STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 12,223
APPLICATION OF POGO PRODUCING COMPANY FOR APPROVAL OF A PILOT PRESSURE MAINTENANCE PROJECT AND TO QUALIFY THE PROJECT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE ENHANCED OIL RECOVERY ACT, EDDY COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

August 5th, 1999

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, August 5th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

August 5th, 1999
Examiner Hearing
CASE NO. 12,223

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E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	5	9
Exhibit 2	8	9
Exhibit 3	8	9
Exhibit 4	13	17
Exhibit 5	14	17
Exhibit 6	14	17
Exhibit 7	15	17
Exhibit 8	15	17
Exhibit 9	15	17
Exhibit 10	25	31
Exhibit 11	25	31
Exhibit 12	29	31
Exhibit 13	29	31

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A P P E A R A N C E S

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* * *

WHEREUPON, the following proceedings were had at 9:45 a.m.:

EXAMINER CATANACH: We'll call the hearing back to order at this time and call Case 12,223, which is the Application of Pogo Producing Company for approval of a pilot pressure maintenance project and to qualify the project for the recovered oil tax rate pursuant to the Enhanced Oil Recovery Act, Eddy County, New Mexico.

Call for appearances in this case?

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe, representing the Applicant. I have three witnesses.

EXAMINER CATANACH: Call for additional appearances.

Okay, will the three witnesses please stand to be sworn in?

(Thereupon, the witnesses were sworn.)

SCOTT McDANIEL,

the witness herein, after having been first 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?

A. My name is Scott McDaniel, and I live in the City of Midland, Texas.

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

A. I work for Pogo Producing Company, and I'm a landman for Pogo.

Q. Have you previously testified before the Division as a landman?

A. Yes, I have.

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

A. Yes, they were.

Q. And are you familiar with the land matters involved in this Application?

A. Yes, I am.

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

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Mr. McDaniel, what does Pogo seek in this case?

A. Pogo seeks an order approving a pilot pressure maintenance project in the Delaware formation involving four federal leases.

Q. Would you identify Exhibit 1 for the Examiner and describe the lands and leases involved?

A. Yes, Exhibit 1 is a land plat covering a portion of Township 23 South, Range 31 East, with four federal leases highlighted there on the plat. The leases involved

are NM-38463 covering Section 20, lease NM-38464 which covers Section 21, NM-40859 covering Section 28, and then lease NM-0281482-A, covering the east half of Section 29.

The plat also outlines the proposed pilot project area, which covers 320 acres, and identifies the initial injection well, the first eight producing wells within the project area, and the freshwater wells on record with the New Mexico State Engineer's Office.

Q. Okay.

A. Also identified there on the plat are the working interest owners that are involved with these leases.

Q. Okay.

A. And as far as lease royalties is concerned, all these leases are federal leases.

Q. With respect to three of the leases, the working interest ownership is split up in one half-section, is it not, Mr. McDaniel?

A. That's correct.

Q. Okay. Now, all of these leases are operated by Pogo?

A. Yes, as to Delaware rights, they are.

Q. Now, which well is the initial injection well?

A. The initial injection well is located in the southeast of the southeast of Section 20. It's known as the Pure Gold "B" Federal Well Number 20.

Q. And it's marked with that red arrow?
A. That's correct, it is.
Q. What is the current status of the proposed injection well?
A. This particular well was drilled and completed during April and May of this year. Pogo had originally planned to produce this well for some period of time, however the well has not been produced to date, and our engineers up here later will discuss that.
Q. And how many producing wells are there in the project?
A. There are eight producers in this initial phase of the project.
Q. And they are all identified within that green block, are they not?
A. That's correct.
Q. Before we leave this map, the water wells, you obtained this data from the State Engineer Office in Roswell, I believe?
A. Yes.
Q. They did not know the status of these wells, did they?
A. They did not. Those were just the freshwater wells that they show of record there, in their shop.
Q. Which pool are we dealing with, with respect to

the producing wells?

A. This is the West Sand Dunes-Delaware Pool. This particular pool includes the Bell Canyon, the Cherry Canyon, the Brushy Canyon zones and is developed on statewide rules.

Q. Is the Bureau of Land Management the surface owner of the injection well site?

A. Yes.

Q. Who was notified of the Application?

A. The BLM as the surface owner was notified, as well as Kaiser-Francis Oil Company, who operates a couple of deeper gas wells there in this immediate area.

Q. Okay.

A. And they are the only operator within a half mile of the injection well.

Q. Now, does Exhibit 2 simply list the eight producing wells in the project?

A. Yes, it produces the -- or it lists the eight producing wells, as well as the location and API number for each.

Q. And is Exhibit 3 my affidavit of notice regarding the notice given to the BLM and Kaiser-Francis Oil Company?

A. Yes, it is.

Q. Are you seeking unitization of this area?

A. No, we are not.

Q. And why is that?

A. As you can see from looking at Exhibits 1 and 2, Pogo operates all of these leases as to the Delaware formation in the project, so we have effective control of the area.

Furthermore, this pool is not fully developed in this area at this point in time, so we really think unitization may be premature.

Q. Were Exhibits 1 through 3 prepared by you or under your supervision or compiled from company business records?

A. Yes, they were.

Q. And is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I tender the admission of Exhibits 1 through 3.

EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. McDaniel, I notice on your map that within three of the leases Pogo operates and is the 100-percent working interest owner.

A. That's correct.

Q. The fourth lease, however, there's some split ownership on that lease?

A. Yes, there is.

Q. What type of agreement or what type of negotiations or anything have you had with these other working interest owners in that lease?

A. In connection with this pilot --

Q. Yes, sir.

A. -- pressure maintenance?

We have not had any discussions with them at this point. As you indicated, we are the operator of that particular lease, and we feel like that each of these working interest owners will be benefited by what we do.

Q. So production from each of the wells will be just based on where they're at, their acreage and their -- I mean, there's no kind of allocation formulas or anything like that?

A. That's correct.

Q. How about the cost of the injection well? Is that going to be borne 100-percent by Pogo?

A. Yes, it will be. In fact, it has been.

Q. And none of the other interest owners in that other lease have had to contribute at all?

A. That's correct.

Q. Is this -- This pilot area is just this area in

green. Is there a chance this may be expanded to go further south in the future?

A. I may let one of our other witnesses address that.

Q. Have you guys contacted and been -- Have you consulted with the Bureau of Land Management with regards to this proposal?

A. We have notified the Bureau of Land Management as -- since they are the surface owner here, of all the acreage involved.

Q. As far as you know, are the royalty rates on all these leases the same?

A. Three of them are the same. The south half of -- Or the southeast quarter of Section 20 there is a step-scale royalty, as is the west half, southwest quarter of 21 and the northwest northwest of Section 28. The portion there in Section 29 is a one-eighth lease.

Q. Mr. McDaniel, do you feel like your initial project, initial pilot project, will have any adverse effects on any of the interest owners within this area?

A. No, we do not.

EXAMINER CATANACH: I have no further questions. This witness may be excused.

MR. BRUCE: I have nothing further of Mr. McDaniel.

Call Mr. Dillman to the stand.

GEORGE J. DILLMAN,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name for the record?

A. George Dillman.

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

A. I'm employed by Pogo Producing Company as the division geologist.

Q. Have you previously testified before the Division?

A. Yes, I have.

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

A. Yes, they were.

Q. And are you familiar with geologic matters involved in this Application?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I'd tender Mr. Dillman as an expert petroleum geologist.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Mr. Dillman, would you identify Exhibit 4 and discuss the injection zone and the Delaware

geology in this area?

A. The proposed injection interval is the BC 4 sand in the basal section of the Brushy Canyon formation of the Delaware Mountain group.

In the Sand Dunes field area, the Delaware Mountain group is a 3800-foot-thick sequence of very fine-grained sandstones, siltstones, and to a lesser extent limestone. Cumulative Delaware production in the project area is approximately 800,000 barrels of oil and 3.7 billion cubic feet of gas, the bulk of which can be attributed to this Basal Brushy Canyon A section.

Exhibit Number 4 is an annotated log of the B 20 well, utilizing Pogo Producing Company's nomenclature.

If you look at this log, you'll see that a regional marker at the upper portion is known as the A marker. Then we subdivide the major sandbodies from top to bottom as the BC 5, the BC 4, the injection interval for this project, a silty BC 3 interval, a BC 2, and in this particular project area no designation of a BC 1 has been made. Then you'll see the Bone Springs limestone marker indicated at the lower portion of the log.

It is these intervals referenced throughout the rest of this hearing that I will describe, and the appropriate interval, again, is the BC 4 interval.

You will also notice in future exhibits that the

wells are essentially all perforated in the BC 2 and the BC 4 interval. All of those completions have been fracture-stimulated.

Q. Would you please refer to your Exhibits 5 and 6 together and discuss a little bit more the productive zone in this area?

A. Most continuous reservoir in the Sand Dunes field is the BC 4 sand, and Exhibit 5 is an isopach map of the BC 4 sand net porosity.

Two posted values are adjacent to each well symbol. Those on the left represent gross sand thickness, while those on the right are net porosity utilizing a minimum porosity cutoff of 14-percent density.

This exhibit is an enlargement of a similar map shown as Exhibit 6 that was submitted by Pogo Producing Company and published in the 1995 Roswell Geological Society supplement to, in quotes, "A Symposium of the Oil and Gas Fields of Southeast New Mexico".

The porosity trend in this map is almost north-south, with an axial thick passing through the southeast corner of Section 20, Township 23 South, Range 31 East, Eddy County. This coincides with the location of the B 20 well. That's the borehole used for this pressure maintenance pilot project.

Q. Would you move on to Exhibits 7 and 8 together

and identify them for the Examiner?

A. Exhibit 7 and Exhibit 8 are structure maps made on the BC 4 marker. These maps cover the same area discussed earlier in the isopach exhibits.

Regionally, the Sand Dunes field is a north-south trending, east-plunging structural nose with local four-way closures. The BC 4 marker in the B 20 well is at 7721 feet measured depth, which corresponds to a subsea value of minus 4368.

The general outline of the productive area is between a minus 4300 and a minus 4500 subsea. The basal Brushy Canyon is productive farther downdip, but development drilling is incomplete in both the updip and downdip directions.

Q. Finally, Mr. Dillman, would you identify Exhibit 9 and discuss its contents for the Examiner?

A. Exhibit 9 is a stratigraphic cross-section that shows correlation of the Basal Brushy Canyon section in the six wells that surround the B 20. These wells produce from the Delaware.

A locator plat is in the lower left corner and provides the layout for the A-A' sequence, with the B 20 well positioned in the center on the cross-section, the BC 4 marker, and the sand is highlighted in yellow, and the net porosity is highlighted in red.

Q. Mr. Dillman, based on your exhibits and this cross-section, is the proposed injection zone continuous across the project area?

A. Yes, clear continuity exists in the proposed injection interval.

Q. And you said that all of these wells in the project area are completed in the BC 4?

A. Yes, either directly through perforations and frac, or through perforations and fracture-stimulating the BC 2, in which case we believe that the fracture has grown high enough to intersect the BC 4 sand and be in pressure communication and drainage of the BC 4 interval.

Q. Are there any freshwater-bearing zones in this area?

A. Yes, there are. Fresh water generally exists in either the shallow Santa Rosa formation when present, or in the Dewey Lake Red Bed sequence, with lesser quality water in the magenta or Culebra dolomites in the Rustler formation.

Usually water wells are not drilled deeper than 800 feet or below the Rustler. The shallow groundwater interval is always protected in this area with a surface casing string that is cemented back to surface.

Q. Are there any faults in this area which connect the freshwater zone with the injection zone?

A. No faults are known to exist in the project area that would connect the injection interval with the freshwater zone.

Q. Were Exhibits 4 through 9 prepared by you or under your direction?

A. Yes, they were.

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

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I'd move the admission of Pogo Exhibits 4 through 9.

EXAMINER CATANACH: Exhibits 4 through 9 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Dillman, is the -- The BC 4, would you consider that to be the primary producing interval in this Brushy Canyon?

A. That is correct.

Q. But you are, however, producing also from BC 2?

A. That is also correct.

Q. Okay. Are there any other intervals in the pilot area that are being produced?

A. Yes, there are. In one well, the D 2 well in

Section 28, if you to -- I believe it's Exhibit 1, initially presented, that well has had perforations added in several intervals.

The shallowmost set of perforations is 6629-6634. Below that there are perforations from 6816 to 6850. Below that there are perforations from 7066 to 7072. Below that there are perforations from 7275 to 7280. Below that there are perforations 7564 to 7588. And then below that are the two sets of perfs in the BC 4 and the BC 2.

Several sets of those perforations were only treated with an acid stimulation and were never fracture-stimulated. One interval was fracture stimulated.

All those producing zones are much shallower than the proposed injection interval and are all currently combined in that wellbore and producing. Future production from that wellbore will not be affected by an increase in production rate from a pressure project in the BC 4 in a negative sense. We expect all production to continue on normal decline and show an increase as a result of the pressure maintenance project moving additional oil through the BC 4 interval.

Q. With the exception of that Number 2 well, all of the rest of the wells in the pilot area are either BC 2 or BC 4?

A. That is correct. There is, as mentioned earlier,

a deeper Atoka gas-producing well which has no shallow perforations in the Delaware.

Q. Okay. So within the West Sand Dunes-Delaware Pool, there is production outside of the Brushy Canyon?

A. No, sir.

Q. It's all in the Brushy Canyon?

A. Well, excuse me. Yes, there is. Some of it would be the very lowest Cherry Canyon interval out here.

Q. Okay. Why just the BC 4 and not the BC 2, as far as injecting water?

A. At this point, the only perforations that were established in the B 20 well were made in the BC 4, because we believe that is the primary producing reservoir. All the surrounding wells, whether perforated and fractured in both the BC 2 and the BC 4 or in just one of the intervals, are probably in pressure communication. We think by injecting water in the BC 4, limited entry in the B 20 well, that we will also have partial influence on the BC 2 at this time.

Limiting the perfs to the BC 4 at this time also gives us more control on fluid injection.

Q. You gave me some cumulative numbers. Is that cumulative within just the pilot area?

A. That's just the pilot area. This --

Q. Actually -- I'm sorry, go ahead.

A. I was going to add that in this area there's a substantially higher amount of cumulative production from all the Delaware wells in this trend. If you refer back to one of the exhibits that show the regional structure maps, all those wells are producing in the area. And if I can pull out one of my reference notes, I'll give you an exact number as to what the current cumulative production is.

Q. Okay.

A. According to published data from *Dwight's* production, there have been 8,161,000 barrels of oil and 30.16 billion cubic feet of gas produced from the Sand Dunes Delaware, and also known as the Los Medanos-Delaware Pool. Essentially, they are the same reservoir continuous north-south through this project area.

There are approximately 70 -- 70 wells producing from this interval? Let me double-check that. No, it's closer -- That interval is about 110 wells, have contributed to this cumulative production through this area. By far, this is one of the most significant producing Delaware fields in southeast New Mexico. And future recovery in secondary projects, perhaps influenced by this initial pilot pressure maintenance project, will contribute substantially large volumes of oil in the future to be recovered from this field.

Q. The injection well structurally is in what

position in relation to the other wells?

A. Essentially, it's right in the center of this producing structural trend. The overall structure dips from west to east, and this is in a mid-structural position.

Where the sand is developed, the thickest, there also tends to be some local four-way closures, and this is not one of the local four-way closures but approximately mid-structure in this producing property.

Q. Is this a good permeable zone or --

A. Yes, it is, and that will be evidenced by the engineer's presentation of pressure drainage at this point.

Q. Do you know if any of these wells in the pilot area are producing from Bone Spring formation?

A. No, sir, there are no Bone Springs producers in this pilot area.

Q. None of these wells, as far as you know, are downhole commingled with the Bone Spring?

A. No, sir, there are no Bone Spring perforations in most of them, and most of these wells were only drilled into the uppermost part of the Bone Spring. The upper Bone Spring sand is not developed in this area, and essentially none of these wells have been drilled to the first Bone Spring interval.

Q. Mr. Dillman, this is in a potash area?

A. That is correct.

Q. Is that to the west here, as far as you know?

A. The potash area is to the west and also the east, if I can confer with my landman to confirm that.

MR. McDANIEL: Yes, actually, the potash area is primarily to the west. There are some leases, I believe, that may cover Section 8 as well on the area. There are several leases in that area.

THE WITNESS: But in general, this falls within the potash outline for the greater Eddy County area.

Q. (By Examiner Catanach) Where is this, do you know, in relation to the Waste Isolation Pilot Project?

A. This part of the field is approximately four miles due south from the southern boundary of the Waste Isolation Pilot Project. The Waste Isolation Pilot Project is located in Township 21 South, Range 31 East of Eddy County -- or excuse me, Township 22 South, Range 31 East of Eddy County. And this is 23 South.

Q. Do you guys have a similar pressure maintenance project north of here?

A. Yes, we do, Pogo Producing operates two projects. The first one that you refer to north of here is in the Livingston Ridge field, and it is essentially adjacent to the Waste Isolation Pilot Project area, located in Section 25 of Township 22 South, Range 31 East.

The second pilot project that we have established is east of here in the Red Tank field in Section 27 of Township 22 South, Range 32 East, in Lea County.

Q. Okay. This is the first type of project of this kind in the West Sand Dunes field?

A. That is correct.

Q. What's the vintage of these wells? How long have they been out there?

A. These are very young wells. This field was essentially developed very rapidly in the early 1990s. In the period between 1992 and 1994, the majority of these wells were drilled. You have very young boreholes, you have multiple casing strings, and you have excellent downhole equipment in all the wells in this field area.

EXAMINER CATANACH: I believe that's all I have, Mr. Bruce.

MR. BRUCE: I have nothing further of Mr. Dillman.

RON GASSER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Please state your name for the record.

A. My name is Ron Gasser.

Q. And where do you reside?

A. I reside in Midland, Texas.

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

A. I'm employed by Pogo Producing Company as the division petroleum engineering manager.

Q. Have you previously testified before the Division?

A. No.

Q. Would you outline your educational and employment background for the Examiner?

A. I received my bachelor of science in petroleum engineering from Texas Tech University in 1983, at which time I went to work for Enserch Exploration, Incorporated, in various engineering positions, until 1997, when I went to work for Spirit Energy 76 as an advising reservoir engineer.

I moved to Pogo in January of 1999 as a division petroleum engineer and manager, which is the position I'm currently employed.

Q. Does your area of responsibility include southeast New Mexico?

A. Yes.

Q. And are you familiar with the engineering matters related to this Application?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Gasser as an expert petroleum engineer.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Mr. Gasser, referring to your Exhibit 10, could you identify that and describe briefly its contents for the Examiner?

A. Exhibit 10 highlights the proposed pilot pressure maintenance project area, and it has the current producing rates and cumulative production from the wells within this area.

Q. And the initial injection is the -- marked with the red arrow?

A. Yes, the Pure Gold B 20.

Q. Okay. Let's discuss your proposed injection operations. Would you identify Exhibit 11 for the Examiner?

A. Exhibit 11 is a copy of the Form C-108 for the project. For ease of reference, the pages are numbered at the bottom right-hand corner.

The proposed injection well is an existing well that was drilled in April of this year with the intent of producing it. However, during completion operations the well swab-tested 14 barrels of load water per day with a five-percent oil cut and a weak gas blow.

At that time we obtained a bottomhole shut-in

pressure of 903 p.s.i.g., at which time we decided to attempt a pilot pressure maintenance project at this location.

Q. Is Exhibit 2 [*sic*] a schematic of the proposed injection well?

A. Yeah, page 2 of Exhibit 11 has a schematic of the proposed injection well.

Q. Will the well be properly cased, or has it been properly cased and cemented?

A. Yes, the well has been properly cased and cemented, and no injection water can escape to other zones.

Q. Referring to Exhibits 4 -- excuse me, Exhibit 11, pages 4 through 8, how many wells are there in the area of review?

A. Page 4 Is a land plat of the area, identifying one-and-a-half-mile -- a one-half-mile radius of review, and there are twelve wells within a half mile of the injector which penetrate the Delaware. A listing of those wells with their completion data is given on pages 5 through 8.

Q. Are any of the wells in the area of review plugged and abandoned?

A. No, they're not.

Q. And are these producing wells in the area of review properly completed, and will they prevent the

movement of fluids to other zones?

A. Yes, these wells were completed in the early 1980s or early 1990s.

Page 5 is a typical completion in which you have surface casing of 13 3/8 to 730 feet, intermediate casing of 8 5/8 to 4100 feet. Both sections have cement circulated back to surface.

Production casing of 5 1/2 inch was set to a total depth of 8100 feet and cemented with a DV tool at 6281 with the top of cement being about 2800 feet, well within the intermediate casing string.

Q. Now, the Delaware wells were all completed in the early 1990s. The older wells are the deeper Atoka wells --

A. That's correct.

Q. -- and gas wells?

A. That's correct.

Q. Okay. Moving on to page 9, would you summarize the injection operation for the Examiner?

A. We anticipate an average injection rate of approximately 4000 barrels per day with a maximum of 6000 barrels per day.

Q. What will be the injection pressures?

A. The top of the perforations in the injection well is approximately 7740 feet subsurface, so under Division rules the maximum injection pressure is 1535 p.s.i. And we

expect to be injecting at about 1000 p.s.i., but no higher than the maximum.

Q. Is there a proposed stimulation program for the injection well?

A. No.

Q. Now, Mr. Dillman testified about fresh water in the area. Do you have a freshwater analysis?

A. Yes, the closest freshwater analysis in which we have -- the freshwater well in which we have an analysis, is in Section 14 of 22 South, 31 East, about six miles from this proposed injection well. An analysis of the fresh water is attached as page 15.

Q. What will be the source of the injection water for this project?

A. The injection water will be produced water from the Delaware formation.

Q. And as a result, since it's just the same water, you would expect no compatibility problems, would you?

A. None whatsoever.

Q. Now, referring back to your Exhibit 10, what are the current producing rates of the proposed producing wells in the project area?

A. The average daily rate from these wells is 18 barrels of oil per day, 138 MCF of gas per day and 22 barrels of water per day.

Q. Are these stripper wells?

A. No.

Q. What is Exhibit 12?

A. Exhibit 12 is a production plot showing the expected primary recovery and anticipated response from the pilot pressure maintenance project within this 320-acre boundary.

Q. And what did you base this on?

A. Basically off of area knowledge from the two pilot pressure maintenance projects that we currently have, and I risked the adjusted figure down so that we wouldn't be too awful optimistic.

Q. Based on your analysis, will the pressure maintenance project result in the increase in the amount of crude oil ultimately recovered from this reservoir?

A. Yes, it will.

Q. What are the costs of the project?

A. Exhibit Number 13 is a cost estimate for the project. We expect to invest another $50,000 within the Pure Gold B Federal Number 20 to convert it to water injection, and then additional flow lines would cost another $100,000.

We expect to recover 127,000 barrels of oil and 177 million cubic foot of gas as a result of this project. At $15 per barrel for the oil and $2 per MCF for the gas,

less severance taxes, *ad valorem* taxes and $5 per barrel operating costs, we've calculated a value of $1.5 million for the incremental reserves.

Q. Now, your Exhibit 10 already outlines the proposed project area, but what project allowable does Pogo request?

A. The depth bracket allowable is 187 barrels of oil per day. And there are eight quarter-quarter sections in the project area, so we are requesting an allowable of 187 time eight, which is 1496 barrels of oil per day for the project.

Q. In your opinion, is it prudent to apply enhanced recovery techniques to maximize ultimate recovery of oil from this pool?

A. Yes, it is.

Q. Is the pressure maintenance project economically and technically feasible at this time?

A. Yes, it is.

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

A. Yes, it is.

Q. Were Exhibits 10 through 13 prepared by you or under your direction?

A. Yes, they were.

MR. BRUCE: Mr. Examiner, at this time I'd move the admission of Pogo's Exhibits 10 through 13.

EXAMINER CATANACH: Exhibits 10 through 13 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Gasser, the area-of-review wells, are they all cemented across the proposed injection well?

A. Yes, they are.

Q. Do you know why it's necessary to use a DV tool in this area for that long string?

A. I can only -- No, not necessarily, I'm not totally familiar with the operational characteristics, but I can speculate that the hydrostatic of the cement on the back side might break down the lowest formation which it TD'd in, so it's better to just keep the hydrostatic off of the lower part of the formation.

Q. How quickly would you guys anticipate a response to waterflood operations?

A. Well, as you can see on Exhibit Number 12, I've shown response to be approximately a year and a half out in the future. It could be as quick as six months. You know, it almost depends on the permeability streaks that may be encountered within the producing formation.

Q. And in your other two pressure maintenance

projects, is that kind of what you've seen up there?

A. Yes, we saw response within about a year in the Livingston Ridge Pilot Project, and we've yet to see response in the Red Tank.

Q. So the response that you've on 12, is that kind of the same thing you've show in Livingston Ridge?

A. Yes, it is.

Q. What's the -- Is there any plan to expand this project?

A. Well, if this was successful, we would definitely evaluate an expansion. And at this moment there is not -- for us, the jury is still out as to the benefits of the pressure maintenance projects. We've seen promising results in the Livingston Ridge area, and we're hoping that we see promising results in Red Tank. And if we see them here, certainly we would plan to expand at a later date.

Q. Are you guys bringing in any makeup water, or is it all produced water?

A. It's all produced water.

Q. In the field?

A. Yes.

EXAMINER CATANACH: Mr. Bruce, you guys are also seeking to qualify this as an EOR project?

MR. BRUCE: Yes.

EXAMINER CATANACH: Okay. I don't think I have

any other questions, Mr. Bruce.

MR. BRUCE: That's all I have in this case, Mr. Examiner.

EXAMINER CATANACH: Okay, there being nothing further in this case, Case 12,223 will be taken under advisement.

(Thereupon, these proceedings were concluded at 10:26 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12223, heard by me on August 5 1999.

David H. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL August 10th, 1999.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002