STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

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

CASE NO. 14310

APPLICATION OF DEVON ENERGY PRODUCTION COMPANY, LP FOR AN EXCEPTION TO NMAC 19.15.15.10.C TO ALLOW A SECOND WELL ON A WELL UNIT AND FOR AN UNORTHODOX GAS WELL LOCATION, SAN JUAN COUNTY, NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

June 2, 2009
Santa Fe, New Mexico

BEFORE: WILLIAM JONES: Hearing Examiner
TERRY WARNELL: Technical Advisor
DAVID BROOKS: Technical Advisor

This matter came for hearing before the New Mexico Oil Conservation Division, David Brooks Hearing Examiner, on June 2, 2009 at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Peggy A. Sedillo, NM CCR NO. 88
Paul Baca Court Reporters
500 Fourth Street, NW, Suite 105
Albuquerque, NM 87102

I N D E X

A P P E A R A N C E S

FOR THE APPLICANT:	JAMES BRUCE, ESQ. Attorney at Law P. O. Box 1056 Santa Fe, NM 87501
FOR WILLIAMS PRODUCTION COMPANY:	WILLIAM H. CARR, ESQ. Holland and Hart, LLD 110 N. Guadalupe St. Santa Fe, NM 87501

HEARING EXAMINER: Let's call Case 14310, Application of Devon Energy Production Company, LP for an Exception to Division Rule 15.10.C to Allow a Second Well on a Well Unit and for an Unorthodox Gas Well Location, San Juan County, New Mexico. Call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce from Santa Fe representing applicant. I have two witness.

MR. CARR: Mr. Examiner, William Carr with the Santa Fe office of Holland and Hart. We represent Williams Production Company, LLC. I do not intend to call any witnesses.

HEARING EXAMINER: Any other appearances? Will the witnesses please stand and state your name?

MR. SINGLETARY: Chris Singletary.

MS. WOOLDRIDGE: Janet Wooldridge.

HEARING EXAMINER: There were four witnesses listed on the prehearing. Is that --

MR. BRUCE: There will only be two.

HEARING EXAMINER: Okay.

JANET WOOLDRIDGE,

the witness herein, after first being duly sworn upon her oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your full name for the

record?

A. Janet Wooldridge.

Q. Where do you reside?

A. Oklahoma City, Oklahoma.

Q. Who do you work for and in what capacity?

A. Denvon Energy Production Company and I'm a senior petroleum landman.

Q. Have you previously testified before the Division?

A. Yes, I have.

Q. And were your credentials as an expert petroleum landman accepted as a matter of record?

A. Yes, they were.

Q. And are you familiar with the application in this case?

A. I am.

Q. And the lands involved are your area of responsibility?

A. Yes, they are.

MR. BRUCE: Mr. Examiner, I'd tender Ms. Wooldridge as an expert petroleum landman.

HEARING EXAMINER: Any objection?

MR. CARR: No objection.

HEARING EXAMINER: Ms. Wooldridge is qualified as a petroleum landman.

Q. Ms. Wooldridge, would you identify Exhibit 1 for the Examiners briefly?

A. Exhibit 1 is a plat that in the bottom right-hand corner shows the entire Northeast Blanco unit, and what you see in yellow is the Northeast Blanco Pictured Cliffs participating area.

In the top picture on the plat, it's just a blowup, and the center of Section 19 is where the well that we intend to go -- or would like to go in and place a PC interval is located. That's Well 321.

Q. Okay. So let's look at that Section 18. The well we're here for today is the No. 321, correct?

A. Yes, it is.

Q. Now, that is not currently a Pictured Cliffs well?

A. It's not, it's a Mesa Verde-Dakota well that was completed in 2002.

Q. And let's go through these other wells. These other wells listed on here are Pictured Cliffs wells, are they not?

A. They are.

Q. And in the southeast quarter of Section 18, the well unit, there is an existing pictured Cliffs well?

A. Yes, there is, it's the 241.

Q. And Devon is here today requesting permission to

complete the 321 in the Pictured Cliffs formation?

A. Yes, to add that.

Q. And besides having two wells on a well unit, this well will obviously need an unorthodoxed location?

A. That's correct.

Q. Okay. Now, down below you have a number of working interest ownerships including some offsets. Could you describe that for the Examiner?

A. The first group of working interest owners are those are that interest owners in the Pictured Cliffs participating area. The second group is the northeast quarter of Section 18 which is the 252H that you see. Those are the working interest owners in that well.

And I might also note we have a PA well determination on the 252H that we've recently received. The PA has not been submitted for approval yet, but it will be in the very near future.

Q. And then you noticed the Williams acreage, correct?

A. Right. It offsets the Rosa unit on the other side of the border of the unit.

Q. And Williams is the Pictured Cliffs operator on the Rosa unit?

A. That's correct.

Q. Now, with respect to the interest ownership,

obviously, in the Pictured Cliffs participating area, the working interest ownership is Devon?

A. It is.

Q. And you list the northeast quarter of 18 which has slightly different interest ownership, but eventually that will be included in the Pictured Cliffs participating area?

A. That is correct. The same owners are also in the Pictured Cliffs, they're just in different proportions.

Q. Okay. And then there's one other offset even though is not a -- the quarter section isn't drawn, but the northwest quarter of 20 in the next township, is the working interest ownership in that acreage the same as the northeast quarter of 18?

A. It is.

Q. Now, with respect to notice purposes, Williams was notified of this application, correct?

A. That is correct.

Q. And since the -- when you look at the northeast quarter of Section 18, which is also the same as the northwest quarter of Section 20, all these people are in the Pictured Cliffs participating area, are they not?

A. They are.

Q. Okay. And notice was given to -- several of

these companies Devon has listed, but who are the BN and B&N entities?

A. They're partnerships that Devon has an operating agreement with and we manage their interests. They are partnerships that were derived from the original owners of the northeast Blanco unit. So we noticed all their property.

Q. So if notice would have been sent, it would have been sent to Devon?

A. It would have been sent to me at Devon.

Q. But was -- since all these interests owners are the same, as you said, notice was sent to Williams, the offset operator?

A. Yes, it was.

Q. And Devon is the offset operator of all the other acreage?

A. That's correct.

Q. And in addition, all of the same parties own interests in the Pictured Cliffs, PC; is that correct?

A. That's correct.

MR. BRUCE: Mr. Examiner, submitted as Exhibit 3 is my notice letter, and I did send notice to Williams, plus PB and Burlington, which have somewhat different -- I would think the only party that would be entitled is BP America since it has a larger interest in the offsetting

acreage than the -- in the Pictured Cliffs participating area.

Q. Was Exhibit 1 prepared by you, Ms. Wooldridge?

A. Yes, it, was.

Q. And in your opinion, is the granting of this application in the interest of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibits 1 and 3.

HEARING EXAMINER: Any objection?

MR. CARR: No objection.

HEARING EXAMINER: Exhibits 1 and 3 will be admitted.

MR. BRUCE: And I have no further questions of the witness.

HEARING EXAMINER: Mr. Carr?

MR. CARR: No questions.

CHRIS SINGLETARY,

The witness herein, after first being duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. Chris Singletary, Edmund, Oklahoma.

Q. Who do you work for and in what capacity?

A. I work for Devon Energy as a senior reservoir engineer.

Q. Have you previously testified before the Division?

A. Yes.

Q. Do you remember whether you were qualified as a petroleum engineer or as a reservoir engineer?

A. I do not.

Q. Just for the Examiner, would you discuss your educational and employment background?

A. Sure. I graduated from Louisiana Tech University in 2004 with a mechanical engineering degree. I went to work at that time for a small operator in north Louisiana and east Texas call Vernon Falkner.

I worked for them for about a year and a half and then went to work for Devon Energy in October 2005 as an operations engineer in southeastern New Mexico.

And then for about the last two years I've worked as a reservoir engineer for their properties in the San Juan Basin.

Q. Okay. So the matters of this application are within your area of responsibility at Devon?

A. That's correct.

MR. BRUCE: Mr. Examiner, I tender Mr. Singletary as an expert reservoir engineer.

HEARING EXAMINER: Mr. Carr?

MR. CARR: No objection.

HEARING EXAMINER: Mr. Singletary is qualified as an expert in reservoir engineering.

MR. BRUCE: Mr. Examiner we have a Power Point presentation and we've also given you a package of slides.

Q. Mr. Singletary, would you discuss the Pictured Cliffs pool and the reasons for seeking this infill well?

A. Sure. Here we are looking for the authority to recomplete this well because there's not many places within the northeast Blanco unit where the Pictured Cliffs wells -- or where there are well bores that are off pattern centered between existing 160 acre PC wells.

Most of that is due to the Dakota-Mesa Verde wells being drilled from existing pads -- or the PC wells being drilled on existing pads of the same Pictured Cliffs wells to minimize our surface disturbance there.

So there's really only two places within the unit that we could test the possibility of recovering more gas from infill PC completions and this well happens to be the well producing at the lowest rate at those two places. And so that's why we are proposing to do that.

The basis of the technical argument is just that

if you compare the offset four wells in the offsetting 160 acre proration units, the gas in place based on a volumetric calculation versus the decline curve analysis from those four wells shows we'll only recover about 40 percent of that gas.

And so we think that we could potentially recover more, and we would like to test that in a cheap way and get some pressure and production history from this 321 to see if we would like to apply for a full-scale pilot on 80 acres in the PC.

Q. Why don't you first start with a brief geologic discussion?

A. The Pictured Cliffs sands are upper cretaceous in age. They're fine grained and shaly. Typically has a blocky well response and it's made up of amalgamated sand bodies, different sands stacked on top of each other. And it's typically 40 to 120 feet in thickness.

So these different sands are deposited on top of each other here -- some are a little cleaner, some are a little shalier.

And so you see a variance generally through that total Pictured Cliffs sand interval. It was deposited in northwest trending shorelines, and the sea level fell at that time and the shorelines migrated northeastward.

I do have an isopach map showing the main PC to

be 120 to 150 feet thick in the area of the 321. When I talk about -- for the purposes of this discussion, we have two sand intervals that are in the Pictured Cliffs in this area.

One is the upper PC, and it's about 40 to 60 feet thick. And then there's about a 20 foot coal and shale deposit that separates it from the main PC interval. And that's what we're discussing in this application.

The main PC is all that's been completed in the four offset wells. That's all we're discussing completing in this well. All the volumetric calculations and log analysis were based on this main PC interval.

Also, I have a structure map showing just a moderate dip to the northeast. And the top of the main PC is approximately 3,300 feet measured depth in the area of 321.

I do have a cross-section with me showing offsetting well logs to the 321. And typically, we're looking at 10 to 12 percent porosity for this main PC interval.

If you have any questions on this, please stop me before I get too far.

Q. Let's go on to the next slide. You mentioned some of the summary materials in your opening, Mr. Singletary, but would you discuss what you've

determined to be the drainage acreage area and also some of the results of the horizontal wells in this area?

A. Using that same volumetric type calculation, I calculated the drainage radius required to match the decline EURs for the 223 and 224, as well as the other two wells. That resulted in 75 and 99 acres for those two wells.

We've also discussed the 252H that you see on the map here, and there's another well further north of 255H that we drilled horizontal PC wells in the main PC interval within the 160 acre proration unit.

And you can see the 252H there. And we recovered an average of 2.2 times the EUR of the offsetting vertical wells.

I think that just shows that there is additional gas there that can be recovered from this 160 acre proration unit.

Q. One thing I missed on this plat, Mr. Singletary, you mentioned the 252H, there's a lot of wells out here that look like they could be horizontal. Those are just directional wells, are they not?

A. That's correct. The only horizontal well that you see on this plat is just the 252H.

Q. And the directional wells are just simply due to difficult surface locations?

A. That's correct. Once again, we talked about drilling from the existing surface pads and that kind of thing out there. And this just shows those calculated drainage areas.

Those ellipsoids are oriented in an expected flat direction. And then the shape of the ellipsoid, it's about a 2 to 1 shape, and that's based upon the -- We did some modeling on the frac that we did, and the expected frac half point out there was what was used to approximate that. That's not exact by any means.

Q. How about the next slide?

A. This just shows the type curve that was used for the decline curve analysis for the four offsetting wells. The purpose here was to build a profile that would allow us to get the most accurate decline per EUR possible.

And it was 54 wells in the Rose and South Los Pinas pools that were used to construct this type curve.

Anywhere that had significantly different completion or early time production characteristics to the 321 are excluded.

These only include wells that were completed after 1990, and also wells whose peak producing rates were greater than 200 MFC a day.

Some of these wells that produce at fairly low rates and maintain a pretty flat rate for a long period of

time would have kind of screwed up our type curve here as far as getting an average.

Q. Are the wells that were used on the next plat?

A. That's correct. The yellow circles surrounding the gas symbols show the wells that were used to create that type curve.

Q. Just as an aside, when was the first PC well drilled out here?

A. I don't know, but it's a fairly long time ago. I know that it was --

MS. WOOLDRIDGE: 1979, July.

A. And there were some different completion techniques that they used at that time. One thing that they did was they completed that Upper PC and Main PC together.

We talked about how we only completed the main PC here. Well, also for a period of time, they actually completed the Coal as well with some of that, and it was all classified together as the Fruitland formation.

So it it's kind of difficult to look at that and use it as a comparison to some of the newer well bores.

HEARING EXAMINER: How close is the PC to the Coal here?

THE WITNESS: Well, the main Fruitland Coal interval is just above the upper PC, so it's right on top

of it.

A. And then there's a basal Coal interval that I talked about, about a 20 foot shale and coal section that sits right on top of the main PC.

And typically, they always -- you know, that's been a concern for a long time, and so they always do gas testing and that's fairly well determined that we're not getting into the Coal with these PC completions, at least in modern times.

HEARING EXAMINER: Certainly doesn't show Coal?

THE WITNESS: No.

Q. And then there's several decline curves. What are these?

A. These are just the four offsetting wells that we discussed that were used as a comparison to that volumetric gas-in-place estimate.

These are just shown to show you that -- you know, most of these are past the hyperbolic. The planned portion are in an exponential decline there. I feel pretty confident in the decline of the EURs that we can estimate here.

That section -- you can see -- you know, we have a pretty nice, clean curve fits for these, except for the 333. And the reason that that looks a little different than the others as far as the jagness of the curve, it's a

dual completion with the Dakota.

So it's producing with the annulus and the Dakota's under a packer producing at the tubing. And then there's a little surface pressure interference, as well as it's a little easier for the PC to load up liquid loading rods in there when it's producing at that annulus.

Q. And for just the numbering of the wells, the wells that are numbered 200s are simply Pictured Cliffs wells; is that correct?

A. That's correct.

Q. And then the wells that have a 300 designation, were originally drilled through the Mesa Verde-Dakota area?

A. That's correct.

Q. And all this data is summarized. Could you discuss the summary sheet?

A. This just shows those four offsetting wells, the cumulative production from each of those wells and the decline in EURs that we just talked about.

And those are compared to a gas-in-place estimated based on the 160 acres for each of those wells. And then the right-hand side shows the individual recovery percentage for each of those wells, and then a total for the 640 acres surrounding the 321.

Q. So is the 40 percent recovery factor low?

A. Yes. For a volumetric gas, we'd expect, you know, 70 percent or higher.

Q. And then discuss your volumetric calculations.

A. This just shows the volumetric equation that was used and then the method that was used to come up with this result.

Typically, in the PC only wells, we only run case hole logs. So the log analysis that was done here was based on Dakota wells on the same location as the 223 and 224.

So for the 223, the 322 Dakota well, which is 60 feet away, there were open hole logs that existed through the PC there and those were used for the log analysis.

And then for the 224, the 323 Dakota well was less than 500 feet away on the same pad, and that was used on that location.

And we only had case hole logs and no available open hole logs for the other two wells, the 241 and the 333. So the saltwater saturation and net to gross numbers that were calculated for those two wells were applied just based on the overall thicknesses to those other two.

And that's why on that slide where I showed the drainage radius calculation, I didn't show the 241 and 333, I just don't think it's quite as meaningful there.

But there is a lack of data here and that's why

we really feel like we need to get pressure and production tests before we would say we needed to apply for a full 80 acre pilot.

But anyway, the initial reservoir pressure data that was used was calculated from an average gradient from area wells that had initial bottom hole measurements taken, shows to be normally pressured in this area between .43 and .44 PSI per foot.

Q. Does the next slide indicate the wells that had initial pressure measures of your water samples?

A. Yes. This slide just shows in red where initial pressure measurements were taken, and that was nine wells nearby that that was done from.

And then also on this slide it shows in green where we had water samples. The formation water resistivity in this area is variable, and so we had to use an average formation water resistivity in this log analysis.

And so that just kind of shows you where we came up with those numbers from, it's based on an average from those existing wells.

Q. So what you're saying is, you used either averaged values or numbers you think are conservative, correct?

A. That's correct.

Q. And you still believe that there are additional reserves to be recovered if you are allow to recomplete the 321 well in the Pictured Cliffs formation?

A. That's correct.

Q. Let's turn to your final slide. What does that reflect?

A. This is just a little more detail on the horizontal wells that were drilled. And you see 252H, you can see it's three offsets. And then the 255H, you can see the three vertical offsets there.

And so it just shows that the lateral length of the 252H is around 1,600 feet and was completed with three frac stages and has an EUR of 1.7 times the average vertical offset.

The 255H had a little shorter lateral, went to around 1,500 feet and was also completed with three fracs, and it has an EUR of 2.8 times the average vertical offset.

And again, there's nothing rigorous about this but it just goes to show another way to look at why we believe there is additional gas to recover within these 160 acre proration units.

Q. Was Exhibit 2 prepared by you?

A. Yes.

Q. And in your opinion, is the granting of this

application in the interest of conservation and in the interest of prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibit 2.

HEARING EXAMINER: Exhibit 2 will be admitted.

MR. BRUCE: I have no further questions for the witness.

HEARING EXAMINER: Is the coal dry out here?

THE WITNESS: It's been dewatered at this point. We see gas production when we do drill infill Coal wells, which this area has already been drilled up on 160 acre spacing, but that's -- there's maybe 10 to 20 barrels of water a day at the most from these Coal wells in this area.

HEARING EXAMINER: Okay. Is this the old Blackwood Nichols?

THE WITNESS: That's correct.

HEARING EXAMINER: So it's around the lake?

THE WITNESS: That's correct.

HEARING EXAMINER: So this is really good Coal?

THE WITNESS: That's correct.

HEARING EXAMINER: And when were these -- these were in the early '90s, right?

THE WITNESS: Well, the original 320 acre Coal

wells were drilled in the early '90s, and then they began drilling the infill 160 acre wells around 2002.

HEARING EXAMINER: Yeah. This type curve you came up with, the PC being so close to the Coal and -- I was just wondering why it didn't show any effect from the Coal at all. I guess maybe the Coal is dewatered, or your frac jobs --

THE WITNESS: One way we check, you know, is to look at the water -- we look at the water samples to see what the bicarbonates are and then we also look at the gas samples to see what the C02 count in there is.

And so in these PC wells -- I mean, I'm fairly confident that there is no contribution from the Coal into the offsetting PC well production due to the fact their C02 content is so low.

I have some gas samples to show you. The Coal wells in the area have C02 contents in the range of 10 to 12 percent, sometimes higher at this point.

HEARING EXAMINER: At this point.

THE WITNESS: So these existing PC wells are, you know, less than 2 percent.

HEARING EXAMINER: Your intermediate pipes, were they set below the Coal?

THE WITNESS: Yes.

HEARING EXAMINER: Are they still doing it that

way out here or --

THE WITNESS: Yes. When you see the -- In the 321, we would actually be completing through the 7 inch and the 4 and a half inch so that the intermediate and the 4 and a half inch string would be completely through both strings to get to the PC formation.

HEARING EXAMINER: Okay.

THE WITNESS: And we'd actually have to do a little cement remediation there for the 4 inch string just in that annulus to make sure we have cement up through the top of the PC.

HEARING EXAMINER: You might even recover Mesa Verde out there with the intermediate?

THE WITNESS: I don't think so in this well. I have a well bore schematic for this well.

HEARING EXAMINER: Do you have a data gathering arrangement with Williams in the offsetting residue in this project?

THE WITNESS: No. Any production that I use from Williams is based on publicly available data.

HEARING EXAMINER: Okay. So it's something to share the production with them from this project?

THE WITNESS: No.

MS. WOOLDRIDGE: But note that Williams has a working interest in the Pictured Cliffs participating

area, so they certainly have a right to our information.

HEARING EXAMINER: They do?

MS. WOOLDRIDGE: Absolutely.

HEARING EXAMINER: So it looks like you're going to gather this pressure test and production a little -- initial production data and -- but -- and that's pretty much your goal here, right?

THE WITNESS: That's right.

HEARING EXAMINER: Okay. And then your next step might be to decide whether you're going to drill infill -- propose infill wells or do horizontals?

THE WITNESS: Right. Well -- and that would be the ultimate goal is to look at the results from this well producing the PC alone for several months. If we have good results, then come back and make a decision if we want to apply for an infill pilot in the PC in this unit.

HEARING EXAMINER: Okay. Because these horizontals, you can drill them in lower pressure reservoirs now, right, than you could? It seems like it was more difficult in the old days to do that.

THE WITNESS: We drilled six horizontal wells in 2008 in the PC in this unit and we didn't have any drilling issues.

HEARING EXAMINER: Okay. But the reason you're going to drill here is your off-pattern wells are red, and

you've got one here?

THE WITNESS: That's right.

HEARING EXAMINER: But this is an only-one well proposal deal?

THE WITNESS: That's correct.

HEARING EXAMINER: And then you need an NSL for that well also, I guess. You need that. And your other reason is your low rate for seven PCs and then your low recovery?

THE WITNESS: That's right.

HEARING EXAMINER: Okay. And you're going to commingle this. And how will you make sure you that you know --

THE WITNESS: Well, the initial plan, the Dakota and Mesa Verde currently are commingled in this well bore. We'll go in and we'll set a plate above the Mesa Verde, complete and produce the PC alone for, you know, several months, however long it takes us to get a feel for whatever's going on there.

Once we have an established decline curve from the PC, we'll come in and run in with tubing, set a plug above -- We can still set a packer above that Mesa Verde and Dakota and produce the PC up the annulus again like we've done in some of these other Dakota-PC dual completion well bores like the 333 that we discussed

earlier.

So, you know, we should be able to get accurate measurement of the production from this well.

HEARING EXAMINER: Are you going to fracture it when you complete it?

THE WITNESS: Yes.

HEARING EXAMINER: You have to, I guess. Okay. Any questions?

MR. WARNELL: No questions.

MR. BROOKS: No questions.

HEARING EXAMINER: Mr. Carr, do you have any questions?

MR. CARR: No questions.

HEARING EXAMINER: Thank you. We'll take Case 14310 under advisement.

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 _____, _____.

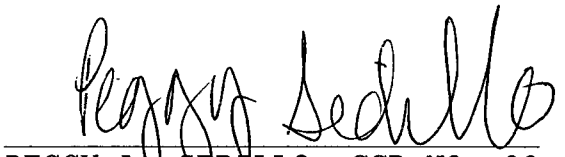
_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

I, PEGGY A. SEDILLO, Certified Court Reporter of the firm Paul Baca Professional Court Reporters do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me or under my supervision.

Dated at Albuquerque, New Mexico this 10th day of June, 2009.



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