CASE 6848: PETROLEUM DEVELOPMENT CORPORATION FOR POOL CONTRACTION AND CREATION, LEA COUNTY, NEW MEXICO

CASE NO.

6848

APPlication, Transcripts, Small Exhibits,

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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION STATE LAND OFFICE ELDG. SANTA FE, NEW MEXICO 5 August 1980 COMMISSION HEARING

IN THE MATTER OF:

Application of Petroleum Development) Corporation for pool contraction and) creation, Lea County, New Mexico.

CASE 6848

BEFORE: Commissioner Ramey Commissioner Arnold Commissioner Armijo

TRANSCRIPT OF HEARING

APPEARANCES

For the Oil Conservation Commission:

Ernest L. Padilla, Esq. Legal Counsel to the Commission State Land Office Bldg. Santa Fe, New Mexico 87501

For the Applicant:

Walter Kegel, Esq. KEGEL & McCULLOH P. A. 1231 Paseo de Peralta Santa Fe, New Mexico 87501

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8.

Applicant Exhibit E, Report

Applicant Exhibit F, Graph

INDEX ROY WILLIAMSON Direct Examination by Mr. Kegel Cross Examination by Mr. Ramey Cross Examination by Mr. Padilla Cross Examination by Mr. Arnold JIM C. JOHNSON Direct Examination by Mr. Kegel EXHIBITS Applicant Exhibit A, . Plat Applicant Exhibit B, Cross Section Applicant Exhibit C, Report Applicant Exhibit D, Report

Your address?

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Is Midland, Texas.
                               Q
                                         And your occupation?
                               A,
                                        I'm a petroleum consultant.
                   appeared before the Commission --
                                        MR. REGEL: I believe Mr. Williamson has
                                      MR. RAMEY:
                                                  Yes, he has.
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                                     MR. KEGEL:
                                                 on numerous occasions.
                Williamson and we will consider him qualified.
                                    MR. RAMEY: We are familiar with Mr.
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                                   MR. KEGEL: All right, sir.
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             been engaged by Petroleum Development Corporation to evaluate
                                  In the course of your occupation have you
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             the present application?
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                                Yes, sir, I have.
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          You prepared certain exhibits for the Commission?
                               In prepareation for your testimony have
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                              Yes, sir, I have.
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        Mr. Chairman, I'll just do these as Exhibit A and then stamp
                             MR. KEGEL: If we can save a little time,
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        them as we go along, if that's all right.
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      cant's Exhibit A and ask you if you will identify that,
                           I hand you what has been marked as Appli-
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      please?
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    Production and ownership in the vicinity of the McKay West
                              sir. Exhibit A is a plat showing
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Federal No. 1 Well, operated by Petroleum Development Corporation.

Q All right, and then Exhibit B?

A. Exhibit B is a cross section comprising the five wells denoted on the plat as Wells A, B, C, D, and E. This exhibit was actually prepared by Petroleum Development Corporation and under my approval we are using the same copy that Petroleum Development Corp. had earlier, because I would have made no changes in the exhibit.

Q All right, Exhibit C?

A Exhibit C is a bottom hole pressure survey report for the McKay West Federal No. 1, taken a test depth of 9850 feet on July the 14th, 1975.

Q. Exhibit D?

M. Exhibit D is a bottom hole pressure measurement taken on McKay West Federal No. 1 at a dcpth of 8530 feet and the date of that test was 3-8-80.

0. Exhibit E?

A. Exhibit E is another bottom hole pressure measurement on the McKay West Federal No. 1 taken at a depth of 8530 feet on 5-31-80.

0. And Exhibit F?

A. Exhibit F is a production plat showing production from the McKay West Federal No. 1 from the Upper Bone Spring Sand from its inception, when it started producing

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in February of 1980,

MR. KEGEL: Let me have these before the I believe Mr. Williamson will testify from those,

Would you like to put the cross section up on the board where we can see it a little better?

All right, Mr. Williamson, if you'll just go ahead, then, please.

Okay, sir.

The subject case consists of the application of Petroleum Development Corporation for pool contraction and creation in Lea County, New Mexico.

Petroleum Development Corporation seeks the contraction of the Querecho Plains Bone Spring Pool to comprise the upper Bone Spring formation only from 8390 feet to 8680 feet, as depicted on the log of this McKay West rederal Wall No. 1, located in Unit F of Section 34, Township 18 South, Range 32 East; and the creation of the Querecho Plains Lower Bone Spring Pool, to comprise said formation from 8680 feet to the base of the Bone Spring underlying the northwest quarter of said Section 34.

Our evidence shows that pressure data, as well as geological data, prove that the Upper Bone Spring and the Lower Bone Spring, as defined in this application, are separate and distinct reservoirs and should thus be classified as such.

SALLY W. BOYD, C.S.R. Rt. 1 Boy. 199-B Santa Fe, New Mexico 87501 Phone (505) 455-7409

I'll call your attention now to Exhibit
Number A, which is an area plat showing well development in
the vicinity of the McKay West Federal No. 1 Well. The cross
section trace is shown in red and includes five wells designated A, B, C, D, and E.

Exhibit B is the cross section itself, and is on the wall, and we will refer to that in a moment.

The Querecho Plains Bone Spring Pool was formed in 1969 after Shell completed the Querecho Plains No. 2 Well, Unit N, in Section 27. This well is designated A on the area plat and the cross section.

The pool was expanded to include the northwest quarter of Section 34 after the McKay West Federal No. 1 Well was recompleted in the Bone Spring Lime portion of the Bone Spring reservoir in 1975.

Now Exhibit B is a cross section of wells A through E, with A being on the left and E being on the right.

Well Number A, which is Shell's Plains
No. 2 Well, was originally drilled to the Morrow, which was
dry, and was plugged back and recompleted in the first Bone
Spring sand at a depth of 8538 to 8560. These perforations
are shown and are colored yellow on the cross section for
Well Number A.

The cross section comprises the entire

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Bone Spring section from the top of the Bone Spring to the top of the Wolfcamp over the interval covered, which is some 3300 feet in vertical limit.

The Querecho Plains No. 2 Well produced 40,524 barrels of oil from the Bone Spring Sand before being plugged and abandoned.

Petroleum Development Corp. drilled the No. 1 Well in 1975, which is Well B on the cross section, and it was drilled for the Morrow also, which was dry, and was then plugged back to the Bone Spring.

The first completion attempts in the Bone Spring were in the second Bone Spring Lime and the third Bone Spring lime, as shown by these blue perforated intervals on the cross section.

A bottom hole pressure was run on July the 14th, 1975, and after a 19-hour buildup and after production of only 288 barrels, the pressure was 1064 pounds.

The well continued to produce a total of only 1296 barrels of oil before being abandoned in these zones.

Then the first Bone Spring Sand, which is correlative to the producing interval in the Plains No. 2

Well, was perforated, as again shown by the perforations with the yellow coloring on Well B, and potentialed February 21, 1980, for 104 barrels of oil, flowing, plus 70 barrels of water, with a tuping pressure of 100 psig.

After production of 1034 barrels in this zone, a bottom hole pressure measurement of 2968 pounds was reported on March the 8th, 1980, after being shut-in for 77-3/4 hours.

The same zone was tested again on May 31, 1980, and after 117-1/2 hours of shut-in time, and the production of 5607 barrels of oil, reports a bottom hole pressure of 2464 pounds.

As can be seen by the cross section, the lower reservoir below 8680 feet, which is this line right here, shown in the cross section, is not only separated geologically but by distinct difference in reservoir pressures.

I now call your attention to Exhibit C,

D, and E, which are merely the reporting of the bottom hole pressures as I've just discussed on the McKay Federal West No. 1 Well. The only other test from the Lower Bone Spring reservoir, which is shown in the cross section, is in Petroleum Development Corp's Federal No. 1 Well, which is designated as Well E, and the DST was taken over the interval shown by the blue marking on the cross section from 9861 feet to 9650 feet; had gas surfaced in five minutes on a 1/2 inch choke, flowing 675 Mcf per day of gas with a pressure of 90 pounds, plus an estimated 20 barrels of oil per hour. The flowing pressure increased from 1902 pounds to 2403 pounds with a shut-in bottom hole pressure of 2572 after 120 minutes.

duction.

This zone was never completed for pro-

As can be seen on this cross section, the first Bone Spring Sand in all five wells on the cross section correlates very well, whereas the lower Bone Spring intervals do not correlate well, and indicate a reservoir consisting of many discontinuous intervals.

Referring back now to Exhibit A, other significant production in the Bone Spring occurred from wells F and G, which are colored red, and with Well F being in Section 15 of 19, 32, and Well G being in Section 16 of 19, 32.

Well F is the Sun Jennings No. 1 Well, which has a cumulative 378,209 barrels of oil as of April 1, 1980, from the third Bone Spring Lime, with March of '80 production being 2327 barrels of oil.

Well G in Section 16 is Petroleum Development Corp's Cleve Rock Federal No. 1, which produced 45,425 barrels of oil from the third Bone Spring Lime before being abandoned.

The two Bone Spring Lime intervals in Wells F and G again are not correlative, thus further showing the erratic nature of reservoirs that occur in the Lower Bone Spring interval, and particularly in the lime sections of the Bone Spring.

Again referring to Exhibit A, you'll

notice right above our Well A there is a Mewbourne Federal 1-G Well, and that will be in Unit K of Section 27, Township 18 South, Range 32 East. This well was originally completed by Mewbourne Oil Company in October 13th, 1978, from the Morrow interval from 12,693 feet to 12,814 feet. It was recompleted to the Lower Bone Spring interval on April 20th, 1980, from perforations 9750 feet to 9778 feet, and it was potentialed at a rate of 300 barrels of oil per day, plus 380 Mcf of gas per day.

depthwise to the third Bone Spring Lime, and thus is the first significant production in the immediate area of the McKay West Federal No. 1 from the herein requested Lower Bone Spring reservoir. No log is available on this well from public sources. I've tried to obtain it and Mr. Johnson has tried to obtain it, and apparently that log has never been released by Mewbourne. So we cannot put the well by our cross section, but assuming that the beds are relatively flat and the surface relatively flat, we can correlate pretty well and know that it is from the third Bone Spring Lime interval.

I will now call your attention to Exhibit

F, which is only a graph showing the log, the monthly producing rate versus time, for the McKay West Federal No. 1 Well. The production for February was not a full month and is why it is only a little more than 1000 barrels. It is currently

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producing some 1500 barrels a month.

The reserves for this well are estimated at 40 to 50,000 barrels of oil from primary recovery with a possible like amount to be recovered by future potential waterflood recovery project, and this is another reason why we feel that the Upper and Lower Bone Spring should be separated, because in my opinion, geologically and pressurewise they are different reservoirs, and I don't think we'd want to commingle two separate reservoirs and potentially hinder additional recovery in the first Bone Spring Sand by a waterflood or other possible enhanced recovery project. A precedent was set for this type of or-

der in Case Number 6756, which resulted in Order No. R-6255, in which the applicant, Amoco Production Company, requested the contraction of the vertical limits of the Air Strip Bone Spring Pool in Section 25, Township 18 South, Range 34 East, Eddy County, New Mexico, to comprise the Upper Bone Spring formation from 9180 feet to 9460 feet, and the creation of the Air Strip Lower Bone Spring Pool, to comprise the Lower Bone Spring formation from 10,100 feet to 10,400 feet, all depths being from the log of applicant's State "FU" Well No. 2, located in Unit N of Section 25.

It was further found by the Commission in this case that the order embodying these findings will not impair correlative rights nor cause waste.

The evidence presented for Case 6756 showed that the Upper and Lower Bone Spring intervals was separated by pressure differences and geological environment.

It is requested that this application

before the Commission by Petroleum Development Corp. be

granted with such reservoir designations to be retroactive

to the date of first production in the Upper Bone Spring Sand.

It is my opinion that the granting of this application will protect correlative rights and will prevent underground waste of hydrocarbons.

Q Is there any question in your mind, Mr. Williamson, that these are separate and distinct reservoirs?

A. No, sir, there is not.

Do you feel that as there is further development in this area of the Bone Spring that there is a possibility of the creation of additional separate zones and reservoirs?

A. Yes, sir. I feel sure that the Lower Bone Spring interval, as production is developed, will prove that there are multiple reservoirs even in the Lower Bone Spring.

And I might point out through a recent development, referring again to Well E, which is Petroleum Development Corp's Gulf McKay Federal No. 1, it has been recently perforated in the first Bone Spring Sand from 8503

to 8513 and from 8528 to 8535, with two holes per foot. It was acidized with 2000 gallons of 15 percent acid and after recovering load, was swabbing 100 percent water, but the water analysis indicated that it was drilling water rather than formation water.

After recovering load plus 365 barrels, the oil percent has increased to 23 percent of total fluid, and this well is currently being tested and will have a pumping unit installed very soon in order to get its true potential.

The production from the Mewbourne well, which I mentioned earlier was north of the Querecho Plains

No. 2 Well, for April of 1980 produced 2485 barrels of oil, plus 3229 Mcf, and for May produced 1715 barrels of oil and 3847 Mcf.

Rut it is obvious to me that by the additional development in the Culf McKay Federal, that other completions will be made in the first Bone Spring Sand, and very likely additional wells will be drilled for this sand.

Mr. Williamson, did you go over the material presented in the hearing before the Examiner?

A. Yes, sir, I did.

Q And is any of the material that you have presented here today in conflict with the material presented before the Examiner?

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A.	NO,	sır,	1t	is	not	in	conflict.

Is it additional to?

Yes, sir, we have additional information now that was not available at the time of the Examiner Hearing. Primarily the production data from the Mewbourne well, the recent completion in the Gulf McKay Federal No. 1, and more importantly, the pressure measurements showing that a substantial pressure difference occurs between the first Bone Spring Sand and the Lower Bone Spring Lime intervals.

MR. KEGEL: I have no further questions.

CROSS EXAMINATION

BY MR. RAMEY:

Mr. Williamson, I'm kind of lost since we didn't have the exhibits when you discussed them.

I'm clear on Exhibits A and B but what is Exhibit C?

C is the bottom hole pressure measurement that was made when the McKay Federal Well No. 1 was completed in the Lower Bone Spring Lime interval. These perforations occurred in July of '75, and after the production of only 280 barrels of oil the zone a bottom hole pressure measurement was taken of 1064 pounds.

And then Exhibit D and E were pressure measurements taken from the first Bone Spring Sand interval,

which was perforated at 8508 to 8521, and the first pressure measurement reported 2968 psi after being shut-in for 77-3/4 hours, and that date was taken on -- I mean that pressure was taken on March the 8th of 1980.

And then on 5-31 of '80 another pressure measurement was taken in that sand zone, the first Bone Spring sand zone, and after 117-1/2 hours reported 2464 pounds.

So we have a pressure difference between Upper and Lower intervals of well over 1000 pounds.

Q. And F is just production?

A. Yes, sir. F is just the production from the McKay West Federal No. 1 Well from the first Bone Spring Sand.

Q. The Mewbourne well in K of 27 is the only other producing well in the ---

A. From the Upper or Lower Bone Spring, yes, sir, and it's brand new and unfortunately the log hasn't been released, so we've been unable to correlate the logs specifically, but as flat as everything is in here, we just are inferring from depth what interval that it's in.

n And what interval is it producing from?

Mell, it's producing what we believe to be the third Bone Spring Lime, which would be the lower lime interval.

I'd like to point that out from the map,

or maybe I should have done this earlier. From -- on the McKay Federal West No. 1 Well, from around 7100 feet down to about 8390 feet, that is defined as the first Bone Spring Lime. The first Bone Spring Sand occurs from 8390 feet to 8680 feet.

The second Bone Spring Lime occurs from 8680 down to 9300, approximately.

And the second Bone Spring Sand is 9300 down to 9700.

The third Bone Spring Lime is 9700 down to 10,050.

And the third Bone Spring Sand is from 10,050 down to 10,410, more or less.

So from the depths that they perforated, as reported by the completion report, we think they're in this third Bone Spring Lime, which proves that there are going to be some isolated reservoirs, I'm sure, that will be completed in that lower interval.

On And you are proposing now an Upper Bone Spring Pool ---

A. Yes, sir.

0. -- and a Lower Bone Spring Pool?

A. Yes, sir. We're proposing the Upper Bone Spring to terminate at 8680 feet. From there up would be the Upper Bone Spring, and from that point down, as depicted

on the McKay West Federal No. 1 Well, would be a Lower Bone Spring limit.

Q. Do you think the second Bone Spring Sand is in pressure communication with the third Bone Spring?

No, sir, I don't have enough information to show that separation exists between these various lower intervals. I feel, it is my intuition that as these various intervals are completed, and if they are completed, then we will show probably, or be able to show that these are indeed separate reservoirs. There's just too much vertical difference to think that that whole interval would be in communication, and the only distinct pressure measurements we have are between the first Bone Spring Sand and then the Lower Bone Spring Lime interval in the McKay West No. 1.

Now once we get pressure data from the new one, I think we can probably be able to show that it's separate from some of these other zones, but until that data is available we can't, and do not suggest further separation of the Lower Bone Spring at this time.

Do you -- could you give me some vertical limits, or furnish the Commission some vertical limits for your --

A. Yes, sir.

0. -- upper pool?

A. Yes, sir. We're proposing that -- and

all of these measurements are made on the Petroleum Development Corp. McKay Federal West No. 1 Well, and we are pro-2 3 posing that the Upper Bone Spring formation exist from 8390 feet to 8680 feet. That's 8390 to 8680. And then the Lower Bone Spring Pool would be 8680 to the base of the Bone Spring, which is approximately 6 10,410 feet in the McKay West No. 1 Well. Do you have the elevation of that well? 8 9 Yes, sir. Calibration on that well is 10 3725 feet. The derrick floor is 3724 feet. And ground level 11 is 3706 feet. 12 What is the log measured from? 13 The log is measured from the Kelly bushing. 14 which is 19 feet above the permanent datum. 15 that's the 3725? 16 Yes, sir. 17 So probably any subsurface figures for 18 the pool, the vertical limits of the pool, should be from 19 the 3725. 20 Yes, sir. 21 Any other questions of this MR. RAMEY: 22 witness? Mr. Padilla?

CROSS EXAMINATION

BY MR. PADILLA:

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Phone (505) 455-7409

Mr. Williamson, you testified that commingling of production from the Upper and Lower Bone Spring could possibly hinder recovery from the Upper Bone Spring, is that --

A Well, yes, sir, two things could occur.

One, if production is commingled, then we cannot be sure of our recoveries from the Upper sand, and it's important in order to determine economics for additional recovery as to what are you actually going to get primarywise from this one particular interval.

And then obviously we would not want pressure communication within a wellbore between the two zones if we're putting water or gas or ${\rm CO_2}$, or whatever happens to be the injectant into one zone, we would not want it to have a path through an open wellbore into a lower zone, so it needs to be confined to one interval.

Q So you could have --

A. You could have cross flow within the wellbore.

Q You could have waste in either one of the zones, actually.

A. Yes, sir, we certainly could.

Q. If you have the cross flow.

A. Yes, sir, if you have the cross flow.

MR. RAMEY: Any other questions?

SALLY W. BOYD, C.S.R.

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CROSS EXAMINATION BY MR. ARNOLD: Mr. Williamson, what's the closest interval between production in the Upper Bone Spring zone and the uppermost producing zone in the Lower Bone Spring? Well, at the current time the -- in this particular area, the Mewbourne Well is producing from the 10 Lower Bone Spring from perforations at 9750 to 9778, so that would be on the cross section, it would be in this interval about here, so the vertical difference, then, between that and the Bone Spring Sand is approximately 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, around 1200 feet, so it's a very thick section, so it would be very unusual for communication to exist naturally in the reservoir over that interval. MR. RAMEY: The Mewbourne well seems to be approximately the same level as Well E where you have the drill stem test. Yes, sir, that probably is -- that -- that interval there, you know, probably would make a well, and I'm sure that depending on what Petroleum Development Corp. --

how long they produce the Bone Spring Sand, surely some day

MR. RAMEY: Any other questions of the

will come back and recomplete that level.

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witness? He may be excused.

MR. KEGEL: I'd like to offer the -- I'd like to offer Applicant's Exhibits A through F.

MR. RAMEY: Applicant's Exhibits A through F will be admitted.

MR. KEGEL: Call Mr. Johnson.

MR. RAMEY: Let's have just about a five minute recess real quick.

MR. KEGEL: All right,

(Thereupon a recess was taken.)

JIM C. JOHNSON

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

DIRECT EXAMINATION

BY MR, KEGEL:

Q.	Will you state your name, please?
Λ.	Jim C. Johnson.
Q.	For the record, your address?
λ.	Albuquerque, New Mexico.

What is your occupation?

A. I'm President of Petroleum Development

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Corporation.

Q. The applicant in this case?

A. That is correct.

0. Mr. Johnson, have you made a study of the economics involved in this application?

A. Yes, I have.

Q Would you explain to the Commission, please, the effect of the granting or denial of the application from an economic standpoint?

A. I will. Gentlemen, the crude oil windfall profit act signed into law in April 2nd, 1980, to be retroactive effective on March 1 of 1980. There's a differential price on tier one oil and tier three oil.

In June of 1980 tier one oil was priced at \$21.75 per barrel. Tier three oil was priced at \$39.50 per barrel.

Also, the windfall profits tax has a differential for independent producers for tier one oil of 50 percent and tier three oil of 30 percent.

In reference to this hearing, tier three oil is classified as oil that did not produce from a reservoir on a lease during the year 1978.

The McKay West Federal No. 1 produced from the depleted limestone Bone Spring reservoir as presented by Mr. Williamson's testimony in 1978. The McKay West Feder-

al No. 1, with its cumulative production from the Bone Spring Sand reservoir through July of this year would receive a gross loss of \$130,000 in the event the Bone Spring Sand is not classified a different reservoir.

The New Mexico State Tax loss through July, 1980, would be \$10,000.

Petroleum Development Corporation has estimated the gross revenue loss from this well through 1988 would be \$420,000 and the New Mexico State Tax loss would be \$21,400, assuming a cumulative production of 45,000 barrels of oil.

The lease on which McKay West Federal No.

l is located contains 400 acres, and nine additional wells

could possibly be drilled on this lease. In the event nine

additional wells can be timely drilled with a cumulative

production of 45,000 barrels of oil per well, Petroleum Devel
opment Corporation has estimated the gross loss of revenue

would be \$2,600,000 through 1989, and the New Mexico revenue

loss would be \$38,000.

This amounts to an estimated gross revenue loss of \$3,020,000. The State of New Mexico realizes a percentage of the royalty from the 12-1/2 percent USGS royalty, which would suffer a drastic loss, since the windfall profits tax is 70 percent on tier one oil and 30 percent on tier three oil.

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Rt. 1 Box 195-B Santa Fe, New Mexico 8750: Phone (505) 455-7409 There is no question in my mind that the McKay West Federal No. 1 is currently producing from a different reservoir than the reservoir which it produced in 1978, as provided in Mr. Williamson's testimony.

Gentlemen, these amounts of revenues may appear as a drop in the bucket to a major oil company, but to a small independent New Mexico corporation, I can assure you it is significant.

MR KEGEL: I have no further questions.

MR. RAMEY: Any questions of the witness?

He may be excused.

MR. KEGEL: Applicant has no further testi

mony.

MR. RAMEY: Does anyone have anything fur-

ther to add to this case?

If not, the Commission will take the

Case 6848 under advisement.

(Hearing concluded.)

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CERTIFICATE

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

Saly W. Royd C.S.E.

LLY W. BOYD, C

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	SANTA FE, NEW MEXICO	
Hearing Date	AUGUSI 5, 1980	Time: 9:00 A.M
NAME	REPRESENTING	LOCATION
num V. Carl ue a. Umshlar	Campbell and Back USES, Conservation (S)	Sada Ora
Y C. WHITE KIRSON SON SON C. Johnson RKeg el	SiPGS, WHURNSOM ASSOC. For Port Co. Dev. CORP Patroleum Dev. Carp Hogel, M. Cabe & Mardez	Minimoralex Albug:
2. Deliver	Byram Gely Solly	Sunta J Hodba Midland
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	NEW MEXICO OIL CONSERVATION COMMISSION	•
	COMMISSION HEARING	•
	SANTA FE , NEW MEXICO	
Hearing Date	AUGUST 5, 1980	Time: 9:00 A.M.
NAME	REPRESENTING	LOCATION

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STATE OF HEW HEXTCO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, HEW MEXICO
5 August 1980

COMMISSION HEARING

IN THE MATTER OF:

Application of Petroleum Development)
Corporation for pool contraction and)
creation, Lea County, New Mexico.)

CASE 6848

BEFORE: Commissioner Ramey Commissioner Arnold

Commissioner Armijo

TRANSCRIPT OF HEAPING

APPEARANCES

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MR. PAMOY: The hearing will come to order We'll call first case on the docket. MR. (PADILLA: Application of Petroleum Development Corporation for pool contraction and creation, Lea County, New Mexico. MR. RAMEY: Case 6948. MR. KEGEL: Walter R. Kegel for the applicant. MR. RAMEY: Any other appearances? Would you have your witnesses stand and be sworn at this time, Mr. Kegel? MR. MEGEL: Yes. Poy Williamson and J. C. Johnson. (Witnesses sworn.) ROY WILLIAMSON being called as a wilness and having been duly sween upon his oath, testified as follows, to-wit: DIRECT EXAMINATION BY MR. KUGHL:

Will you state your name, [lease?

Roy C. Williamson.

Yerre edelmens?

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Phone (505) 455-7409	12
Phon	13
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	A.	Is Midland, Texas.
	Ü	And your occupation?
	A.	I'm a petroleum consultant.
		MR. KECSL: I believe Mr. Williamson has
appear	red before	the Commission
		MR. RAMBY: Yes, he has.
		MR. KEGEL: on humerous occasions.
		MR. RAMEY: We are familiar with Mr.
Willia	amson and w	e will consider him qualified.
		MR. NEGEL: All right, sir.
	Ğ.	In the course of your occupation have you
been	engaged by	Petroleum Dévelopment Corporation to evaluate
the p	resent appl	icarion?
	Ä.	Yes, sir, I have.
	Q.	In prepareation for your testimony have
you p	repared cer	tain exhibits for the Cormission?
	Ã,	Yes, str. I have.
		MR. KROMB: If we can save a little time,
Mr. C	hairman, I'	11 just do these as Skidbit A and them stamp
them	as we go al	ong, if that's all right.
	Q .	I hand you what has been marked as Appli-
cant'	s Exhibit 8	and ask you is you will identify that,
pleas	e?	

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Federal No. 1 Well, operated by Petroleum Development Corporation.

All right, and then Exhibit B?

Exhibit B is a cross section comprising the five wells denoted on the plat as Wells A, B, C, D, and E. This exhibit was actually prepared by Petroleum Development Corporation and under my approval we are using the same copy that Petroleum Development Corp. had earlier, because I would have made no changes in the exhibit.

All right. Exhibit C?

Exhibit C is a bottom hole pressure curvey report for the McKay West Pederal Mo. 1, taken a test depth of 9850 feet on July the 14th, 1975.

Exhibit D?

Exhibit p is a bottom hole pressure measurement taken on McKay West Federal No. 1 at a depth of 8530 feet and the date of that test was 3-8-80.

Friibit E?

Exhibit E is another bottom hale pressure measurement on the McKay West Federal No. 1 taken at a depth of 8530 feet on 5-31-80.

and Exhibit P?

Exhibit F is a production plat showing production from the McKay West Peleval No. 1 from the Upper More Spring Sand Inco its incoption, when it attended producing

in February of 1980.

MR. KECEL: Let me have these before the Commission. I believe Mr. Williamson will testify from those.

A. Would you like to put the cross section up on the board where we can see it a little better?

Q. All right, Mr. Williamson, if you'll just

go ahead, then, please.

A Okay, sir.

The subject case consists of the application of Petroleum Development Corporation for pool contraction and creation in Lea County, New Mexico.

the contraction of the Querecho Plains Bone Spring Pool to comprise the upper Bone Spring formation only from 3390 feet to 8680 feet, as depicted on the log of this McKay West Federal Well No. 1, located in Unit F of Section M. Township 18 South, Range 32 Bast; and the greation of the Querecho Plains Lower Bone Spring Pool, to comprise said formation from 8680 feet to the base of the Bone Haring underlying the northwest quarter of said Section 34.

Our evidence shows that pressure data, as well as geological data, prove that the Heyer Boar Coring and the Lower Bone Spring, as defined in this application, are separate and distinct reservoirs and should thus be classified to such.

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I'll call your attention now to Exhibit Number A, which is an area plat showing well development in the vicinity of the McKay West Federal No. 1 Well. The cross section trace is shown in red and includes five wells design nated A, B, C, D, and E. Exhibit B is the cross section inself,

and is on the wall, and we will refer to that in a roment. The Querecho Plains Bone Spring Pool was formed in 1969 after Shell completed the Querecho Plains No. 2 Well, Unit N, in Section 27. This well is designated A on the area plat and the cross section.

The pool was expanded to include the northwest quarter of Section 34 after the McKay Wist Federal No. 1 Well was recompleted in the Bone Spring Lim portion of the Bone Spring reservoir in 1975.

Now Exhibit B is a cross section of wells A through E, with A being on the left and E being on the

Moll Murbor A, which is Sheel's Plains right. No. 2 Well, was originally drilled to the Morr w. which was dry, and was plugged back and recompleted in the first Bone Spring send at a double of \$738 to 8550. Show perforations are shown and are colored yellow on the cross section for Well Humber A.

the trees section comprises the antima

Bone Spring section from the top of the Bone Spring to the top of the Wolfcamp over the interval covered, which is some 3300 feet in vertical limit.

The Querecho Plains No. 2 Well produced 40,524 barrels of oil from the Bone Spring Sand before being plugged and abandoned.

No. 1 Well in 1975, which is Well B on the cross section, and it was drilled for the Morrow also, which was dry, and was then plugged back to the Bone Spring.

Spring were in the second Bone Spring Lime and the third

Eone Spring lime, as shown by these blue perforated intervals
on the cross section.

A bottom hole pressure was run on July the 14th, 1975, and after a 19-hour buildup and after production of only 288 barrels, the pressure was 1064 pounds. The well continued to product a total of only 1296 barrels of oil before being abandoned in these words.

correlative to the producing interval in the Plains No. 2
Well, was perforated, as again shown by the perforations with
the yellow coloring on Well b, and petentialed Pobruary 21,
1980, for 204 barrels of oil, flowing, plus 70 barrels of
water, with a tubing pressure of 100 outc.

and the second s

After production of 1034 barrels in this zone, a bottom hole pressure measurement of 2968 pounds was reported on March the 8th, 1930, after being shut-in for 77-

The same zone was tested again on May

The same zone was tested again on May

31, 1980, and after 117-1/2 hours of shut-in time, and the

production of 5607 barrels of oil, reports a bottom hole

pressure of 2464 pounds.

As can be seen by the cross section, the lower reservoir below \$680 feet, which is this line right here, shown in the cross section, is not only separated geologically but by distinct difference in reservoir pressures.

I now call your attention to Exhibit C,

b, and E, which are merely the reporting of the bottom hole

pressures as I've just discussed on the McKay Federal West

No. 1 Well. The only other test from the Lower Bone Spring

No. 1 Well. The only other test from the Lower Bone Spring

No. 1 Well. The only other test from the Lower Bone Spring

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SALLY W. BOYD, C.S.R. Ri. 1 Box 193-B Santa Fe. New Mexico 87501 Phone (505) 455-7409

duction.

This zone was never completed for pro-

As can be seen on this cross section, the first Bone Spring Sand in all five wells on the cross section correlates very well, whereas the lower Bone Spring intervals do not correlate well, and indicate a reservoir consisting of many discontinuous intervals.

Referring back now to Exhibit A, other significant production in the Bone Spring occurred from wells F and G, which are colored red, and with Well F being in Section 15 of 19, 32, and Well G being in Section 16 of 19, 32.

Well F is the Sun Jennings No. 1 Well, which has a cumulative 378,209 barrels of oil as of April 1, 1980, from the third Bone Spring Line, with March of '80 production being 2327 barrels of oil.

Well G in Section 16 is Petroleum Development Corp's Cleve Rock Federal No. 1, which produced 45,425 barnels of oil from the third Bone Spring Lime before being abandoned.

The two Bone Spring Lime intervals in Wolls F and G again are not correlative, thus further showing the erratic nature of reservoirs that occur in the Lower Bone Spring interval, and particularly in the line sections of the Bone Spring.

Again referring to Exhibit A, you'll

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Santa Fe, New Mexico 87501

notice right above our Well A there is a Mewbourne Federal 1-G Well, and that will be in Unit K of Section 27, Township 18 South, Range 32 East. This well was originally completed by Mewbourne Oil Company in October 13th, 1978, from the Morrow interval from 12,693 feet to 12,314 feet. It was recompleted to the Lower Bone Spring interval on April 20th, 1980, from perforations 9750 feet to 9778 feet, and it was potentialed at a rate of 300 barrels of oil per day, plus 380 Mcf of gas per day.

depthwise to the third Bone Spring Lime, and thus is the first significant production in the immediate area of the McKay West Federal No. 1 from the herein requested Lower Bone Spring reservoir. No log is available on this well from public sources. I've tried to obtain it and Mr. Johnson has tried to obtain it, and apparently that log has never been released by Mewbourne. So we cannot put the well by our cross section, but assuming that the beds are relatively flat and the surface relatively flat, we can correlate protty well and know that it is from the third Bone Spring Lime interval.

I will now call your attention to Exhibit

P, which is only a graph showing the log, the monthly producing

rate versus time, for the McKay West Federal No. 1 Well. The

production for February was not a full month and is why it

is only a little more than 1000 barrels. It is currently

producing some 1500 barrels a month.

at 40 to 50,000 barrels of oil from primary recovery with a possible like amount to be recovered by future potential waterflood recovery project, and this is another reason why we feel that the Upper and Lower Bone Spring should be separated, because in my opinion, geologically and pressurewise they are different reservoirs, and I don't think we'd want to commingle two separate reservoirs and potentially hinder additional recovery in the first Bone Spring Sand by a waterflood or other possible enhanced recovery project.

der in Case Number 6756, which resulted in Order No. R-6255, in which the applicant, Amoco Production Company, requested the contraction of the vertical limits of the Air Strip bone Spring Pool in Section 25, Township 18 South, Range 34 East, Eddy County, New Mexico, to comprise the Upper Bone Spring formation from 9180 feet to 9460 feet, and the creation of the Air Strip Lower Bone Spring Pool, to comprise the Lower Bone Spring formation from 10,100 feet to 10,400 feet, all depths being from the log of applicant's State "Fy" Well No. 2, located in Unit N of Section 25.

It was further found by the Commission in this case that the order embodying these findings will not impair correlative rights nor cause waste.

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The evidence presented for Case 6756 showed that the Upper and Lower Bone Spring intervals was separated by pressure differences and geological environment.

It is requested that this application

before the Commission by Petroleum Development Corp. be

granted with such reservoir designations to be retroactive

to the date of first production in the Upper Bone Spring Sand.

It is my opinion that the granting of this application will protect correlative rights and will prevent underground waste of hydrocarbons.

Q Is there any question in your mind, Ar. Williamson, that these are separate and distinct reservoirs?

A. No, sir, there is not.

Do you feel that as there is further development in this area of the Bone Spring that there is a possibility of the creation of additional separate somes and reservoirs?

A Yes, sir. I feel sure that the Lower Bone Spring interval, as production is developed, will prove that there are multiple reservoirs even in the Lower Bone Spring.

And I might point out through a recent development, referring again to Well E, which is Petroleum Development Corp's Gulf McKay Federal No. 1, it has been recently perforated in the first Bone Spring Sand from 8503

to 8513 and from 8528 to 8535, with two holes per foot. It was acidized with 2000 gallons of 15 percent acid and after recovering load, was swabbing 100 percent water, but the water analysis indicated that it was drilling water rather than formation water.

After recovering load plus 365 barrels, the oil percent has increased to 23 percent of total fluid, and this well is currently being tested and will have a pumping unit installed very soon in order to get its true potential.

The production from the Newbourne well, which I mentioned earlier was north of the Querecho Plains No. 2 Well, for April of 1980 produced 2485 barrels of oil, plus 3229 Mcf, and for May produced 1715 barrels of oil and 3847 Mcf.

But it is obvious to me that by the additional development in the Gulf McKay Federal, that other completions will be made in the first Bone Spring Sand, and very likely additional wells will be drilled for this sand.

Mr. Williamson, did you go over the material presented in the hearing before the Examiner?

A. Yes, sir, I did.

And is any of the material that you have presented here today in conflict with the material presented before the Examiner?

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F. Yes, sir, we have additional information

now that was not available at the time of the Examiner Mearing Primarily the production data from the Mewbourne well, the recent completion in the Gulf McKay Federal No. 1, and more importantly, the pressure measurements showing that a substantial pressure difference occurs between the first Bone Spring Sand and the Lower Bone Spring Line intervals.

Is it additional to?

No, sir, it is not in conflict.

MR. KEGDL: I have no further questions.

CROSS EXAMINATION

BY MR. RAMEY:

A.

Mr. Williamson, I'm kind of lost since Q. we didn't have the exhibits when you discussed then.

I'm clear on Exhibits A and B but what

is Exhibit C?

C is the bottom hole pressure measurement that was made when the McKay Faderal Wall Wo. I was completed in the Lower Bone Spring Lime interval. These perforations occurred in July of '75, and after the production of only 280 barrels of oil the zone a bottom hole pressure measurement was taken of 1064 pounds.

And then Exhibit D and E were pressure measurements taken from the first Bone Spring Sand interval,

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which was perforated at 8508 to 8521, and the first pressure measurement reported 2968 psi after being shut-in for 77-3/4 hours, and that date was taken on -- I mean that pressure was taken on March the 8th of 1980.

And then on 5-31 of '80 another pressure measurement was taken in that sand zone, the first Bone Spring sand zone, and after 117-1/2 hours reported 2464 pounds.

So we have a pressure difference between

And F is just production?

Upper and Lower intervals of well over 1000 pounds.

M. Yes, sir. F is just the production from the McKay West Federal No. 1 Well from the first Bone Spring Sand.

O. The Mewbourne well in K of 27 is the only other producing well in the ---

sir, and it's brand new and unfortunately the log hasn't been released, so we've been unable to correlate the logs specifically, but as flat as everything is in here, we just are inferring from depth what interval that it's in.

Q. And what interval is it producing from?

A. Well, it's producing what we believe to be the third Bone Spring Lime, which would be the lower lime interval.

I'd like to point that out from the map,

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or maybe I should have done this earlier. From — on the McKay Federal West No. 1 Well, from around 7100 feet down to about 9390 feet, that is defined as the first Bone Spring Lime. The first Bone Spring Sand occurs from 8390 feet to 8630 feet.

The second Bone Spring Lime occurs from

The second Bone Spring Lime occurs from 8680 down to 9300, approximately.

And the second Bone Spring Sand is 9300 down to 9700.

to 19,050.

And the third Bone Spring Sand is Evom 10,050 down to 10,410, more or less.

so from the depths that they perforated, as reported by the completion report, we think they're in this third Bone Spring Lime, which proves that there are going to be some isolated reservoirs, I'm sure, that will be completed in that lower interval.

And you are proposing now an Upper Bone

Spring Pool ---

A. Yes, sir.

9 — and a Lower Bone Spring Pool?

Spring to terminate at 8620 feet. From there up would be the Upper Bone Spring, and from that point down, as depicted

on the McKay West Federal No. 1 Well, would be a Lower Bone Spring limit.

Do you think the second Bone Spring Sand is in pressure communication with the third Bone Spring?

No, sir, I don't have enough information to show that separation exists between these various lower intervals. I feel, it is my intuition that as these various intervals are completed, and if they are completed, then we will show probably, or be able to show that these are indeed separate reservoirs. There's just too much vertical difference to think that that whole interval would be in communication, and the only distinct pressure measurements we have are between the first Bone Spring Sand and then the Lower Bone Spring Lime interval in the McKay West No. 1.

Now once we get pressure data from the new one, I think we can probably be able to show that it's separate from some of these other zones, but until that data is available we can't, and do not suggest further separation of the Lower Bone Spring at this time.

A Yes, sir.

0. -- upper pool?

A. Yes, sir. We're proposing that -- and

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all of these measurements are made on the Petroleum Development Corp. McKay Federal West No. 1 Well, and we are proposing that the Upper Bone Spring formation exist from 8390 feet to 8630 feet. That's 8390 to 8680.

And then the Lower Bone Spring Pool would be 8680 to the base of the Bone Spring, which is approximately 10,410 feet in the McKay West No. 1 Well.

Q Do you have the elevation of that well?

A. Yes, sir. Calibration on that well is 3725 feet. The derrick floor is 3724 feet. And ground level is 3706 feet.

Q What is the log measured from?

A. The log is measured from the Kelly bushing, which is 19 feet above the permanent datum.

Q that's the 3725?

A. Yes, sir.

So probably any subsurface figures for the pool, the vertical limits of the pool, should be from the 3725.

A. Yes, sir.

MR. RAMEY: Any other questions of this

witness? Mr. Padilla?

CROSS EXAMINATION

BY MR. PADILLA:

Mr. Williamson, you testified that commingling of production from the Upper and Lower Bone Spring could possibly hinder recovery from the Upper Bone Spring, is that -
M. Well, yes, sir, two things could occur.

One, if production is commingled, then we cannot be sure of

One, if production is commingled, then we cannot be sure of our recoveries from the Upper sand, and it's important in order to determine economics for additional recovery as to what are you actually going to get primarywise from this one particular interval.

And then obviously we would not want pressure communication within a wellbore between the two zones if we're putting water or gas or ${\rm CO}_2$, or whatever happens to be the injectant into one zone, we would not want it to have a path through an open wellbore into a lower zone, so it needs to be confined to one interval.

g so you could have ---

A. You could have cross flow within the wellbore.

Q You could have waste in either one of the zones, actually.

A Yes, sir, we certainly could.

0 If you have the cross flow.

A. Yes, sir, if you have the cross flow.

MR. RAMEY: Any other questions?

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CROSS EXAMINATION

BY MR. ARNOLD:

Q Williamson, what's the closest interval between production in the Upper Bone Spring zone and the uppermost producing zone in the Lower Bone Spring?

Well, at the current time the -- in this particular area, the Mewbourne Well is producing from the Lower Bone Spring from perforations at 9750 to 9778, so that would be on the cross section, it would be in this interval about here, so the vertical difference, then, between that and the Bone Spring Sand is approximately 1, 2, 3, 4, 5, 6, 7, 0, 9, 10, 11, 12, around 1200 feet, so it's a very thick section, so it would be very unusual for communication to exist naturally in the reservoir over that interval.

MR. RAMEY: The Mewbourne well seems to be approximately the same level as Well E where you have the drill stem test.

Yes, sir, that probably is -- that -- that interval there, you know, probably would make a well, and I'm sure that depending on what Petroleum Development Corp. -how long they produce the Bone Spring Sand, surely some day will come back and recomplete that level.

MR. RAMEY: Any other questions of the

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witness? He may be excused.

MR. KEGEL: I'd like to offer the -- I'd

like to offer Applicant's Exhibits A through F.

MR. RAMEY: Applicant's Exhibits A

through F will be admitted.

MR. KEGEL: Call Mr. Johnson.

MR. RAMEY: Let's have just about a five

minute recess real quick.

MR. KEGEL: All right.

(Theroupon a recess was taken.)

JIM C. JOHNSON

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

DIRECT EXAMINATION

BY MR. KEGEL:

. Will you state your name, please? Q.

Jim C. Johnson. A.

> For the record, your address? Q.

Albuquerque, New Mexico. Λ.

What is your occupation? Q.

I'm President of Petroleum Development

Corporation.

The applicant in this case?

A That is correct.

Mr. Johnson, have you made a study of the economics involved in this application?

A. Yes, I have.

Would you explain to the Commission, please, the effect of the granting or denial of the application from an economic standpoint?

A I will. Gentlemen, the crude oil wind-fall profit act signed into law in April 2nd, 1980, to be retroactive effective on March 1 of 1980. There's a differential price on tier one oil and tier three oil.

In June of 1980 tier one oil was priced at \$21.75 per barrel. Tier three oil was priced at \$39.50 per barrel.

Also, the windfall profits tax has a differential for independent producers for tier one oil of 50 percent and tier three oil of 30 percent.

In reference to this hearing, tier three oil is classified as oil that did not produce from a reservoir on a lease during the year 1978.

The McKay West Federal No. 1 produced from the depleted limestone Bone Spring reservoir as presented by Mr. Williamson's testimony in 1978. The McKay West Feder-

al No. 1, with its cumulative production from the Bone Spring Sand reservoir through July of this year would receive a gross loss of \$130,000 in the event the Bone Spring Sand is not classified a different reservoir.

The New Mexico State Tax loss through July, 1980, would be \$10,000.

petroleum Development Corporation has estimated the gross revenue loss from this well through 1988 would be \$420,000 and the New Mexico State Tax loss would be \$21,400, assuming a cumulative production of 45,000 barrels of oil.

The lease on which McKay West Federal No.

1 is located contains 400 acres, and nine additional wells

could possibly be drilled on this lease. In the event nine

additional wells can be timely drilled with a cumulative

production of 45,000 barrels of oil per well, Petroleum Devel
opment Corporation has estimated the gross loss of revenue

would be \$2,600,000 through 1989, and the New Mexico revenue

loss would be \$38,000.

This amounts to an estimated gross revenue loss of \$3,020,000. The State of New Mexico realizes a percentage of the royalty from the 12-1/2 percent USGS royalty, which would suffer a drastic loss, since the windfall profits which would suffer a drastic loss, since the windfall profits tax is 70 percent on tier one oil and 30 percent on tier three oil.

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SALLY W. BOYD, C.S.R.

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There is no question in my mind that the McKay West Federal No. 1 is currently producing from a different reservoir than the reservoir which it produced in 1978, as provided in Mr. Williamson's testimony.

Gentlemen, these amounts of revenues may appear as a drop in the bucket to a major oil company, but to a small independent New Mexico corporation, I can assure you it is significant.

MR KEGEL: I have no further questions.

MR. RAMEY: Any questions of the witness?

He may be excused.

MR. KEGEL: Applicant has no further test

mony.

MR. RAMEY: Does anyone have anything fur-

ther to add to this case?

If not, the Commission will take the Case 6848 under advisement.

(Hearing concluded.)

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CERTIFICATE

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



STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

August 14, 1980

POST OFFICE BOX 2008 STATE LAND OFFICE BURDING SANTA FE, NEW MEXICO 87501 (505) 627-2434

Re: Mr. Walter R. Kegel Kegel, McCabe, & Montez Attorneys at Law	CASE NO. 6848 ORDER NO. R-6332-A
P. O. Box 2292 Santa Fe, New Mexico 87501	Applicant:
	Petroleum Development Corporati
Dear Sir:	
Enclosed herewith are two copie Commission order recently enter	
Yours very truly, JOE D. RAMEY	
/Director	
en e	
JDR/fd	
Copy of order also sent to:	•
Hobbs OCC x	
Artesia OCC x Aztec OCC	
Other	

ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

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

> CASE NO. 6848 DE NOVO Order No. R-6332-A NOMENCLATURE

APPLICATION OF PETROLEUM DEVELOPMENT CORPORATION FOR POOL CONTRACTION AND CREATION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 5, 1980, at Santa Fe, New Mexico, before the Cil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 14th day of August, 1980, the Commission, a quorum being present, having considered the testimony, the record, and the exhibits, and being fully advised in the premises,

FINDS:

- (1) That Case No. 6848 originally came on for hearing before Examiner Richard L. Stamets on March 26, 1980, whersupon the Division entered Order No. R-6332 on April 30, 1980, denying the application.
- (2) That the applicant filed timely application for hearing de novo of Case No. 6848 and this case was set for hearing before the Commission.
- (3) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (4) That the applicant in this case, Petroleum Development Corporation, requested the contraction of the vertical limits of the Querecho Plains-Bone Spring Pool in Sections 27 and 34, Yown-ship 18 South, Range 32 East, NMPM, Lea County, New Mexico, to comprise the Upper Bone Spring formation only, from 0390 feet to 8680 feet, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise the Lower Bone Spring formation only,

Case No. 6848 De Novo Order No. R-6332-A

from 8680 feet to the base of the Bone Spring formation, all depths being from the log of applicant's McKay West Federal Well No. 1, located in Unit F of the aforesaid Section 34.

- (5) That pressure and production information indicates there are at least two distinct separate reservoirs within the Bone Spring formation in the present Querecho Plaina-Bone Spring Pool.
- (6) That it appears that the upper section of the Bons Spring fermation should be designated a pool, and that said pool should be known as the Querecho Plains-Upper Bone Spring Pool with vertical limits from 8390 feet to 8680 feet on the log of the McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, and with horizontal limits comprising the following described lands:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPH Section 27: SW/4 Section 34: NW/4

- (7) That to accomplish the above-described designation of an upper Bone Spring pool, it would be best to contract the vertical limits of the present Querocho Plains-Bone Spring Pool to the limits described above, extend the horizontal limits of said pool to the horizontal limits described above, and redesignate said pool the Querocho Plains-Upper Bone Spring Pool.
- (8) That there is need for the creation of a lower Bone Spring pool, said pool to be designated the Querecho Plains-Lower Bone Spring Pool and have vertical limits from 8680 feet to the base of the Bone Spring formation on the log of the above-described McKay West Federal Well No. 1, and horizontal limits comprising the following described lands:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM Section 27: SW/4 Section 34: NW/4

(9) That an order embodying the above findings will not impair correlative rights nor cause waste and should be approved.

IT IS THEREFORE ORDERED:

(1) That the Querecho Plains-Bone Spring Pool in Lea County, New Mexico, is hereby redesignated the Querecho Plains-Upper Bone -3-Case No. 6848 <u>De Novo</u> Order No. R-6332-A

Spring Pool, and the vertical limits of said Querecho Plains-Upper Bone Spring Pool are established as being that interval in the Bone Spring formation from 8390 feet to 8680 feet on the log of the Petroleum Development Corporation McKey West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, and the horizontal limits of said pool are established as comprising the following described area:

> TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM Section 27: SW/4 Section 34: NW/4

(2) That a new pool for Lower Bone Spring production, classified as an oil pool and designated the Querecho Plains-Lower Bone Spring Pool is hereby created, with vertical limits established as being that interval in the Bone Spring formation from 8680 feet to the base of the Bone Spring formation on the log of the aforementioned Petroleum Development Corporation McKay West Federal Well No. 1, and the horizontal limits of said pool are established as comprising the following described lands in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM Section 27: SW/4 Section 34: NW/4

- (3) That this order shall become effective February 21, 1980.
- (4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

BONE at Santa Fe, New Mexico, on the day and year herein-

STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

ALEXOJ. ARMIJO, Member

MERY/C. ANNOLD, Member

SOE D. HAMEY, Member & Secretary

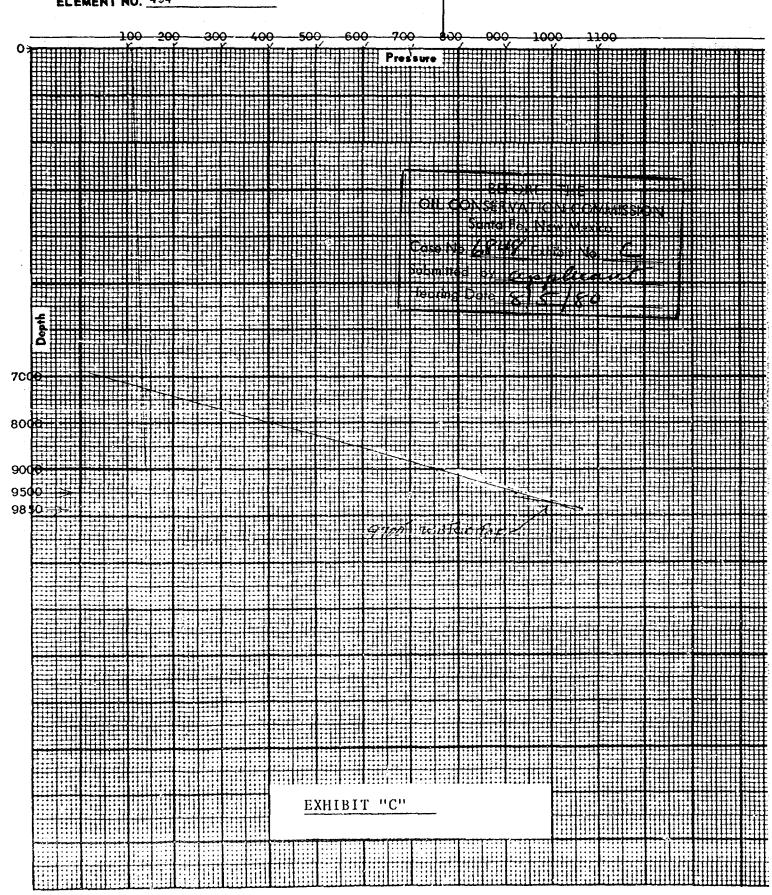
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NEW MEXICO OIL CONSERVATION COMMISSION HEARING CASE 6848 CASE 6848
NEW MEXICO OIL CONSERVATION CASE 6848 FOR PETROLEUM DEVELOPMENT CORPORATION State N.M.
OUEDECHO PLAINS-BONE SPRING PETROLEUM DEV. CON
POOL QUERECHO PLATING DOTE BY H's Date 8-5-80 File PETROLEUM BETT
Drwn. By 11 S
Findinger R.C.W. Drwn. By 11 S Ref. No. EXHIBIT
Drwn. By 11 S

Bennett Wire Line Service 305 McArthur Ave. Ph. (505) 746 - 3281 Artesia, New Mexico - 88210

BOTTOM HOLE PRESSURE SURVEY REPORT

~ · · · · · · · · · · · · · · · · · · ·	PETROLEUM DEVELOPMENT CORPORATION McKay West Federal	DEPTH	PRESSURE	GRADIENT Lbs./100 Ft
FIELD 7/14/7 STATUS Shut- TIME S.I. 7AM- CAS. PRES. 1 ELEV. DATUM TEMP	in TEST DEPTH 9850 Ft. 7/13/75LAST TEST DATE BHP LAST TEST 09 Lbs.BHP CHANGE FLUID TOP 72.25 FT WATER TOP 9716 RUN BY Bennett GAUGE NO.	O Ft. 7000 " 8000 " 9000 " 9500 " 9850 "	109 Lbs. 130 " 407 " 755 " 923 " 1064 "	00.3 27.7 34.8 33.6 40.3



BENNETT WIRE LINE SERVICE Actesia, New Mexico 88210

Jir Joinson

SUBSURFACE PRESSURE MEASUREMENTS

EOMPANY TILITO	WELL NAME	MEST FEDERAL	<i>r</i> _1
DATE OF TEST 3-5-00 CO 3-3-00 LOCATION			<u> </u>

CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

FEET

ELEMENT NUMBER RPG3*43798, 0-7,000Lb. Range TIME WELL SHUT IN unknown TIME CLOCK STARTED 0915
DEAD WEIGHT ELEMENT ON SURFACE 891 LBS. TIME ELEMENT REACHED BOTTOM 1030
DEAD WEIGHT ELEMENT ON BOTTOH 392 LBS. ELEMENT SET AT 2,530 FEET

SHUT IN 4:30 PM -4/24/80

FORMATION

Done Spring Sand

DATE	HOOK	TIME	DEFLECTION in/inches	CALCULATED PRESSURE prig	CORRECTION P = PC pris	CORRECTED PRESSURE Pole	PRESSURE AT MID-POINT OF PERFORATIONS poig
-5-30	Ō	1030		3.067		:	
	1	1130		3.067	Well Or	ened	
ata Point	12:	1145		2,773		Hr.Flow	Rate Cl
	2	1230		2,627			
	3	1330		2,421			
Data Point	31	1400		2,357	2½ Urs	Flow Rat	e Change
	4	1430		2.389			
	5	1539		2.460			
	6	1639		2.481			
	. 7	1730		2.492			
	ŝ	1830		2.495			
	ğ	1930		2.499			
	10	2030		2.510	1		
	$\overline{11}$	2130		2.510	RECE	VEDMAR	
	12	2230		2,510	-65	VEDMAN	
	13	2330		2,510		- WIK	2 1380
3-6-80	14	2430		2,506			
	15	0130		2.506	†	 	
	16	0230		2,496		 	
	17	0330		2,489	<u> </u>		
	$\overline{18}$	0430		2,435	†		
	19	0530		2.478	<u> </u>		·
	20	0630		2.474			
	21	0730		2,469			
	$\frac{21}{22}$	0830		2.467	 	<u> </u>	
Data Point		0340		2.467	1º Hrs.	40 Min.	
vala (UIIII	23	0930		2.141	1 2 11 8	W. FIII.	l
Data Point		1030		$\frac{12.191}{1.922}$	50 Min.	 	
Data Point		1130 1130		1,649		it In for	2 1120
Jala FUIII	26	1230		$\frac{12.092}{11.745}$	1 1 2 1 3 11	<u> </u>	4 415
	27	1330	-+	1.860	1011 f1	owed of	112
Data Point		1400		1,612		IILD UP	1
vala TOIM	23	1430		1.860	12201 1	1 to 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7
	29	1530		2.141	 	†	
	31	1639		2,290	 		
	31	1739		2,414	 	 	
	31	1330		2,616	 	 	
				15.622	 	 	
	33	1930		2,554	 	 	
	37.	2030		12,626	 	 	
	35	2130		2.661	1	<u> </u>	L

EXHIBIT "D"

	The state of the s
ĺ	BEFORE THE
1	OIL CONSERVATION COMMISSION
1	Santa Fe, New Mexico
!	Case No. 6848 Exhibit No.
	Case No. 68 90
	Submitted by applicant
	Hearing Date 8 5 80
	THE PROPERTY OF STREET, WAS A

BENNETT WIRE LINE SERVICE Artesia, New Mexico 88210 SUBSURFACE PRESSURE MEASUREMENTS

COMPANY DE DE DEC	WELL NAME & LAND TOUCH TOUR PARTY TO	1	
DATE OF TEST 3-5-57 to 3-5-50	LOCATION M	NGEOF	

DATE	HOUR	TIME	DEFLECTION in/Inches	CALCULATED PRESSURE paig	CORRECTION P & PC paig	CORRECTED PRESSURE prig	PRESSURE AT MID-POINT OF PERFORATIONS MISS
3-6-80	- 36	2230		2.687			
	37	2330		2.702			
3-7-50	30	2430		2.730			
	39	0130		2.751			
	40	0230		2,765			
	41	0330		2,700			
	42	2430		2.794			
	43	9539		2.306			1
	44	0630		2.819			
	45	2730		2.323			
	46	0330		2.829			1
	<i>l</i> ;7	0939		2.836			
•	43	1030		2,844			
	49	1130		2,353			
	50	1230		2.358			
	51	1330		2.365			
	52	1430	1	2.869			
	53	1530		2.876			
	54	1630	1	2.583			
	55	1730	1	2.390			
	56	1330		2.897			1
×	57	1930		2.904			
	58	2030		2,909			
	59	2130	1	2,913			
	60	2230		2,913	1		
	61	2330		2,922	4.		
3-6-80	62	2430	1	2.925			
	63	0130		2 929			
	64	0230		2.932			1
	65	0330		2,936			
	66	0430	1	2.938			1
	67	0530		2.939		i	
	63	0630		2,941		{	
	69	0730		2.944	T		
-	70	9830		2,947			
	71	0930		2,950			
	72	1030		2,953			
	73	1130		2 954			,
	72:	1230		2,957			
	75	1330		2,957 2,9€1			
	76	1430		2,963			
	77	1530		12,966			
	77:3/4	1615		2,960			``
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EXHIBIT "D"

BENNETT WIRE LINE SERVICE Artesia, New Mexico 88210

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SUBSURFACE PRESSURE MEASUREMENTS

COMPANY PEDCO WELL NAME MCKAY WEST FEDERAL #1
DATE OF TEST 5-26-80 to 5-31-80 LOCATION BONE SPRINGS SAND MGE 1 OF 2

CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

ELEMENT NUMBER RPG3# 9891N- 0-3.750 LB. RANGE TIME WELL SHUT IN 5-21-80 1700 HOURS
TIME CLOCK STARTED 1445
DEAD WEIGHT ELEMENT ON SURFACE 873 LBS.
TIME ELEMENT REACHED BOTTOM 1530
DEAD WEIGHT ELEMENT ON BOTTOH 873 LBS.
ELEMENT SET AT 8.530 FEET

RECEIVED JUN 4 1989

DATE	HOUR	TIME	DEFLECTION in/Inches	CALCULATED PRESSURE Prig	CORRECTION P & PC paig	CORRECTED PRESSURE -prig	PRESSURE AT MID-POINT OF PERFORATIONS
5-26-80	0	1530		2,225	13		2,238
	*	1545	4	2,229	13		2.242
	¥	1600		2,230	13		2.243
	3/4	1615		2,231	13		2.244
	I	1630		2,232	13		2.245
	14	1700		2,233	13	[2.246
	2	1730		2,235	13		2,248
	2⅓	1800		2.236	13		2 249
	3	1830		2.236	13		2 249
	3₺	1900		2,237	13		2.250
	4	1930		2.238	13		2.251
	43	2000		2.240	13	T	2,253
	5	2030		2,243	13	1	2.256
	6	2130	A	2,246	13		2.259
	7	2230		2,247	13	ļ	2,260
	8	2330		2,249	13		2,262
5-27-80	9	2430		2,253	13		2.266
	10	0130		2.257	13		2,270
	II	0230		2,260	13		2.273
	12	0330		2.262	13		2.275
	13	0430		2,266	13		2.279
	14	0530		2.268	13		2.281
	15	0630		2.272	13		2 285
	16	0730		2.274	13		2.287
	17	0830		2,276	13		2.289
	18	0930		2.278	13		2.291
	19	1030		2,281	13		2.294
	20	1130		2,284	13		2.297
	21	1230		2.286	13		2.299
	22	1330		2.288	13	}	2.301
	23	1430		2.289	13		2.302
	24	1530		2.291	13		2.304
	25	1630		2,294	13		2.307
	30	2130		2,306	13		2.319
5-28-80	35	0230		2,316	1.3]	2.329
	46	0730		2,328	13		2,341
	45	1230		2,335	13		2.348
	50	1730		2,347	13		2.360
	55	2230		2.355	13	1	2.368
5-29-80	60	0330		2.364	13		2 377

EXHIBIT "E"

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6848 Exhibit No. E
Submitted by applicant
Hearing Date 8/5/80

BENNETT WIRE LINE SERVICE Artesia, New Mexico 88210 SUBSURFACE—PRESSURE—MEASUREMENTS

COMPANY PEDCO WELL NAME MCKAY WEST FEDERAL DATE OF TEST 5-26-80 to 5-31-80 LOCATION BONE SPRINGS SAND

CHAR	T READINGS	AND CALCULA	TIONS FOR	R BUILDUP	OR DRAW	DOWN TES	51
DATE	HOUR	TIME	DEFLECTION in/Inches	CALCULATED PRESSURE poig	CORRECTION P # PC paig	CORRECTED PRESSURE P.S.I.A. 2,385 2,392 2,401 2,407 2,414 2,423	PRESSURE AT MID-POINT OF
5-29-80	65	0830		2,372 2,379 2,388 2,394 2,401 2,410	13	2,385	
	70	1330	Process and the second	2.379	13	2,392	
	75	1830		2,388	13	2,401	
	80	2330		2.394	13	2,407	
5-20-80	85	0430	٠	2 401	13	2.414	
7-20-00	90	0430 0930		2 410	13	7 423	
	95	1430		2,416	13	2,429	
	100	1930		2,424	13	2,437	
				2,424		2,437	
5-31-80	105	2430		2,430	13	2,443	
	110	0530		2,436	13	2,449 2,456	-
	115	1030		2.443	13	2,456	ļ
	1174	1102		2,451	13	2,464	
DEAD WE	GHT AT E	ID OF 1221 H	DURS	943	SURFACE		
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NEW MEXICO OIL CONSERVATION COMMISSION HEARING-CASE 6848 10 000 QUERECHO PLAINS-BONE SPRING P00L: OPERATOR: PETROLEUM DEVELOPMENT CORP. LEASE MC KAY WEST FED. 1F-34-18S-32E COUNTY: LEA STATE: N.M. WELL NOS NO. WELLS: DATE PROD BEGAN: 2/80 ACRES: MIDLAND SIPES, WILLIAMSON & ASSOCIATES, INC. HOUSTON 1000 100 10 19.79 **EXHIBIT**

	Case 6848	EXA	18.0	lead times. At 1
Newmont 13 Newmont etc.	Maryo Out Maryo Out 12 12 12 12 12 12 12 1	Continental	Jones & Huff	cook E Hulf
*Betta, Boya C.Stowall 2 13 @ a. but 15 (A.R. Co. C.R.) R C.C. C. C.R. R C.C. C. C.R. R C.C. C.C. C.R. R C.C. C.C. R C.C. C.C. R C.C. C.C. R C.C. C.C. R C.C	100/// 18/32	029.001 (Sheet)	1 546 PARTO	osezect (1)
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	Dual Disc.	reche lainstantider no Morale	Open To 27	8- 1-72 101476 KG3 2945 - 23 66 U.S.
9019 H.B.P. Yung TofumU.S. Zer 1 9	W NTO 187 U.S. Mc.	orbe) (Harren 1735	Parte . etal Jock Huff	H. Totes Co. Aradornolia Del Disc Pilo I KG!
Minnles Oil I Cent) Newmont (Nune Corn)	Ne unnor KES) Out a continue (See 1)	orbe)	onEHu11	Series 186 English
Penneco (J.H. Trigg) @JII Trig	Tennece topy the tennece topy the tennece topy to the tennece top to the tennece topy	Daries on R. Huff.	Heren E 26 H Yoles	J.C. Bornes
Tourse Trico (PJ)	24162 gurissons that	AAces	(65 loves	L R.French.Jr.
Ne wmont, stal NBP Sozi NBP So	milian LUSK NO an Die	(S. West III)	teson (Huff) 1 Union H Berry, (1) Shell Fer 1013700	W B Yarbor Na take ♦ La Grenchs
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Brock, etcl. Gulf. Nelking Cl. Fed. Nelking Cl. Tolisao Cl. Toli		The amile St. Fed Williams	35	Corroll Inc
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(Liarnality) Transita et al. 1864 et al. 1	Gulf 24161 Gulf Fed 2 4450 11-1-85 26490 U.S. Proce-Gulf Fes Gulfant	Take Take	d M.Huber	Stefe
Rightmer U.S. CST-Feet	Gulf Arte con-/en add is	enneco hos	12-1-01 16-000 13-11 1-Gulf 1	Superior 12568 12568 11119
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Mydson Hydson	Chom	12 Mil MA SAL TOWNS	9-1-85 LG:2998 LG:2998	Superior
10 3475 12 tale 1703015 071834 0519639 (G	ecturion Amoco logie Amoco Sh	(Shell) an Second on Cell Feed.	Coctus Superior St. 104058 Stote	1 5-1-00 I 10100 U.S.
COLLIE Marious U.S. U.S. U.S. Comprise Tree-Tree	Columbia States (R.L.McKou)	TENNECO (OPER.) L	Sun I Si Sun I HI 11-1 80 HI 17938 1761	
Liano, Inc. et al. Liano, Inc. e	193-11 13422 pet Des Corp. R.L. McKey	(s a Mil.) (Crel) (E44)	1	'Sicolo-fi
Pan Arrer Condens	LEANO INC	10		(Continents) Amoco 91215 *:
Man Forzest?	Langing (OPER) TR. OP) UNIT	Sun-McKoy-Fed	US	"Boryo'!"
Profess U.S.A.Trigg Fed 1.	eto) "Darding Arring 11 pe	et Dev. Corp. U.S.		Sa Amoco (Cont'i) 6, 11-35 6076 01235
Trabal	La-See F310	NBC (Rich Oils 114 Younged) O E P. Bass) Sun Sun C 22497 SunSpr. Faces	0254	72(a) (c)
Buttles VChattl	Enstoasoo to 3001 pt 55 mit	Cortusti	19 14 Sun	2" 13 .
Shillies ad ad a Sing Control of	THE STATE OF THE COLUMN	3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	WJ Bol	fensura Fed U.S.
Trebal U.S. Luca Per Jan.	Andorico Mississi Par Diricore Control (Control Control Contro	Shearn U.S.	1 Scn	Amoco 1
OF Feether time (Ough Disc) ((Poss Not) Corper Trabal, 192525 (1925) (All 1925) (1925)	i lana inc. Lana m 1	PLAINS UNIT	11 - 1 - 60	12115
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OF feether use (1930) Dist) ((1900) Dist) ((CO OIL CONSERVATION	N COMMISSION	HEARTING	
	CASE 60 R PETROLEUM DEVELOPI	848 MENT CORPORA	TION	
•		County LEA	S	tate N.M.
POOL QUERECHO PLA	AINS-BONE SPRING		File PETROLE	UM DEV, CORP.
Engineer R.C.W.	0, ,,,,		Ref. No. EXI	IIBIT
	ASON & ASSOCIATES, I	d - Houston, Texas	I ^ ^^0'	Y
Petroleum Consultants				

Bennett Wire Line Service 305 McArthur Ave. Ph. (505) 746 - 3281 Artesia, New Mexico - 88210 BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR PETROLEUM DEVELOPMENT CORPORATION LEASE McKay West Federal	DEPTH	PRESSURE	GRADIENT Lbs./100 Ft.
WELL NO. 1 FIELD DATE 7/14/75 TIME 2;00 PM. STATUS Shut-in TEST DEPTH 9850 Ft. TIME S.I. 7AM-7/13/75LAST TEST DATE CAS. PRES. BHP LAST TEST TUB. PRES. 109 Lbs. BHP CHANGE ELEV. FLUID TOP 72.25 CF DATUM WATER TOP 97 CC TEMP RUN BY Bennett CLOCK NO. GAUGE NO. ELEMENT NO. 494	0 Ft. 7000 " 8000 " 9000 " 9500 " 9850 "	109 Lbs. 130 " 407 " 755 " 923 " 1064 " HP	00.3 27.7 34.8 33.6 40.3

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Case 6848

BENNETT WIRE LINE SERVICE

EXD

SUBSURFACE PRESSURE MEASUREMENTS

	· · · · · · · · · · · · · · · · · · ·		
COMPANY	19.000	WELL NAME 110 KAY MUST PEDERAL F 1	
DATE OF	1131 3-5-35 to 3-3-30 toc	TIONMGE 1 OF 2	_

CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

ELEMENT NUMBER RPG3-43798, 0-7,000Lb. Range TIME WELL SHUT IN TIME CLOCK STARTED DEAD WEIGHT ELEMENT ON SURFACE LBS. TIME ELEMENT REACHED BOTTOM DEAD WEIGHT ELEMENT ON BOTTOH 892 LBS. ELEMENT SET AT FEET

0,530

SHUT IN 4:30 PM -4/24/80

FORMATION

Bone Spring Sand

DATE	HOOR	TIME	DEFLECTION in / Inches	CALCULATED PRESSURE PAIG	CORRECTION PARC PAIG	CORRECTED PRESSURE Prig	PRESSURE AT MID-POINT OF PERFORATIONS paig
3-5-89	9	1030		3.067			
	1	1130		3.067	Well Or	ened	
Data Point	13	1145		2,773	Flowed	Ilr. Floy	Rate Ch
·	2	1230		2,627			
	3	1330		2,421			
Data Point	33;	1400		2,357	2½ Urs	Flow Rat	e Change
	4	1430		2.389	T - 4		
	5	1530		2.460			
	G /	1639		2.481			
	7	1730		2.492			
	S .	1830		2.495			
	9	1930		2,499	ļ		
	10	2030		2,510			
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Case 6848 CHARLES SANDERS SUBSURFACE PRESSURE MEASUREMENTS

BENNETT WIRE LINE SERVICE

COMPANY PEDCO WELL NAME MCKAY WEST FEDERAL #1
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CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

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EXHIBIT "E"

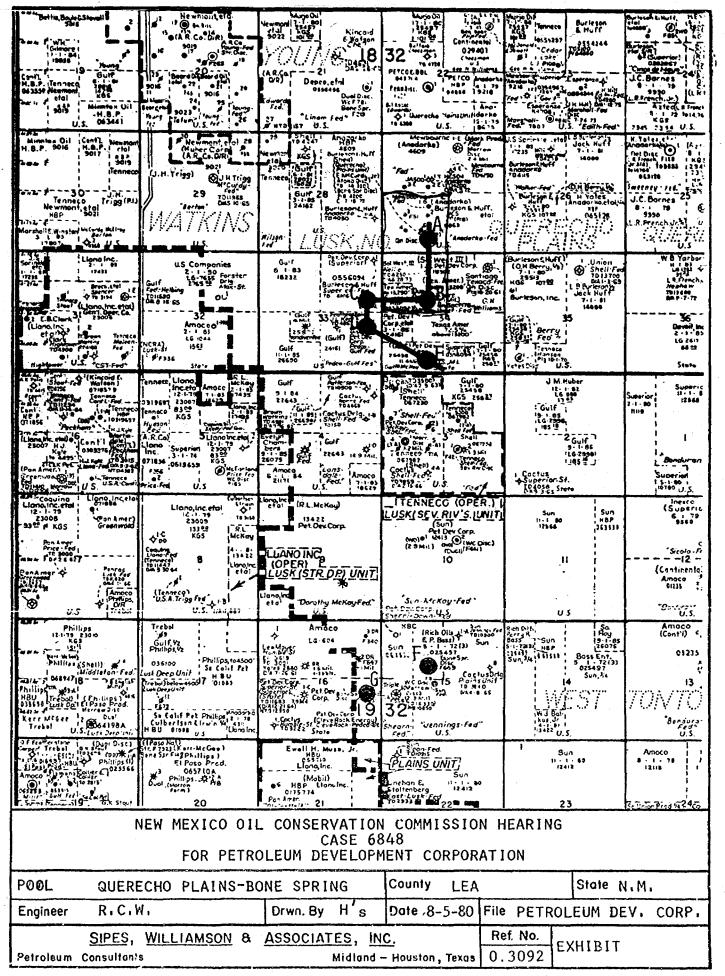
Artesia, New Mexico BOZ IV SUBSURFACE PRESSURE MEASUREMENTS

COMPANY PEDCO WELL NAME WICKAY WEST FEDERAL #1

DATE OF TEST 5-26-80 to 5-31-80 LOCATION BONE SPRINGS SAND MGE 2 OF 2

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NEW MEXICO OIL CONSERVATION COMMISSION HEARING-CASE 6848 QUERECHO PLAINS-BONE SPRING POOL: OPERATOR PETROLEUM DEVELOPMENT CORP. MC KAY WEST FED. 1F-34-18S-32E N.M. COUNTY WELL NOS. NO. WELLS DATE PROD BEGAN: 2/80 ACRES: MIDLAND SIPES, WILLIAMSON & ASSOCIATES, INC. HOUSTON 1000 CIL PRODUCTION - BBI. / MONTH 100 10 EXHIBIT



KEGEL, McCABE AND MONTEZ

A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW

SANTA FE DIVISION

1231 PASEO DE PERALTA POST OFFICE BOX 2292 SANTA FE, NEW MEXICO 87501 PHONE (505) 982-4461

WALTER R. KEGEL BRIAN T. MCCABE RALPH M. MONTEZ

May 20, 1980

ASSOCIATES IN DENVER, COLORADO TALLMADGE, TALLMADGE, WALLACE & HAHN 727 SEVENTEENTH ST.

August will

Oil Conservation Commission State Land Office Building Santa Fe, New Mexico 87503

Case No. 6848, Order No. R-6332
Application of Petroleum Development
Corporation for Pool Contraction and
Creation, Lea County, New Mexico

Gentlemen:

Our firm represents Petroleun Development Corporation ("PEDCO") in the above-styled case. On April 30, 1980, the Oil Conservation Division, pursuant to a hearing held by Examiner Stamets, entered its Order No. R-6332.

Pursuant to Rule 1220 of the Commission, we hereby apply on behalf of PEDCO to have the above-styled case heard de novo before the Commission. This letter is the written application for such hearing as contemplated by said Rule 1220.

We would appreciate the Commission advising us of the date of such hearing as soon as practically possible.

Sincerely,

KEGEL, McCABE AND MONTEZ A Professional Corporation

Brian T. McCabe

BTMcC:rs

cc: James C. Johnson

August 5

About 2 how may

KEGEL, McCABE AND MONTEZ A PROFESSIONAL CORPORATION ATTORNEYS AT LAW

1231 PASEO DE PERALTA POST OFFICE BOX 2292 SANTA FE, NEW MEXICO 87501 PHONE (505) 962-4461

May 20, 1980

ASSOCIATES IN DENVER, COLORADO TALLMADGE, TALLMADGE, WALLACE & HAHN 717 SEVENTEENTH ST.

WALTER R. KEGEL

BRIAN T. MCCABE

RALPH M. MONTEZ

Oil Conservation Commission State Land Office Building Santa Fe, New Mexico 87503

RE: Case No. 6848, Order No. R-6332
Application of Petroleum Development
Corporation for Pocl Contraction and
Creation, Lea County, New Mexico

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Sincerely,

Dote

KEGEL, McCABE AND MONTEZ A Professional Corporation

Brian T. McCabe

BTMcC:rs

cc: James C. Johnson

August 5

About 2 him my

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

6848 DE NOVO CASE NO. 6750 Order No. R-62556332-A

PETROLEUM DEVELOPMENT CORPORATION APPLICATION OF AMOCO PRODUCTION COMPANY FOR POOL CONTRACTION AND CREATION, LEA COUNTY, NEW MEXICO.

ORDER OF THE BIVISION COM MISSION

BY THE DIVISION:

Jago This cause came on for hearing at 9 a.m. on December 12,
1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

Now Mexico, herein of referred to as the transmission of the Now, on this 16th day of January, 1980, the Division Commission of Now, on this considered the testimony, the record, and the oxhibits recommendations of the Examiner, and being fully advised in the exhibits recommendations of the Examiner, and being fully advised in the premises,

FINDS:

That Case No. 6848 originally come on before Examiner Richard. warch 26, 1980, whereupon

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

Plains

Petroleum Derolopmot Corporation requested the contraction of the vertical limits of the Air StripBone Spring Pool in Section; Township 18 South, Range & East,
NMPM, Lea County, New Mexico, to comprise the Marie Bone Spring
formation only, from 2000 feet to 2100 feet, and the creation of
the Air Strip-Lower Bone Spring Pool to comprise the Wife Bone
Spring formation only, from 2100 feet to 2000 fe tion of the Air Strip-Lower Bone Spring Pool, to comprise the Lower Bone Spring formation only, from 10,100 feet to 10,400 feet, all depths being from the log of applicant's State FU Well No. 1, located in Unit & of the aforesaid Section 25. Mekay West

That pressure and production formation in dicated there are least two distinct separate reservoirs within

(4) That at the hearing, the applicant amended its application and now requests that the Air Strip-Bone Spring Pool be contracted to include the upper and middle sections of the Bone Spring formation only, with vertical limits from 9180 feet to 9460 feet and that only the new Lower Bone Spring pool described in Finding No. (2) above be created.

Spring formation, taken by itself, is non-commercial and should be combined with the middle section of the Bone Spring formation

Let designated a pool, and that said pool should be known as the discrete Upper Bone Spring Pool with vertical limits from 9180 8390 feet to 250 feet on the log of the American Well No. 2/

located in Unit/D of Section 23/ Township 18 South, Range 34 32

East, NMPM, Lea County, New Mexico, and with horizontal limits comprising the rollowing described lands:

TOWNSHIP 18 SOUTH, RANGE FEAST, NMPM Section 2627 STATE SW/4

That to accomplish the above-described designation of an upper Bone Spring pool, it would be best to contract the vertical limits of the present his strip Bone Spring Pool to the limits described above, extend the horizontal limits of said pool to the horizontal limits described above, and redesignate said pool the himself Bone Spring Pool.

That there is need for the creation of a lower Bone Spring pool, said pool to be designated the follower Bone on the Spring Pool and have vertical limits from 19,100 feet to 10,100 feet to 10,100 feet to 10,100 and horizontal limits comprising the following described lands:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM Section 795: SW/4

Strip-Lower Bone Spring Pool, the Amoco State FU Well No. 2, located in Unit N of Section 25, Township 18 South, Range 34 East, NMPM, should have reserved to it 51,310 barrels of oil discovery allowable, with actual assignment of the discovery allowable deferred until said well is recompleted in the aforesaid Air Strip-Lower Bone Spring Pool.

(4) (1) That an order embodying the above findings will not impair correlative rights nor cause waste and should be approved.

-3-Case No. 6756 Order No. R-6255

IT IS THEREFORE ORDERED:

TOWNSHIP 18 SOUTH, RANGE 4 EAST, NMPM Section 2527/SE/4-and E/2 SW/4

(2) That a new pool for Lower Bone Spring production, classified as an oil pool and designated the limits established as being that interval in the Bone Spring formation from 10,100 %80 feet to the feet of the log of the aforementioned Amose state with Well No./2, and the horizontal limits of said pool are established as comprising the following described lands in Lea County, New Mexico:

McKay West Federal

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM Section 36:27 SW/4

- (3) That the discovery well for the aforesaid Air Strip-Lower Bone Spring Poll, the Amoco Production Company State FU Well No. 2, located in Unit N of Section 25, Township 18 South, Range 34 East, NMPM, shall have reserved to it 51,310 barrels of oil discovery allowable, with actual assignment of such discovery allowable to the well for production deferred until such time as the well has been recompleted in the Lower Bone Spring formation. Assignment and production of the discovery allowable shall in all other ways comply with the provisions of Rule 509 of the Division's Rules and Regulations.
 - 3(4) That this order shall become effective February 21, 1980.
- +(3) That jurisdiction of this cause is hereby retained for the entry of such further orders as the Division may deem necessary.



STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

May 2, 1980

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87501 (505) 827-2434

Mr. Brian McCabe Re: Kegel, McCabe & Montez Attorneys at Law P. O. Box 2292	ORDER NO. R-6332
Santa Fe, New Mexico 87501	Applicant:
	Petroleum Development Corporation
Dear Sir:	
Enclosed herewith are two copies Division order recently entered	of the above-referenced in the subject case.
Yours very truly, JOE D. RAMEY	
// Director	
JDR/fd	
Copy of order also sent to:	
Hobbs OCD X Artesia OCD X Aztec OCD	
Other	

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

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

> CASE NO. 6848 Order No. R-6332 NOMENCLATURE

APPLICATION OF PETROLEUM DEVELOPMENT CORPORATION FOR POOL CONTRACTION AND CREATION, LEA COUNTY, HEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 26, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

MOW, on this 30th day of April, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

3"

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Petroleum Development Corporation, seeks the contraction of the Querecho Plains-Bone Spring Pool to comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet on the log of its McKay West Federal Well No. I located in Unit F of Section 34, Township 18 South, Range 32 East, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the NW/4 of said Section 34.
- (3) That the application is based upon the temporary completion of applicant's said McKay West Federal Well No. 1 in isolated Second Bone Spring and Third Bone Spring lime zones during July, 1975.
- (4) That said well produced a total of only 1296 barrels of oil from these isolated Bone Springs zones before depleting

-2-Case No. 6848 Order No. R-6332

them and was subsequently recompleted in a First Bone Spring sand some during February, 1980.

- (5) That the McKay West Federal Well No. 1 is completed in the same First Bone Spring sand zone as the discovery well for said Querecho Plains-Bone Springs Pool and there are no other producing Bone Spring horizons within or adjacent to the horizontal limits of said pool.
- (6) That at this time there are no engineering or geologic reasons to grant the applicant's request in this case.
- (7) That the arbitrary designation of upper and lower some Spring stratigraphic units for purposes of production could result in separation of zones which should be produced as a unit.
- (8) That pending further development, the application for designation of a Querecho Plains-Upper Bone Springs Pool and Querecho Plains-Lower Bone Springs Pool should be denied.

IT IS THEREFORE ORDERED:

- (1) That the application of Petroleum Development Corporation for contraction of the vertical limits of the Querecho Plains-Bone Springs Pool to include only the Upper Bone Springs formation and creation of a Querecho Plains-Lower Bone Spring Pool is hereby denied.
- (2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO OIL CONSERVATION DIVISION

JOE D. RAMEY

Director

BEAL

£d/

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG. SANTA FE, NEW MEXICO 26 March 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Petroleum Development)
Corporation for pool contraction and)
creation, Lea County, New Mexico.

CASE 6848

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

APPEARANCES

For the Oil Conservation Division:

Ernest L. Padilla, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501

For the Applicant:

Brian T. McCabe, Esq. KEGEL, McCABE, & MONTEZ P. O. Box 2292 Santa Fe, New Mexico 87501

MLLY W. BOYD, C.S.F Rt. 1 Box 193-8 Sents Pt. Now Metado 87301 Phone (365) 455-7409

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I N D E X

CHARLES SANDERS

Direct Examination by Mr. McCabe				
Cross Examination by Mr. Stamets	12			
Cross Examination by Mr. Padilla	14			
Redirect Examination by Mr. McCabe	15			

EXHIBITS

Applicant Exhibit A, Plat	5
Applicant Exhibit B, Cross Section	5
Applicant Exhibit C, Table	8

SALLY W. BOYD, C.S.R. Rt. 1 Box 193-B Santa Fe, New Menteo 87301 Phone (305) 455-7409

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MR. STAMETS: Call next Case 6848.

MR. PADILLA: Application of Petroleum Development Corportation for pool contraction and creation, Lea County, New Mexico.

MR. McCABE: My name is Brian McCabe,

Santa Fe, New Mexico. I'm appearing for Petroleum Production

Corporation.

Could the record please show that Mr.

Sanders has been accepted as a qualified witness and is under oath? Mr. Sanders will be my only witness, or we can re-swear him.

MR. STAMETS: For the purposes of the previous case I don't believe there was any necessity in determining for my own benefit Mr. Sanders' qualifications, but since he's not appeared before me before, and since this next case involves something that's not direct and straightforward, perhaps Mr. Sanders would requalify himself for me.

MR. McCABE: Certainly.

MR. SANDERS: Certainly, sir.

MR. McCABE: Mr. Sanders, can you describe for the Examiner your educational background?

MR. McCABE: Yes, I graduated from Texas
Tech University in 1950 with a BS in petroleum engineering,
geophysics option.

I worked for a number of oil companies.

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I've appeared before the Commission a number of times over the past ten years, but unfortunately, I've always got Mr. Nutter.

MR. STAMETS: All right, I think that's

clear.

MR. SANDERS: I've not had the pleasure of meeting you.

MR. STAMETS: I understand how Mr. Sanders is qualified and I accept his qualifications.

MR. McCABE: Thank you.

CHARLES SANDERS

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

DIRECT EXAMINATION

BY MR. McCABE:

Will you describe, Mr. Sanders, what Petroleum Development Corporation is asking for in Case 68483

Yes, sir. In this case we seek the contraction of the Querecho Plains Bone Spring Pool to comprise the Upper Bone Spring formation only, and by this we mean the first Bone Spring sand.

From the depth of 8390 feet to 8680 feet on the log of our McKay West Federal No. 1, located in Unit

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F of Section 34, 18 South, 32 East, and the creation of the Querecho Plains Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the northwest quarter of Section 34.

Would you please refer to Exhibit A, and if I might, with the Examiner's permission, also refer to Exhibit B, and suggest that Mr. Sanders spread Exhibit B out, perhaps, on the wall, if he could.

MR. STAMETS: That would be fine.

You can start with Exhibit A.

Let's start with Exhibit A first. A is a map of the general area involved, showing the East Lusk area, the North Lusk area, and the Querecho Plains Pool area.

The red square in the southwest quarter of Section 27 is the original Querecho Plains Bone Spring Pool, which was formed in 1959 after Shell completed the Querecho Plains No. 2 at Unit N in that section.

The blue square in the northwest quarter of Section 34 of 19, 32 -- of 18, 32, excuse me, is the expansion of that field after the McKay West Federal No. 1 was recompleted in the Bone Spring Lime part of the Bone Spring reservoir in 1975.

The dashed line showing A, B, C, D, E,

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is the surface trace of the cross section, which we'll be looking at, which is Exhibit B.

The red arrows which are shown to the south of the two squares, are wells which do produce or have produced from the Bone Spring formation in the general area.

Now, if I may, I'll put the --

Q. Exhibit B.

A Exhibit B is the cross section which we referred to on Exhibit A.

Well No. A is the original Querecho Plains No. 2, which was originally drilled to the Morrow. The Morrow was dry. And subsequently plugged back and recompleted in the first Bone Spring sand at a depth of 8538 to 8360.

Excuse me, Mr. Sanders, when you refer to Exhibit A, you are referring to Well A on Exhibit A, are you not?

A. Yes, No. A on the cross section is the same as the A on the map.

To orient us further, this cross section comprises the entire Bone Spring section from the top of the Bone Spring to the top of the Wolfcamp over the trace shown on the map, some 3300 feet in vertical limit.

The original completions were put in the Querecho Plains Bone Spring Field, because it was designated SALLY W. BOYD, C.S.R Rt. 1 Box 193-B Santa Fe, New Mexico 87301 Phone (305) 455-7109 10

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Bone Spring, and naturally comprised the entire section.

The Shell Well was completed for 93 barrels of oil flowing, plus 12 barrels of water, 4-12-59.

In 1975 we drilled a well known as the McKay West Federal No. 1, shown as B on the map and B on the cross section, directly south of the Shell Well.

Spring -- I mean to the Morrow, was dry in the Morrow, was plugged back to the Bone Spring. Our first completion attempt in the Bone Spring was the intervals shown with the dark rectangles in the second Bone Spring Lime and the third Bone Spring Lime. These were all perforated, acidized, swabbed, and made a flowing well which potentialed 187 -- excuse me, 178 barrels of oil plus 41 barrels of water on 7-14-75.

This was a reservoir which probably should be designated open by mistake because two days later the well had died on us. We ran a bottom hole pressure, which showed on July the 14th, 1975, 1064 psi bottom hole pressure on an 8-hour buildup.

The well flowed and pumped a total of only 1296 barrels of oil and was subsequently plugged and abandoned.

The first Bone Springs sand section, which is correlative to the sand which was opened by Shell,

was opened and potentialed on February the 21st, 1980, for 104 barrels of oil, flowing, plus 70 barrels of water, with a tubing pressure of 100 psi. The well now makes about 10 percent water, so I'm certain that most of this water was frac water.

This is a sand which is continuous and does show up on -- on all five of the logs represented by the cross section.

The Lower Bone Spring is productive in this area usually in the lime sections only, and in the wells that are covered by this cross section only, other than this McKay West Federal No. 1, only in the Gulf McKay Federal No. 1, which is E on the cross section and the map, only in it is there some indicated production in the third Bone Spring LIme, which was drill stem tested, flowed gas and oil, but had severe pressure drawdown even on drill stem test, and also drill stem test indicated that it was not only limited reservoir but had a nearby barrier. So this zone was never completed.

The three wells, B, C, and D, and -- the four wells, B, C, D, and E, were all drilled to the Morrow. C, D, and E all produced from zones now which are deeper than the Bone Springs zones that we're talking about.

Q. Mr. Sanders, you've also prepared Exhibit

C. Would you look at that and explain it?

A. Okay. Exhibit C, as I referred to by the red arrows on Exhibit A, shows the other wells in the general area which produce or have produced from the Bone Spring formation.

No. 1 and 2 are the wells which we have already discussed, the Shell Well and the recently completed McKay West Federal No. 1.

The Shell Well produced a total of 40,524 barrels of oil before being abandoned, and still making 10 barrels a day when it was abandoned.

The only other significant production from Bone Spring in the area is No. 5 and No. 6 on the map, which is the PEDCO CleveRock Federal No. 1 in Section 16, which produced 45,425 barrels of oil from the third Bone Spring Lime, and the No. 6 Well, which is the Sun-Jennings No. 1 Well in Section 15, which produced 327,656 barrels of oil as of 1-1-79, and is still producing.

both producing from the third Bone Spring Lime, but they are not correlative. In other words, the well in Section 15 is about 100 feet higher correlatively than the well in Section 16. I'm saying all of this to show the extremely erratic nature of development in the lime sections of the Bone Spring, and we do have a rather, or very uniform devel-

SALLY W. BOYD, C.S.R. Rt. 1 Box 193-B Santa Fe, New Mexico 57301 Phone (303) 435-7409

opment of this sand, although it's only been open so far in two wells. The development appears to be uniform and we're planning to do future development work in the area.

The reserves from the McKay West Federal No. 1 is estimated at 40 to 50,000 barrels of oil by primary means and possibly another 40 to 50,000 barrels by secondary. This is the type of sand which we feel will respond very well to waterflooding and hopefully within the next few years a field will be developed which will flood this sand.

Naturally, we would like to see this kept separate so that we do not have any mixing of the sand zones with the lime zones and it would facilitate not only orderly development but it would be very beneficial in confining the flood waters to the sand zone that we want to flood.

Q. Mr. Sanders, to your knowledge, has the Commission ever decided a case similar to this in the past?

A Yes, sir. Order No. R-6255, which was effective February 1st, 1980, is a very similar case in the Airstrip Bone Springs reservoir, which is about 12 miles to the east of this area.

Q. Could you describe the similarities between R-6255 and the case at hand?

A. They are very similar. They were seeking to establish a lower zone, so it is somewhat of a reverse case, as -- as a new reservoir, whereas we're attempting

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What we're proposing is that the original Querecho Plains Bone Spring Pool be contracted with vertical limits to include only the first Bone Springs sand, so we can keep -- keep it entirely separate for future development.

Mr. Sanders, could you describe the progress on McKay West Federal No. 1? In other words, where are you now with that well?

A. Okay.

Q Could you give the history, please?

A. Yes. That well was re-entered for the purpose of this recompletion on January the 31st. The first oil was produced there on -- the first significant oil was produced on February the 21st, 1980, at the time it was potentialed. The well is now producing and flowing.

Q And it's your understanding that if the application were granted it would be effective as to this well?

A. If it is at all feasible, we would like to request that this order be retroactive and effective, say 1-1-80, or some date like that, so that -- so that there would be no question about all of the oil that has been produced from this zone being attributed to this particular field and to this particular zone to keep the record straight, if that would be possible.

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Is there anything else that you can add

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the main need is to separate these zones vertically so that

the scattered limited reservoirs will not be included in

the Querecho Plains Bone Spring Reservoir.

MR. McCABE: I have no further questions.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Sanders, there's only one well producing in the pool that you are proposing.

A Yes, sir.

Q And your application was for the creation of a Lower Bone Spring Pool?

A. Yes, sir.

Q Is that a necessity? Is there any well producing from a Lower Bone Springs Pool?

A. No, sir, not in this area right now. The only necessity would be to have a place to put the oil that has been produced from those zones. See, these lower zones in the McKay West did produce 1296 barrels from -- from these lower limestone reservoirs, or zones, and the creation of the lower pool would not only give a place to put that oil, but in case somebody comes in and perforates

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Q Did you say you wanted this retroactive to January 1st, 1980, Mr. Sanders?

A. If possible, or to some such date before production was begun from this zone, so that we can keep this production separate from the previous production.

Q It probably is not possible, but I think we'd have any trouble with the annual report reflecting the appropriate distribution of production.

A. We did have some February production, is the reason we're bringing this up, which would be thrown into the old reservoir, as things now stand.

Q We'll see what we can do about that.

Does a change like this have any effect
on the price you can charge for the oil?

A. Definitely, which would definitely affect the speed of development and so forth.

Q In -- how does this happen?

A. The DOE regulation states that a well is eligible to receive new oil price if on that particular lease there was no oil sold from that reservoir or zone during the year 1978.

Q. Okay.

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So if we can establish that this is in fact a reservoir which has not produced on this lease before which I'm convinced it is a different reservoir by reason of pressure information which we have shown, the information which we have shown that these other zones were indeed limited reservoirs, then we have in fact opened a reservoir which has not been opened on this lease before, which would make a big difference.

MR. STAMETS: Any other questions of this witness?

MR. PADILLA: I have one.

CROSS EXAMINATION

BY MR. PADILLA:

In this last line of questioning for my own information, the Department of Energy regulations, though, go to the meaning of the definition of property, and that relates to the oil and gas lease but not to the oil pool.

I'm not at all an expert on that so I couldn't answer that question.

Cases that I have heard before would -would indicate that --

Unless of course they amended the regulations in 1978 or issued an interpretative regulation, but

I don't know, I was just trying to get that for my own information.

In other words, you think we'd be safe like we were?

Q Well, it seems like, it seems to me that if you've already produced from that oil and gas lease, you would create a presumption that it's old oil, indeed you've been producing old oil from there.

A Yes, we --

Q That oil and gas lease.

Well, it wouldn't matter as long as it was a different reservoir. In other words, the regulation states that you produce new oil from a new reservoir, you get a new price, and it doesn't matter if the field is old as long as it's new to this particular lease.

MR. PADILLA: No further questions.

MR. McCABE: A couple more, Mr. Sanders.

REDIRECT EXAMINATION

BY MR. McCABE:

Do you feel that the granting of this application in your opinion would promote conservation by preventing waste and protecting correlative rights of adjacent interest owners?

A. Yes, I do.

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Rt. J. Box 193-B senta Fe, New Mexico 87301 Phone (305) 455-7409 Did you prepare Exhibits marked A, B, C?
Yes, sir.

MR. McCABE: We'd like to tender Exhibits A, B, and C.

MR. STAMETS: These exhibits will be

admitted.

Any other questions of the witness? He

may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

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

Soery W. Boyd C.S.R.

1 do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8848 Examiner Oll Conservation Division

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CHARLES SANDERS

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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG. SANTA FE, NEW MEXICO 26 March 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Petroleum Development) Corporation for pool contraction and) creation, Lea County, New Mexico.

CASE 6848

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

APPEARANCES

For the Gil Conservation Division:

Ernest L. Padilla, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501

For the Applicant:

Brian T. McCabe, Esq. KEGEL, McCABE, & MONTEZ P. O. Box 2292 Santa Fe, New Mexico 87501

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MR. STAMETS: Call next Case 6848.

MR. PADILLA: Application of Petroleum Development Corportation for pool contraction and creation, Lea County, New Mexico.

MR. McCABE: My name is Brian McCabe, Santa Fe, New Mexico. I'm appearing for Petroleum Production Corporation.

Could the record please show that Mr. Sanders has been accepted as a qualified witness and is under oath? Mr. Sanders will be my only witness, or we can re-swear him.

MR. STAMETS: For the purposes of the previous case I don't believe there was any necessity in determining for my own benefit Mr. Sanders' qualifications, but since he's not appeared before me before, and since this next case involves something that's not direct and straightforward, perhaps Mr. Sanders would requalify himself for me.

MR. McCABE: Certainly.

MR. SANDERS: Certainly, sir.

MR. McCABE: Mr. Sanders, can you describe for the Examiner your educational background?

MR. McCABE: Yes, I graduated from Texas Tech University in 1950 with a BS in petroleum engineering, geophysics option.

I worked for a number of oil companies.

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I've appeared before the Commission a number of times over the past ten years, but unfortunately, I've always got Mr. Nutter.

MR. STAMETS: All right, I think that's

clear.

MR. SANDERS: I've not had the pleasure of meeting you.

MR. STAMETS: I understand how Mr. Sanders is qualified and I accept his qualifications.

MR. McCABE: Thank you.

CHARLES SANDERS

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

DIRECT EXAMINATION

BY MR. MCCABE:

Will you describe, Mr. Sanders, what Petroleum Development Corporation is asking for in Case 68483

Yes, sir. In this case we seek the contraction of the Querecho Plains Bone Spring Pool to comprise the Upper Bone Spring formation only, and by this we mean the first Bone Spring sand.

From the depth of 8390 feet to 8660 feet on the log of our McKay West Federal No. 1, located in Unit

F of Section 34, 18 South, 32 East, and the creation of the Querecho Plains Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the northwest quarter of Section 34.

Would you please refer to Exhibit A, and if I might, with the Examiner's permission, also refer to Exhibit B, and suggest that Mr. Sanders spread Exhibit B out, perhaps, on the wall, if he could.

MR. STAMETS: That would be fine.

- Q You can start with Exhibit A.
- A Let's start with Exhibit A first. Exhibit

 A is a map of the general area involved, showing the East

 Lusk area, the North Lusk area, and the Querecho Plains

 Pool area.

The red square in the southwest quarter of Section 27 is the original Querecho Plains Bone Spring Pool, which was formed in 1959 after Shell completed the Querecho Plains No. 2 at Unit N in that section.

of Section 34 of 19, 32 -- of 18, 32, excuse me, is the expansion of that field after the McKay West Federal No. 1 was recompleted in the Bone Spring Lime part of the Bone Spring reservoir in 1975.

The dashed line showing A, B, C, D, E,

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is the surface trace of the cross section, which we'll be looking at, which is Exhibit B.

The red arrows which are shown to the south of the two squares, are wells which do produce or have produced from the Bone Spring formation in the general area.

Now, if I may, I'll put the --

Q Exhibit B.

A Exhibit B is the cross section which we referred to on Exhibit A.

Well No. A is the original Querecho

Plains No. 2, which was originally drilled to the Morrow.

The Morrow was dry. And subsequently plugged back and recompleted in the first Bone Spring sand at a depth of 9538 to 8360.

Q Excuse me, Mr. Sanders, when you refer to Exhibit A, you are referring to Well A on Exhibit A, are you not?

Yes, No. A on the cross section is the same as the Λ on the map.

To orient us further, this cross section comprises the entire Bone Spring section from the top of the Eone Spring to the top of the Wolfcamp over the trace shown on the map, some 3300 feet in vertical limit.

The original completions were put in the Querecho Plains Bone Spring Field, because it was designated

YD, C.S.R. ¹⁹³⁻⁸

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Mr. Sanders, you've also prepared Exhibit
C. Would you look at that and explain it?

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- Q. Could you describe the similarities between R-6255 and the case at hand?
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A Yes. That well was re-entered for the purpose of this recompletion on January the 31st. The first oil was produced there on -- the first significant oil was produced on February the 21st, 1980, at the time it was potentialed. The well is now producing and flowing.

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ducing in the pool that you are proposing.

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That oil and gas lease.

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Do you feel that the granting of this application in your opinion would promote conservation by preventing waste and protecting correlative rights of adjacent interest owners?

A. Yes, I do.

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MR. McCABE: We'd like to tender Exhibits

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DOCKET NO. 8-80 CASE NO. 6848 QUERECHO PLAINS BONE SPRING

EXHIBIT "C" -- Area Bone Spring Production

/ Shell - Querecho Plains #2	N-27-18-32	1 Bone Spring Sand	40,524	P & A	
2 *PEDCO - McKay West Fed. #1	F-34-18-32	1 Bone Spring Sand		Flowing (New	Well)
3 *PEDCO - McKay West Fed. #1	F-34-18-32	2 & 3 Bone Spring Lime	1,296	P & A	
4 *PEDCO - Sun McKay Fed. #2	G-10-19-32	3 Bone Spring Lime		P & A (12,27	3 bbls. Cum.)
5 *PEDCO - CleveRock #1	I-16-19-32	3 Bone Spring Lime	45,425	P & A	
6 Sun - Jennings #1	F-15-19-32	3 Bone Spring Lime	327,656 · ·	Pumping	S. A.
7 Phillips - Lusk Deep Unit #1	A-19-19-32	2 Bone Spring Lime	14,069	P & A	

*Petroleum Development Corporation

3-25-80

BEFORE EXAMINER STAMETS
CIL CONST. VATION DIVISION
EXHIBIT MO. C

CASE NO. 6848
Submitted by PCDCO
Hearing Date 3-26-80

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DOCKET NO. 8-80 CASE NO. 6848 QUERECHO PLAINS BONE SPRING

EXHIBIT "C" -- Area Bone Spring Production

/ Shell - Querecho Plains #2	N-27-18-32	1 Bone Spring Sand	40,524	P & A
2 *PEDCO - McKay West Fed. #1	F-34-18-32	1 Bone Spring Sand		Flowing (New Well)
3 *PEDCO - McKay West Fed. #1	F-34-18-32	2 & 3 Bone Spring Lime	1,296	P & A
4 *PEDCO - Sun McKay Fed. #2	G-10-19-32	3 Bone Spring Lime		P & A (12,273 bbls. Cum.)
5 *PEDCO - CleveRock #1	I-16-19-32	3 Bone Spring Lime	45,425	P & A
6 Sun - Jennings #1	F-15-19-32	3 Bone Spring Lime	327,656	Pumping
7 Phillips - Lusk Deep Unit #1	A-19-19-32	2 Bone Spring Lime	14,069	P & A

*Petroleum Development Corporation

3-25-80

BEFORE EXAMINER STAMETS OIL CONSE VATION DIVISION EXHIBIT NO. C CASE NO. 6848 Submitted by PEDCO
Hearing Date 3-26-80

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DOCKET NO. 8-80 CASE NO. 6848 QUERECHO PLAINS BONE SPRING

EXHIBIT "C" -- Area Bone Spring Production

/ Shell - Querecho Plains #2	N-27-18-32	1 Bone Spring Sand	40,524	P & A
2 *PEDCO - McKay West Fed. #1	F-34-18-32	1 Bone Spring Sand		Flowing (New Well)
3 *PEDCO - McKay West Fed. #1	F-34-18-32	2 & 3 Bone Spring Lime	1,296	P & A
# *PEDCO - Sun McKay Fed. #2	G-10-19-32	3 Bone Spring Lime	4.7	P & A (12,273 bbls. Cum.)
5 *PEDCO - CleveRock #1	I-16-19-32	3 Bone Spring Lime	45,425	P & A
6 Sun - Jennings #1	F-15-19-32	3 Bone Spring Lime	327,656	Pumping
7 Phillips - Lusk Deep Unit #1	A-19-19-32	2 Bone Spring Lime	14,069	P & A

*Petroleum Development Corporation

3-25-80

Submitted by PEDO

Hearing Date 3-26-80

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CASE 6846: Application of Doyle Hartman for two compulsory poolings, two non-standard gas proration units, and two unorthodox well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying two 80-acre non-standard gas proration units, the first being the S/2 NE/4 of Section 13, Township 21 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 1650 feet from the Morth line and 2310 feet from the East line of said Section 13, and the second being the N/2 NE/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 1330 feet from the North line and 2310 feet from the East line of said Section 13. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designtion of applicant as operator of the wells and a charge for risk involved in drilling said wells.

CASE 6834: (Continued and Readvertised)

Application of Conoco Inc. for a duel completion and unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its SEMU Burger Well No. 107 at an unorthodox location 2615 feet from the South and East lines of Section 19, Township 20 South, Range 38 East, to produce oil from the Blinebry Oil and Gas and Drinkard Pools.

CASE 6837: (Continued from March 12, 1980, Examiner Hearing)

Application of Curtis Little for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-atyled cause, seeks an order pooling all mineral interests in the Dakots formation underlying the W/2 of Section 7, Township 25 North, Range 3 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6847:

Application of Tenneco Oil Company for dual completions and downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete, in such a manner as to produce gas from the Dakota formation and commingled Chacra and Mesaverde production through parallel strings of tubing, ten proposed wells to be located as follows: in Township 29 North, Range 10 West: Unit C, Section 19; Unit N, Section 19; Unit A, Section 30; and Unit D, Section 30; in Township 29 North, Range 11 West: Unit G, Section 24; Unit O, Section 24; Unit A, Section 25; Unit D, Section 25; Unit M, Section 25; and Unit P, Section 25.

CASE 6818: (Continued from Merch 12, 1980, Exeminer Hearing)

Application of Tenneco Oil Company for an NGPA determination, Eddy County, New Mexico.

Applicant, in the above-styled cause, seeks a new onshore reservoir determination for its State

HL 11 Well No. 1 located in Unit N of Section 11, Township 19 South, Range 29 East.

CASE 6849: (This is the same matter as was previously designated Case No. 6813,)

Application of Petroleum Development Corporation to amend Order No. R-6196, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks to amend Order No. R-6196 which authorized re-entry of a well at an unorthodox location in the Lusk-Morrow Gas Pool to be dedicated to the N/2 of Section 13, Township 19 South, Range 31 East. Applicant now seeks approval for a new revised location 750 feet from the North line and 660 feet from the West line of said Section 13.

CASE 6848:

Application of Petroleum Development Corporation for pool contraction and creation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the Querecho Plains-Bone Spring Pool to comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet on the log of its McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the NW/4 of said Section 34.

CASE 6826: (Continued from March 12, 1980, Examiner Hearing)

Application of Tahoe Oil and Cattle Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Penrose Skelly Pool underlying the SE/4 SE/4 of Section 25, Township 21 South, Range 36 East, to be dedicated to its Bromlee Well No. 1 located thereon. Also to be considered will be the cost of recompleting said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in recompleting said well.

Docket No. 8-80

Dockets Nos. 9-80 and 10-80 are tentatively set for April 9 and 23, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 26, 1980

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

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

- CASE 6838: Application of Amax Chemical Corporation for the amendment of Order No. R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-111-A to extend the boundaries of the Potash-Oil Area by the inclusion of certain lands in Sections 11, 12, and 13, Township 19 South, Range 30 East, and Sections 7 and 18, Township 19 South, Range 31 East.
- CASE 6839: Application of Kimbell Oil Company for downhole commingling, Rio Arriba County, New Mexico.

 Applicant, in the above-styled cause, seeks approval for the downhole commingling of Otero-Chacra and South Blanco-Pictured Cliffs production in the wellbore of its Salazer Well No. 4-26 to be located in Unit D of Section 26, Township 25 North, Range 6 West.
- Application of Union Texas Petroleum for downhole commingling, San Juan County, New Mexico.

 Applicant, in the above-styled cause, seeks approval for the downhole commingling of Fruitland and Pictured Cliffs production in the wellbore of its Johnston Federal Well No. 117 located in Unit N of Section 7, Township 31 North, Range 9 West.
- CASE 6841: Application of CIG Exploration, Inc. for two non-standard gas proration units, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard gas proration units in Township 16 South, Range 28 East, the first being 219.6 acres comprising Lots 1 thru 3 of Section 1 and the second being 219.92 acres comprising Lots 1 thru 8 of Section 2, for the Wolfcamp, Pennsylvanian, and Mississippian formations, each unit to be dedicated to a well to be drilled at a standard location thereon.
- CASE 6842: Application of ARCO Oil and Gas Company for an unorthodox gas well location, simultaneous dedication, and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its W. C. Roach Well No. 6, 660 feet from the North line and 1980 feet from the West line of Section 21, Township 20 South, Range 37 East, Eumont Gas Pool, to be simultaneously dedicated with its W. C. Roach Well No. 1 in Unit D to the W/2 of said Section 21. Also sought are findings that the proposed well is necessary to effectively and efficiently drain that portion of the provation unit which cannot be so drained by the existing unit well.
- CASE 6843: Application of Yates Petroleum Corporation for two compulsory poolings, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Yeso formation underlying two 40-core provation units, the first being the SE/4 SE/4 and the second being the SW/4 SE/4 of Section 6, Township 19 South, Range 25 East, Penasco Draw Field, each unit to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the wells and a charge for risk involved in drilling said wells.
- CASE 6844: Application of Arrowhead Oil Corporation for two exceptions to Order No. R-111-A and an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the casing-cementing rules of Order No. R-111-A to complete its Creek Federal Well No. 3 at an unorthodox location 250 feet from the North line and 2350 feet from the East line and its Creek Federal Well No. 4 to be drilled in Unit G, both in Section 23, Township 18 South, Range 30 East, by setting surface casing at a depth of approximately 600 feet and production casing at total depth. The production casing would have cement circulated back to the potash zone in the salt section.
- CASE 6845: Application of Marathon Oil Company for an unorthodox gas well location, Eddy County, New Mexico.

 Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 800 feet from the North-line and 200 feet from the East line of Section 30, Township 21 South, Range 23 East, Indian Basin-Upper Pennsylvanian Gas Pool, all of Section 30 or that portion thereof which may be reasonably presumed productive of gas from said pool to be dedicated to the



9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044

Case 6848

March 5, 1980

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87501

RE: Petroleum Development Corporation McKay-West Federal #1, F-34-18-32, Lea County, New Mexico Application: March 26, 1980 Docket

Dear Mr. Ramey:

This will confirm our verbal request to Mr. Nutter this date to be placed on the March 26, 1980 docket to consider the following:

- Divide the Querecho Plains Bone Spring Pool into the Querecho Plains Upper Bone Spring and Querecho Plains Lower Bone Spring pools.
- Contract the vertical limits of the Querecho Plains Upper Bone Spring to coincide with the limits of the First Bone Spring Sand as defined from 8390 feet to 8680 feet in the McKay-West Federal #1 Well.
- 3. Set the vertical limits of the Querecho Plains Lower Bone Spring to include the remainder of the Bone Spring section as defined from 8680 feet to base of Bone Spring in the McKay-West Federal #1 Well.
- Set the lateral limits of the "Upper" to include SW/4 Sec. 27 and NW/4 Sec. 34, 18S, 32E.
- 5. Set the lateral limits of the "Lower" to include NW/4 Sec. 34, 18S, 32E.

Sincerely,

Charles W. Sanders Vice President



9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-2044

Case 6848

March 5, 1980

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87501

> RE: Petroleum Development Corporation McKay-West Federal #1, F-34-18-32, Lea County, New Mexico Application: March 26, 1980 Docket

Dear Mr. Ramey:

This will confirm our verbal request to Mr. Nutter this date to be placed on the March 26, 1980 docket to consider the following:

- 1. Divide the Querecho Plains Bone Spring Pool into the Querecho Plains Upper Bone Spring and Querecho Plains Lower Bone Spring pools.
- Contract the vertical limits of the Querecho Plains Upper Bone Spring to coincide with the limits of the First Bone Spring Sand as defined from 8390 feet to 8680 feet in the McKay-West Federal #1 Well.
- 3. Set the vertical limits of the Querecho Plains Lower Bone Spring to include the remainder of the Bone Spring section as defined from 8680 feet to base of Bone Spring in the McKay-West Federal #1 Well.
- 4. Set the lateral limits of the "Upper" to include SW/4 Sec. 27 and NW/4 Sec. 34, 18S, 32E.
- 5. Set the lateral limits of the "Lower" to include NW/4 Sec. 34, 18S, 32E.

Sincerely,

Charles W. Sanders Vice President



9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044 Case 6848

March 5, 1980

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2066 Santa Fe, New Mexico 87501

> RE: Petroleum Development Corporation McKay-West Federal #1, F-34-18-32, Lea County, New Mexico

Application: March 26, 1980 Docket

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9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4046

March 5, 1980

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87501

RE: Petroleum Development Corporation

McKay-West Federal #1, F-34-18-32,

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OIL COMSERVATION DIVISION

SAITA FE

ce 6848

Lea County, New Mexico

Application: March 26, 1980 Docket

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Charles W. Sanders Vice President



9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 283-4044

March 5, 1980

OIL CO. ISERMATICAL DIVISION Cuse 6848

SANTA FE

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87501

Petroleum Development Corporation

McKay-West Federal #1, F-34-18-32,

Lea County, New Mexico

Application: March 26, 1980 Docket

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Sincerely,

Charles W. Sanders Vice President



9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044

March 5, 1980

SANTA FE

Care 6848

Mr. Joe D. Ramey, Secretary-Director Department of Energy New Mexico Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87501

RE: Petroleum Development Corporation

McKay-West Federal #1, F-34-18-32,

Lea County, New Mexico

Application: March 26, 1980 Docket

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Charles W. Sanders

Vice President

application of Petroleum Development Corporation for Pool Acception contraction and Creation, Kea Present contraction and Creation, Kea Country, Kew Mexico.

Applicant in the some stiffed cause, seeks the contraction of the Operation Plains Bone Spring Pool to Comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet on the log of its Mickay west referred well Mr. I focated in Chairt Mickay west referred well Mr. I focated in Chairt Mickay west referred well Mr. I focated in Chairt Aswer and the Creation of the Operation Plains Lawrence Mone Spring Pool to Comprise said Jarmation.

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Char. Sanders albe 293-4044

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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

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

CASE NO	6848
Order No.	R-6332
NORLY CU	DYURE

Application of Petroleum Development Corporation for pool contraction and creation, Les County, New Mexico.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 26

19 60, at Santa Fe, New Mexico, before Examiner R45

NOW, on this day of , 19 , the

Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Petroleum Development Corporation,

Bone Spring Pool to comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet on the log of its McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise said formation from 8680 feet to the base of the Bone Spring underlying the NW/4 of said Section 34.

- (3) That the application is based upon the temporary completion of applicant's said McKay West Federal Well No. 1 in isolated Second Bone Spring and Third Bond Spring lime zones during July, 1975.
- (4) That said well produced enly a total of 1296 barrels of behave depleting the second oil from these isolated Bone Springs zones, and was recompleted in a First Bone Spring sand zone during Feburary, 1980.
- (5) That the McKay West Federal Well No. 1 is completed in the same First Bone Spring sand zone as the discovery well for said Querecho Plains-Bone Springs Pool and there are no other producing Bone Spring horizons within or adjacent to the horizontal limits of said pool.
- (6) That at this time there is no engineering or geologic reasons to grant the applicant's request in this case.
- (7) That the arbitrary designation of upper and lower Bone spains stategraphic units for purposes of production could result in separation of zones which should be produced as a unit.
- (8) That pending further development, the application for designation of a Querecho Plains-Upper Bone Springs Pool and Querecho Plains-Lower Bone Springs Pool should be denied.

IT IS THEREFORE ORDERED:

- (1) That the application of Petroleum Development Corporation for contraction of the vertical limits of the Querecho Plains-Bone Springs Pool to include only the Upper Bone Springs formation and creation of a Querecho Plains-Lower Bone Spring Pool is hereby denied.
- (2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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