2500 PSI.

Q. And are these injection pressures consistent with the pressures that have been previously approved by the Division?

A. Yes, sir. They're extremely consistent -- as well as we've run step rate tests in the last eight months to assure us that those are safe injecting pressures.

Q. And did Merit conduct those in-house, or did you have somebody else do them?

A. Step rate tests?

Q. Yes.

A. Yes, sir, they were run in-house.

Q. And does Merit plan to inject for disposal purposes in any wells within a mile of these three injection wells?

A. No, sir.

Q. And you mentioned some numbers in terms of oil in place.

A. Yes, sir. We've done some -- we've done quite a bit of study since I started work in early January of 2007. We've calculated -- we went through -- we did a conformance project, actually, which we're in the middle of currently working on, which started with this project right here. But every pattern was analyzed in this immediate area. We figure the pattern to have about 635 MBF.

Q. And you studied the production historically?

A. Yes, sir.

Q. And I'll direct your attention to the last exhibit, which is Merit No. 17, and could you identify that for the record?

A. This is a historical decline curve starting in 1969 with updated production through 2008. And you can see kind of a forecast up to through 2012. And it's just basically showing water -- or the historical production plot.

Q. And did you prepare this exhibit?

A. Yes, sir, I did.

Q. And based on your analysis of the historical production -- projection of future production, does Merit believe that the current proposed expansion will be profitable?

A. Absolutely. Yes, sir.

Q. Okay. And has Merit recently negotiated the terms of an Agreed Compliance Order to address inactive wells?

A. Yes, sir.

Q. And will Merit have more than five inactive wells that will not be included in the ACO?

A. No, sir.

Q. And is Merit currently in compliance with all the CD financial assurance requirements?

A. Yes, sir.

Q. And as far as you can look at it in the future, will Merit continue to be the sole operator of the waterflood

project?

A. Yes, sir.

Q. And you mentioned earlier in your testimony that Merit anticipates drilling further wells or converting wells in the future?

A. Well, not necessarily drilling, although in our conformance project, looking over the field as a whole, we did find one area where we could possibly drill a well. But if you saw a field-wide map, it's pretty hard to find anywhere where you can plug in another well; there's so many wells there.

But we have identified four areas of concern that are not getting enough water that we believe if we convert some wells to injection, we could increase reserves.

Q. Okay. And does Merit request that the conversion of those wells be approved administratively in the future?

A. Yes, sir.

Q. And in your opinion, Mr. Findley, would the approval of Merit's application serve the interests of conservation, prevention of waste and protection of correlative rights?

A. Yes, sir.

MR. LARSON: That concludes my questioning. I would move the admission of Merit Exhibit Nos. 1 through 17.

MR. JONES: Exhibits 1 through 17 will be admitted.

[Applicant's Exhibits 1 through 17 admitted into

evidence.]

EXAMINATION

BY MR. JONES:

Q. So there is just one well that needs to be plugged; is that correct?

A. Yes, sir. There is one well that needs to be -- it has been plugged, and it was approved, I believe, at one point by the State --

Q. Okay.

A. -- but in further research -- and that was in 1979. And then upon later, further investigation, it was deemed not adequately plugged. So in other words, there is just one well that would need to be adequately plugged, and that would be the Keel B 28.

Q. Okay. Now, can you talk about that well and the attempts that were made on it right now and how you would plug it? How would you try to plug it?

A. Well, I have studied the history -- not to a great extent. I left it with my boss and my operations manager in the field. They have much more expertise in re-entering a well with that difficulty. But -- and I'm not sure the operator made a first attempt, but they went in, and they were not able to get below, I believe, 1400 feet. So they set their cement plugs from 1200 feet to surface. And maybe "to surface" might not be completely accurate, but it began at 1200 feet.

Since then, two other companies were in control. The company in charge of operation, the company for Devon -- I'm not sure if it was Devon, but Devon looked at going and re-entering the well. They deemed that the chances of successfully re-entering were slim and costly. So they chose to scrap the project.

We've currently -- we did not have the well file on us in our Dallas office, but our field office did. In the last two weeks we had it all faxed to us -- which was obviously a delay on our part. But we are looking into it, and we are looking at the possibility of re-entering again. But we're also looking at the possibility of drilling directionally.

But once again, the decision to do that is going to be left up to upper management. But we are looking into it rigorously. We want to, but we're going to have to look at what we believe is going to be -- what kind of success rate we can have, what's going to be the best way to go about it from an operational standpoint and how economics figure in.

Q. Okay. The formation you said is Seven-Rivers, 1600, 2100 feet, somewhere right around there?

A. Yes, sir. And the field -- it's a large field, and so that's due to change. But generally, it's between 1600 and 2100 feet.

Q. Is that what they call the Artesia group? The Seven-Rivers Queen-Grayburg in this area? This is north of the

Reeve, right?

A. Yes, sir.

Q. 17 South?

A. The Queen would be a different formation. We have Queen in other areas in New Mexico that we're actually producing out of, but we deemed it to be uneconomical in the Grayburg-Jackson field.

Q. This is just a Grayburg waterflood?

A. Yes, sir. It's just a Grayburg, and the wells we operate, we will drill them slowly as Grayburg, where they TD'd right below the Grayburg-Jackson formations and the zones within.

Q. So you got the Yates above the Seven-Rivers?

A. Yes, sir.

Q. Is it any good out there?

A. No, sir. No one produces out of it that I'm aware of, as far as our immediate offsets.

Q. So there's no danger of any waste issues with waters invading any of the zones above your target injection zone as far as the Seven-Rivers, the Queen or the Yates formations?

A. No, sir. Not that I'm aware of.

Q. And then above that, you've got your salt interval?

A. Correct.

Q. Has that salt interval had any signs of having any pressurized water in it when you --

A. No, sir, not in the Keel-West area, that I'm aware of.

Q. It seems like all over southeast New Mexico we've had problems with the salt from time to time, you know, all over the years, from maybe the Yates being kind of high-pressured, kind of a trap -- the salt being a trap -- in the past, you know. And it's had some nitrogen and stuff in it.

A. Yes, sir.

Q. Then people drilling through it and combining all those pressures into that plastic-type salt. And then also, we've seen actual oil pockets in the salt.

A. Trapped in there?

Q. Like in the Empire Abo area. They've drilled into some oil pockets in the salt. And then also there's charged saturated waters in the salt in some places, but that's why I'm asking if you've seen any of that in the records of your --

A. Not in our Keel-West area, no, sir.

Q. So that salt is pretty thick though, right?

A. I believe so. And I'm not sure exactly, but I know it's a few hundred feet.

Q. Okay. And I forgot what -- I skipped right over

it. You said 8 5/8 to 420 and to 560 feet on the surface to pipe on these wells?

A. Yes, sir.

Q. And then 5 1/2 through your Grayburg zone and cemented to surface?

A. Yes, sir.

Q. Do they have to use to DB tools?

A. Yes, sir, there are DB tools.

Q. Are they set below the salt?

A. Yes, sir.

Q. So there's no intermediate pipe?

A. No, sir.

Q. And they actually need those DBs to get through those salts, correct?

A. I believe so, but I'm not positive.

Q. And what about freshwater? You said something about it in this area. This is off Caprock, correct?

A. Yes, sir. We do have makeup water coming from some freshwater wells, but they're about 13, 14 miles northeast.

Q. Are they up on the Caprock?

A. I believe so. They're right around there, if not on Caprock. I've never been out there to that location. I just know that's where we do get 10 to 20 percent of our makeup water from time to time.

Q. From your review of any of the well records, have you seen any of the perched waters in the Santa Rosa above the Rustler anhydrite out there?

A. No, sir.

Q. Have you reviewed the records?

A. Yes, sir.

Q. Okay. And you haven't seen any records? Of course, there's not a whole lot of records kept on the surface holes, is there? But how did they determine to set pipe at 420 to 560?

A. I'm not sure exactly what they determined on that, but that is consistent throughout the whole Grayburg-Jackson.

Q. Oh, really?

A. Yes, sir.

Q. Okay. Have you -- what kind of logs do you run when you -- and what kind of historic logs do you find out there?

A. Typically, the main log that we go after, we've got our cement bond logs. We've got our resistivity logs, and then we have gamma ray porosity and neutron density logs as well. And that's -- for the most part, I go pick out perfs and gamma ray neutron density logs and then I match them up with our bond logs to make sure we're on depth.

Q. Okay.

A. Have you thought of any fallback position here if you can't get that well -- can't get a plug set below the salt in that well, have you thought about any kind of a monitoring system you can set up to monitor?

MR. LARSEN: Are you referring to Keel B 28?

MR. JONES: Yes.

THE WITNESS: I know that Devon proposed a monitoring program in '96 when they came for a hearing like this. I know it was denied. I don't know to what extent they offered to monitor the well. We have not looked into that for the sole purpose that it was denied, the initial attempt. But if that is an option, we would definitely look into it and come to terms that both parties agree with.

Q. I'm not sure it would be an option, but it's always nice to hear the applicant talk about something like that, you know. Because I know that the primary plan here is to try to get into that old well bore either by washing over the old pipe or by directionally drilling down and getting into it somehow and --

A. Correct, correct.

Q. -- because the directional drilling is a lot more advanced than it used to be. But the records on where that hole is, you know, might not be very good, either.

A. Exactly.

Q. I was wondering if it would be cheaper to

actually drill -- just thinking out loud -- drill another well close by and then keep it as a monitor well to see when your fluids hit that well, you know, that kind of a thing. But I'm not sure that would be feasible or not.

A. Right.

Q. But the other issue here is, if you don't convert these three wells, you're losing out on some reserves; is that correct?

A. Yes, sir. And the way we did this conformance project, we were asked by upper management to find areas of the field that we deemed -- and we prioritized areas where we believe we can make up the most reserves, and we presented five different areas. We showed the numbers and the reserves we believe we can gather.

This immediate area, the Keel B 77, Keel B 57, and West B 35 proposal was the highest on the list of priorities. We got the go-ahead to not only convert those wells, but to also clean out surrounding injection wells and producing wells to make sure we had good conformance within them.

So we were in the middle of that when we received a letter in early to mid-July saying that there would be an issue with Keel B 28 as far as converting. All of our reserves are based off -- not all the reserves -- but upwards of 80 to 95 percent of the reserves are from this project. And this project is not only for three conversions. It was the

surrounding area as well. Eighty-five to 90 percent of the reserves are based off converting these three wells to injection --

Q. Okay.

A. -- which within itself lies the problem with the project. But, yeah, we believe there's significant reserves that can be gained through converting these three wells into injection.

Q. And what did Wesley with the BLM say? Did the give you any insight?

A. As far as the Keel B 28?

Q. Yeah.

A. I'm trying to think. I can't recall off the top of my head.

Q. He might not have said anything.

A. I don't think it was a concern for him. Don't quote me on that, but I can go back and look.

Q. That's all right. You say you're looking at the conformance to quantify which patterns are the good patterns and which wells are. Have you looked to see where the water is going in the wells?

A. Yes, sir, we have. We do run -- we haven't consistently run injection profiles. We have injection profiles from Devon that were run probably every two years. And throughout the field, cast iron bridge plugs have been set

to shut off lower zones. And we believe we've swept the majority of the reserves there, and we'd like to increase the injection -- barrels injected into some of those upper zones.

So there has been some maintenance in that aspect. And what we would do here is the exact same, run injection profiles. On this whole conformance project, we have the AFE injection profiles, so we can monitor -- you know, we thought we would let the well settle for about three months before we went in there and started running injection profiles before we started making adjustments.

Q. Okay. What about directional permeability out here? Have you done any more work on it, or do you have an opinion on the direction?

A. No. I'm not familiar with it. You know, I know it's very tight. But as far as directional, no.

Q. Do you know if it would be feasible to look at your direction of your fracs in this area to see -- or just -- I don't know if that salt would mess up your reading. I know they do it in the Rockies all the time, you know. They run the seismic-type recorders to kind of statistically see where they think their fracs are going.

A. Right. None of that work has been talked about or discussed.

Q. It may not be feasible in southeast New Mexico because of the salt.

A. You've got to keep in mind that these wells are making -- they're very low producers. So there's not much that's extremely feasible out there. But no, we have not looked at that.

Q. The pressures you looked at looked pretty high. Is that -- that 2100 pounds, has that already been proved by other step rate tests?

A. Step rates have proved that those are all safe numbers. But as far as what the State -- each injection well in our field has a set pressure limit.

Q. Differently than others?

A. Correct. And they differentiate in different parts of the field. Generally speaking, not at the Keel and the West, but in some of our other leases in, say the Turners, they range around anywhere from 15-, 1600 PSI up to 23-, 2400. But those numbers came off the immediate offsets in the Keel and the West, and that's where we came up with those numbers.

We kind of did it as an average. But as far as step rate tests, we've run them, and they've shown that we can safely inject at those pressures.

Q. The break, when you see a break, is it on the bottom hole or is it on your surface readout? In other words, what kind of break is it? Is it a dramatic break?

A. It's a -- no, sir. It's more obtuse.

Q. Just changes slope?

A. Yes, sir. It just changes slope.

Q. So even though it's breaking, it's not propagating that bad, maybe?

A. No, sir. It doesn't just die off or anything of that nature, no, sir.

MR. WARNELL: Have we seen any of the step rate tests?

MR. JONES: In our records, we might be able to find them. I'm sure we have them.

Q. (By Mr. Jones): If you guys ran them and submitted them to us --

A. We've run them, but we never submitted them.

Q. Oh, really?

A. I do have the data, but we never submitted it just because we were hoping we could get much higher, upwards of 2800 PSI. Step rates didn't show that, so we opted instead of going through the trouble of getting them, you know, increased, we just said we're fine with where we were.

MR. WARNELL: Okay. So which wells do you have step rate tests? You said you've done step rate tests in the last eight months?

THE WITNESS: Yes, sir. The exact wells I'm not sure off the top of my head, but we did it field-wide. We tested, I believe, seven wells.

Q. (By Mr. Jones): But you are asking for those

2100 pounds on these three, right?

A. Yes, sir, and because the immediate offsets are proved to be between 1900 upwards of 2300 pounds.

Q. They are proved?

A. Yes, sir. Yes, sir.

Q. Okay. I can try to look for those records of what orders approved those wells, but if you find them, please send them through your attorney --

A. I can.

Q. -- to us. You know, just -- we have in recent years, we've called them injection pressure increase. IPI is what we call them, and the operator sends in step rate tests and we assign it an IPI number. And sometimes -- so we have them that way. It's administrative applications. If you find those, just let me know about them.

A. Okay.

Q. But I can look at the wells around it and try to find them in our records, too.

A. And what I have is I have a little pamphlet with all the injection wells, what they're set at, and that's how we came up with the conclusion of 2100 PSI.

And like I said, my boss, looking over those, thought they were low, so he asked us to do some step rate tests. And when I showed him, he said it wouldn't be worth the trouble of trying to get those increased.

Q. Yeah. Do you remember or do you know what kind of fluids were used to drill through that salt on most of these wells?

A. No, sir. I'm not familiar with that.

Q. Because if they set surface pipe and then they started through that Santa Rosa and drilled all through the Rustler and through the salt -- of course, by the time you got through the salt, it would be pretty saturated. Depending on how thick the salt is and how fast you got to it, I guess. But if you would -- if you tried it freshwater, you'd probably have a big washout, so they probably used some saltier water to maintain the size of their holes.

A. Probably.

Q. But that's one of the deals. Sometimes you have a big washout in that salt, and everything will fall over to the side, and you'll have a big cavern down there or something, and in some places, they're more careful about drilling through it.

A. Right.

Q. And how old are these wells out here?

A. The three subject wells, I believe, were drilled between '94 and '96.

Q. Okay.

A. But some of the wells -- and that was part of the infill drilling by Devon. Other wells -- not our three subject

wells -- the other wells were drilled anywhere from late '57 -- I think I remember that date -- up to the mid-60s.

Q. Okay.

A. So there's an arrangement.

Q. And there's no windmills around this area?

A. No, sir. It's pretty barren.

Q. So basically on the notice, you noticed everybody again from -- just like you did in the application about a year earlier, the administrative application? In other words, the notice that's required for normal 701B(2), notice the surface owner and the all the people in the half-mile --

A. Yes, sir.

Q. -- for this hearing; is that correct?

A. Yes, sir. They were all notified of it.

Q. Okay.

A. And we received no feedback.

Q. Okay. So it sounds like you're asking for an order conditional on a valid attempt to re-plug this well?

A. Yes, sir.

Q. Okay. If you think of any monitoring alternative -- I know they've been looked at before --

A. Yes, sir.

Q. -- and by one of our most competent, I think, engineers that used to work here. And he turned it down. But I don't think he was considering any kind of drilling in his

monitoring -- or something like that?

A. No, sir. And to be honest, I did review that, and off the top of my head, I don't know what they proposed, if any, or if they just said can we implement a monitoring program and it was denied. So I don't know if they actually offered a monitoring program. I could be very wrong in that matter. But, correct, it was denied, and that's why we have not looked into that thinking that it wouldn't even be an option. But if it is an option --

Q. Well, I'm not sure it would be.

A. But just something to consider.

Q. It's something you could actually send in, but I'm thinking it would more involve monitoring of even the base of the salt through some kind of wells drilled or something, some kind of -- but you guys are the experts. You are out there operating it. So you might think of something.

A. Yes.

Q. I know the State's been bit in the past by -- not just the State, but -- you know.

A. And we completely understand the reasoning for the denials for Devon. And so it's --

Q. It does leave a hole in your waterflood, though, right?

A. And it does. And that's a good part of -- we believe that's one of our -- as far as from your petro-physical

parameters, that's one of our best areas. That's one of our sweeter spots in the field. And we obviously, when we pitched this idea to management, we were not aware of the Keel B 28 and the problems we ran into. So when we ran extremely conservative models, they still looked great as far as recovery, extra reserves, and what have you.

Q. Of course, the goal here is to get water out to that location where that well is not directly plugged; isn't that correct? In other words, you want that water to be sweeping.

A. Right. And in the area of the Keel B 28.

Q. So a monitoring well that's looking for that, well, if you find it, you're successful, but then you don't know how much --

A. Right. It's a Catch-22.

Q. -- pressure you would be putting in there or whatever. Okay. And I don't know what kind of logging, TDT logs. I know we look for saturation; is that right, Terry?

EXAMINATION

BY MR. WARNELL:

Q. Yes. As a matter of fact, speaking of logs, Mr. Findley, on your Exhibit 14, that's the one with the three logs there.

A. Yes, sir.

Q. Are you trying -- what are you trying to show us?

The interval in which you wish to inject?

A. Yes, sir. And what this is, is just -- it's our zone of interest is within the log that we're presenting right here.

Q. Okay. So let's take that 57 well.

A. Okay.

Q. Can you point out there what the zone of interest is?

A. Yes, sir. I can go back. I've got procedures, I believe, in here. It's one of the exhibits.

Q. Yeah. I think they're right there near the front.

MR. LARSON: It's part of the application, 57 No. 3.

MR. WARNELL: Yes, it is, No. 3.

THE WITNESS: In our top perforation, I believe, just going off the well bore diagram would be 3,029 feet.

Q. (By Mr. Warnell): Okay. And then down to TD or bottom depth, the bottom perf depth of --

A. It looks like 3899.

Q. Do you see why I don't see that on there?

A. Oh, I cut this one too short.

Q. Is there any reason that we don't see the bottom?

MR. LARSON: If I could interject here --

MR. WARNELL: Please do.

MR. LARSON: We sent this out to the Copy Shack, and

what Justin had sent them was 45 feet long. So we went back to do something more manageable. It looks like we got a little too aggressive cutting the bottom on this one.

THE WITNESS: I hadn't looked at that, and I apologize. There's no reason for it being cut short.

MR. WARNELL: Are you going need that, Mr. Examiner?

MR. JONES: No. We can look at the logs.

MR. WARNELL: Okay.

THE WITNESS: We can get that to you later today, actually.

MR. LARSON: The CD has all the exhibits. They are on there digitally. I believe that has the entire --

MR. JONES: So there's 45 feet on the CD?

THE WITNESS: Actually, in the application, I do have a log that goes down to a TD of 3900 feet, if that would help. It is in an exhibit, if you need to look it.

MR. WARNELL: All right. That's all the questions I have. Thank you.

MR. JONES: Mr. Brooks?

MR. BROOKS: No questions.

MR. JONES: The only other, you know, concern we always have in waterfloods is it stay in the approved waterflood interval.

THE WITNESS: Right. Yes, sir.

MR. JONES: I think that's all I have.

MR. LARSON: Thank you, Mr. Examiner.

MR. JONES: Thank you very much. And with that, we'll take Case No. 14187 under advisement.

Thank you.

* * *

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

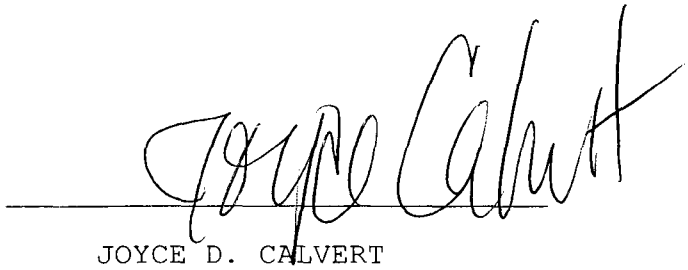
_____, Examiner
Oil Conservation Division

REPORTER'S CERTIFICATE

I, JOYCE D. CALVERT, Provisional Court Reporter for the State of New Mexico, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings and was reduced to printed form under my direct supervision.

I FURTHER CERTIFY that I am neither employed by nor related to any of the parties or attorneys in this case and that I have no interest in the final disposition of this proceeding.

DATED this 2nd of October, 2008.



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STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

I, JOYCE D. CALVERT, a New Mexico Provisional Reporter, working under the direction and direct supervision of Paul Baca, New Mexico CCR License Number 112, hereby certify that I reported the attached proceedings; that pages numbered 1-41 inclusive, are a true and correct transcript of my stenographic notes. On the date I reported these proceedings, I was the holder of Provisional License Number P-03.

Dated at Albuquerque, New Mexico, 2nd day of October, 2008.

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