1	STATE OF NEW MEXICO
	ENERGY AND MINERALS DEPARTMENT
2	OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG.
3	SANTA FE, NEW MEXICO
3	22 August 1984
4	22 August 1964
_	EXAMINER HEARING
5	
6	
_	
7	
8	IN THE MATTER OF:
;! •	
9	Application of Getty Oil Company for CASE downhole commingling, Eddy County, 8315
10	New Mexico.
11	
12	
10	BEFORE: Michael E. Stogner, Examiner
13	
14	
	TRANSCRIPT OF HEARING
15	
16	
17	APPEARANCES
18	
10	
19	
20	For the Oil Conservation W. Perry Pearce
20	Division: Attorney at Law Oil Conservation Commission
21	State Land Office Bldg.
22	Santa Fe, New Mexico 87501
<i>1</i>	For the Applicant: William F. Carr
23	Attorney at Law CAMPBELL & BLACK P. A.
24	P. O. Box 2208
44	Santa Fe, New Mexico 87501
25	

1		2	
2			
3	INDEX		
4			
5	DON STEINNERD		
6	Direct Examination by Mr. Carr	3	
7	Cross Examination by Mr. Stogner	13	
8			
9	,		
10			
11			
12	EXHIBITS		
13			
14	Getty Exhibit One, Plat	5	
15	Getty Exhibit two, Schematic	7	
	Getty Exhibit Three, C-115s	8	
16	Getty Exhibit Four, Curves	8	
17	Getty Exhibit Five, Pressure Data	9	
18			
19			
20			
21			
22			
23			
24			
25			,

1	2
2	
3	MR. STOGNER: We will call next
4	Case Number 8315.
5	MR. PEARCE: That case is on
	the application of Getty Oil Company for downhole comming-
6	ling in Eddy County, New Mexico.
7	MR. CARR: May it please the
8	Examiner, my name is William F. Carr with the law firm Camp-
9	bell & Black, P. A., of Santa Fe, appearing on behalf of
10	Getty Oil Company.
11	I have one witness.
12	MR. PEARCE: Are there other
13	appearances in this matter?
14	(Witness sworn.)
15	
16	DON STEINNERD,
17	being called as a witness and being duly sworn upon his
18	oath, testified as follows, to-wit:
19	
20	DIRECT EXAMINATION
21	BY MR. CARR:
22	Q Would you state your full name and place
	of residence?
23	A My full name is Donald James Steinnerd.
24	I reside in Hobbs, New Mexico.
25	Q By whom are you employed and in what ca-

pacity?

A I'm employed by Getty Oil Company in the capacity of Area Engineer.

Q Have you previously testified before this Commission or one of its examiners and had your credentials as a petroleum engineer accepted and made a matter of record?

A Yes.

Q Are you familiar with the application filed in this case on behalf of Getty?

A Yes, I am.

Q Are you familiar with the subject area?

A Yes.

MR. CARR: Mr. Stogner, are the witness' qualifications acceptable?

MR. STOGNER: Mr. Steinnerd, would you briefly state what Getty seeks to accomplish with this application?

A Getty seeks blanket approval to downhole commingle all current wells and proposed wells in the Gray-burg-Jackson-Queen-San Andres and Fren Seven Rivers Pools underlying our Skelly Unit.

MR. CARR: Mr. Stogner, as you are probably aware, the application requested blanket approval for downhole commingling within the Skelly Unit.

It also in the alternative requested downhole commingling for six wells which Getty pro-

bv

poses to drill and also for downhole commingling authority 2 for two existing single completions. 3 The case was advertised only for the blanket commingling portion of the case and if you 5 deem it adviseable to recommend an order approving blanket 6 commingling, the other two portions of the case will become 7 moot. 8 MR. Will you be put-STOGNER: 9 ting on testimony today for the whole unit? MR. CARR: Well, we're going to 10 request -- yes, we're requesting approval for blanket com-11 mingling of the entire unit. 12 MR. STOGNER: And then the les-13 ser --14 MR. CARR: If that should fail, 15 there are particular wells for which approval would be 16 needed. 17 MR. STOGNER: Thank you, Mr. Carr. Please continue. 18 Mr. Steinnerd, have you prepared certain 19 exhibits for introduction in this case? 20 Yes. 21 Will you please refer to what's 22 marked as Getty Exhibit Number One, identify this and review 23 it for Mr. Stogner? 24 Exhibit Number One is a plat showing the 25

unit boundaries of the Skelly Unit, which is operated

Getty Oil Company. It is marked by the hatched marks surrounding about six or so sections.

The yellow areas marked are just additional areas that we're not applying for that are operated by Getty Oil Company and the symbols, although a legend is not present, the solid black circles are the Grayburg-Jackson wells and the hexagon are the Grayburg -- I mean are the Fren Seven Rivers wells.

The Skelly Unit consists of two -- two principal production pays, the two that we're proposing to downhole commingle.

Q Mr. Steinnerd, does this plat also show the offsetting owners?

A Yes, it does, the operators.

Q Does the -- or what is the status of the lands within the unit?

A The status of the lands within the unit are 100 percent owned and operated by Getty Oil Company.

Q Are there any wells within the unit for which downhole commingling of these zones has previously been approved by the Oil Conservation Division?

A Yes. Recently our Skelly Unit Well No.

11, which is in Section 21 on the eastern edge of the section, was approved on January 24, 1984, by Order Number R
7429.

Q And the same zones were approved for downhole commingling in that case as you are seeking now for

plus or minus 2100 to plus or minus 2400.

Fren Seven Rivers production will be

24

acidized.

The Grayburg-Jackson-Queen-San Andres perforations will be plus or minus 3100 to 3600.

The well will produce through tubing set at or near the bottom of the Grayburg-Jackson-Queen-San Andres perforations.

Q What treatment does Getty give to each of the zones?

A Typically the Grayburg-Jackson-Queen-San Andres will be acidized, in most cases fractured.

The Fren Seven Rivers typically is just

Q Would you now refer to Getty Exhibit Number Three?

A Yes. Exhibit Number Three is the last page of the C-115s that are submitted to the State for showing production by pool in the Skelly Unit.

Specifically noted at the bottom are the GOR's, which were calculated based on this production, with the Fren Pool, Fren Seven Rivers Pool, 374 standard cubic foot per barrel and the Grayburg-Jackson-Queen-San Andres if 508 standard cubic foot per barrel.

Q Will you now review Exhibit Number Four?

A Yes. Exhibit Number Four consists of two production curves.

The first one is for the Fren Seven Rivers and on the curve the lower part of the page shows a decline curve for both the oil, water, and gas production on

the Skelly Unit.

The second page consists of a similar production curve for the Grayburg-Jackson production.

Q What is the source of the data depicted on these graphs?

A This is production data based on the C-

Q And this is the data that's filed monthly with the Oil Conservation Commission.

A Yes, it is.

Q Are both zones to be commingled in the subject wells capable of only marginal production?

A Yes. Typically, right now, the average production on the Skelly Unit is less than 10 barrels of oil per day.

Q That's per well?

A Per well.

Q Are the zones flowing or being artificially lifted?

A All wells are being artificially lifted.

 Ω Would you now go to your Exhibit Number Five, which is a compilation of pressure data and review this for the Examiner?

A Yes. Exhibit Number Five consists of two pages, the top page being the bottom hole pressure of nine wells located randomly throughout the unit, whereby we shut the wells in for five days, shot a fluid level, and reported

the dead weight test shut-in tubing pressure and extrapolated a bottom hole pressure.

The second page is a similar set of data for Grayburg-Jackson-Queen-San Andres wells, and shown, although it is a wide range within each reservoir, the average of these wells for the Fren Seven Rivers showed an average bottom hole pressure of 592 psi and the for the Grayburg-Jackson the average of those wells shown was 620 psi.

Q Mr. Steinnerd, in your opinion will these pressure differentials result in gas migration between the commingled zones?

A No, it will not.

Q Have you taken production data and calculated an average rate of production from each zone?

A Yes. At the present time, based on June C-115 production data, the Fren Seven Rivers on a per well basis with 52 producing wells, produces 5.8 barrels of oil per day.

The Grayburg-Jackson-Queen-San Andres with 59 producing wells produces an average of 7.3 barrels of oil per day per well.

Q Do these wells produce any gas?

A Yes, marginal, very little.

Q And are they producing water?

A Yes, they are.

Q Are you prepared to make a recommendation to Mr. Stogner as to the allocation of production to each of

18 19

1

5

6

7

8

10

11

12

13

14

15

16

17

20

21

22

23

11 1 the commingled zones? 2 recommend that the Α We application 3 based on tests after completion as per methods approved by the District Supervisor in Artesia. 5 So you would work with the District 0 6 pervisor on a well-by-well basis after downhole commingling 7 is affected and the zones are tested? 8 That is correct. 9 Would you anticipate any problems with 0 the compatibility of the fluids produced from each of the 10 zones? 11 Α No, I would not. Currently production is 12 being commingled at the surface and produced waters 13 being commingled and reinjected and we have seen no problems 14 to date. 15 And --0 16 There's some slight scaling tendencies Α **17** but those are being treated with scale inhibitor. Have you received approval from this Com-Q 18 mission for surface commingling of the oils? 19 Α Yes, we have. 20 0 And do you happen to have the order 21 ber approving that surface commingling? 22 Yes, I do. Surface commingling was ap-23 proved January 31st, 1973, by Order PC-450. 24 0 Mr. Steinnerd, are the reservoir charac-

these pools such that underground waste will

25

teristics of

```
1
                                                      12
   not be caused by the proposed downhole commingling?
2
                       Yes.
3
                       In your opinion will granting this appli-
4
   cation result in the increased recovery of hydrocarbons?
5
             Α
                       Yes.
6
                       Will the value of the commingled produc-
7
         exceed the sum of the values of the production from
8
    each of the individual zones?
9
             Α
                       Yes, it will.
                       In your opinion will economic savings re-
10
    sult from the proposed downhole commingling?
11
                       Yes.
             Α
12
                       In your opinion will granting this appli-
13
    cation be in the best interest of conservation, the preven-
14
    tion of waste, and the protection of correlative rights?
15
                       Yes, it would.
             Α
16
             0
                       Does Getty request that the order result-
17
    ing from this hearing be expedited?
18
             Α
                       Yes, we do. We anticipate Federal appro-
         within thirty days and upon acquiring all approvals we
19
    will be immediately drilling the six proposed wells at this
20
    time.
21
             Q
                        Were Exhibits One through Five prepared
22
    by you?
23
                       Under me.
             Α
24
                        And have you reviewed them and can
25
    testify to their accuracy?
```

1 13 Α Yes. 2 MR. CARR: At this time, 3 Stogner, we would offer into evidence Getty Exhibits 4 through Five. 5 MR. STOGNER: Exhibits One 6 through Five will be admitted into evidence. 7 MR. CARR: That concludes my 8 direct of Mr. Steinnerd. 9 CROSS EXAMINATION 10 BY MR. STOGNER: 11 I'll have some questions. I'm just for-12 mulating them at this moment, if you'll bear with me, 13 please. 14 Α Sure. 15 Mr. Steinnerd, or Mr. Carr, in reviewing 16 for this hearing today, this case in particular, I was some-17 what baffled and confused on the events leading up to segregation of Fren San Andres and the Grayburg-Jackson-San An-18 dres-Queen -- Seven Rivers-Queen-Grayburg-San Andres Pool. 19 Could you please enlighten me and for the record go over the 20 -- what led up to this and what -- why the two pools were in 21 this particular area were segregated?

Mr.

One

Specifically, the way we just report production -- let me go back a moment. For the --

> Please. Q

22

23

24

25

Α -- entire unitized area is all Federal,

2

Federal acreage.

3

5

6

7

8 9

10

11

12

13

14

15

16

17

18 19

20

21

23

22

24

25

When the unit was -- operating agreement was made all horizons were unitized, not just the two that we're requesting. Typically the only two horizons that have production under the unitized interval are the Fren

Rivers and the Grayburg-Jackson-Queen-San Andres.

The Grayburg-Jackson-Queen-San Andres is -- is basically the name that is utilized to report the pool productio data on the C-115s. There were not -- there is not a specific pool name designated in the unit agreement as being that interval unitized. The entire vertical limits of the wellbores are unitized under the Skelly Unit operating agreement.

Typically, the unit was developed whereby both the Fren Seven Rivers and the Grayburg-Jackson drilled with separate wells until Skelly Unit Well No. was downhole commingled. The only other wells on the unit that were downhole commingled were injection wells and they had tubing strings whereby the injection was kept separate.

Getty's proposing to drill wells to examine the possibility of reducing our density of wells in the area and subsequently better drain and produce remaining reserves under the Skelly Unit.

That leads us up to why we're here today requesting approval to downhole commingle in the proposed wells, plus any other well, let's say, in the future that would possibly result in some mechanical problems, since

there are many wells on the same well pad offsetting, let's say a Fren Seven Rivers from a Grayburg-Jackson. We would then be able to go in and abandon the one well and downhole commingle and maintain production with the other offset well.

Q Are you familiar with why there was two different, here again, why there was two different pools established where in some parts where the Fren Seven Rivers Pool does not exist the Jackson -- the Grayburg-Jackson Pool does include the Seven Rivers in those areas?

A There are two separate producing horizons. I don't know if this is answering your question.

In some areas, for instance, in the northeast end of the -- of the unitized area, the Fren Seven Rivers is not productive. The Grayburg-Jackson is in other areas, so typically some wells, for instance, were drilled up in the northeast end of the unit, Section 14, you'll notice there are only Grayburg-Jackson wells. In other areas there are both Fren Seven Rivers and Grayburg-Jackson.

Q In that particular area in the northeast does the Seven Rivers exist?

A It does exist but it's nonproductive.

Q Nonproductive. Do you know if there's -further north, outside of your unit, do you know if there is
existing production in the Seven Rivers formation from any
of those wells, by chance?

A In the -- let's see, if I'm not mistaken,

1 16 the area outside the unit down in Section 26 has some, 2 Fren Seven Rivers and Grayburg-Jackson-Queen-San Andres pro-3 duction, although the legend does not indicate labeling of these wells. 5 There may be some outside the unit. I'm 6 not familiar with all the other operators' properties out-7 side the unit. 8 Under Exhibit One, what is the yellow 0 9 tinted area? Α That is just other area that I made 10 of. The names of the operators were not there so I high-11 them in yellow to indicate that those are 100 per-12 cent owned and operated by Getty Oil Company properties that 13 are not within the unitized area. 14 I show no Fren Seven Rivers production in 0 15 any of your yellow tinted areas, is that right? 16 Α I believe there may be some in Section 26 17 and this part of the plat may be in error. I know there 18 should not be any in that Section 11 to the north. Q Are you familiar with Division Order 19 R-5011, issued April 30th, 1975? 20 Was that one of the orders that I 21 tioned here today? 22 It was the General American Oil Company 23 for pool extension, Eddy County, New Mexico. 24 Α I do not remember that order. 25 MR. STOGNER: If I might, for

the record, I would like to read in what the order says and it's very short.

"IT IS THEREFORE ORDERED that the vertical limits of the Grayburg-Jackson (Queen-Grayburg-San Andres Pool) as previously established and defined by Commission order, are hereby extended to include the Seven Rivers formation, excepting in that area where said pool is overlain by the Fren Seven Rivers Pool."

Order No. . 2. "That the North Fren Yates Seven Rivers Associated Pool is hereby abolished."

As you can see by this, I'm still a little confused on why the Seven Rivers in this particular area was not included in the Grayburg-Jackson, and reading in this order, it mentions that the difference in ownership, but this being all unitized in this particular area, the ownership is common in both the Grayburg-Jackson and the Fren Seven Rivers.

A That is correct.

Q So anywhere outside this area the Seven Rivers is included in the Grayburg-Jackson-Seven Rivers-Queen-Grayburg-San Andres Pool, except for this little area that you're --

A I don't have the order. I'm not sure what areas it actually pertains to unless it specifically talked to pools only.

MR. STOGNER: I'm going to take

1 18 administrative notice of Order No. R-5011. This is one I 2 found by preparing for this case today, that -- that con-3 cerns this particular area. Now then, let's go back to 5 this, your exhibits in here and your testimony today. 6 If I might ask, Mr. Examiner, are you 7 stating that according to that order that what we're 8 requesting is not necessary, that it's your impression that 9 all this was unitized and might save us considerable --No, that's not it at all. The order 10 clearly states that the Seven Rivers in this particular area 11 indeed in the Fren Seven Rivers Pool; however, 12 wanted to bring that out, that everything outside this par-13 ticular area is in the Jackson-Grayburg-Seven Rivers --14 Α Okay. 15 -- Pool, and by that order, the way I in-16 terpret it, the reason it split was because there was diver-17 sity in ownership. Α It may be very well outside the unit 18 areas but not on the unit. 19 My next question, when was the Skelly 20 Unit established? 21

22

I do not have that date in front of I believe it was in the late sixties or early seventies. That's as close as I can pin it down.

23 24

I can easily find that out, though.

just

25

Q Would you please, sir?

1	19
2	A Yes.
3	Q At the present time is there both, is
4	there waterflood in the Fren Seven Rivers?
5	A There's waterflooding in both Fren Seven
	Rivers and the Grayburg-Jackson.
6	Q And do you propose for downhole
7	commingling for these injection wells?
8	A No, we do not.
9	Q You do not. What is the average
10	pressure, injection pressure in both zones?
11	A The Fren Seven Rivers typically has a
12	limit on some wells by State law at 1300 psi.
13	The Grayburg-Jackson at 2000.
	There are some older wells prior to the
14	date when the limits were set that have no limits at all.
15	Q In those areas that have no limits on the
16	injection wells, are they in a particular area or are they
17	scattered throughout the unit?
18	A It's based on the date they're
19	scattered throughout the unit. I assume it's based on the
20	date when the prior to the date when the limits were set
21	out and some additional wells at a later period of time that
22	were converted to injection.
	Q Does Getty operate these particular wells
23	that don't have a limit at the 13 or 1500 psia?
24	A It's very, very close to it, yes.
25	Q Very close to it. Where is the water

•

A We are getting water currently from both zones, both the producing wells in the Fren Seven Riverg and the Grayburg-Jackson produce water. We are taking that

water and re-injecting it. In addition, we are buying make-

up water from the City of Carlsbad to inject.

coming from for both of the injection zones?

Typically the injection pressure is maintained by controls at the wellhead. We have one plant operating -- two plants operating injection for both horizons; one injection distribution system.

Q On Exhibit Number Five there's some wide variance of bottom hole pressures. Can we go into a little more detail on why that could possibly be?

A Part of the reason is we -- is the reason why we want to go ahead and additionally drill infill wells. We feel that the density of the wells within the unit is not sufficient to adequately drain the reserves.

We feel that the injection wells are just in some cases not able to stimulate and reach the zones that are producing in these producing wells.

Q Do you feel it could be possible crossflow of water and hydrocarbons in some of these wells that
may have a high Fren Seven Rivers bottom hole pressure and a
low Grayburg-Jackson-San Andres?

A Except the Well No. 11, right now the only wells that are currently open in both these pools, see, that is the only one, is Well No. 11, I do not anticipate

that there is crossflow existing out there at the current time that is pressuring up, what you're asking, the Fren Seven Rivers Pool.

I do not feel that in the producing wells there would be a chance for damage resulting from any crossflow. Adequate surface equipment can be utilized on the well to lift any fluids that are in the wellbore.

Q How about in the event any of these wells are shut-in for any extended period of time?

A If they would be shut-in for an extended period of time there could be a possibility of crossflow.

Q Has any of these wells in the past been shut-in for any extended period of time?

A No, they have not, only electrical problems or some on a very short term duration has resulted in shutting in.

Q Has Getty plugged and abandoned any of the wells in either formation?

A I believe there is one well, Well No. 71, I came across in reviewing this unit again, that has been plugged and abandoned. Any others I'm not sure of. The majority of the wells are operating.

Getty would be happy to include in the order that the wells, for instance, were shut-in for, let's say, a period of 60 days, or something to that effect, that Getty would go in and physically set a plug or whatever would be necessary to restrict any communication in the

22 1 wellbore. 2 How are the Fren Seven Rivers injection 3 wells marked on this Exhibit Number One? I see some injection wells but I -- I don't know whether they're Grayburg-5 Jackson or Fren Seven Rivers injection. 6 Α Okay. Excuse me for one minute. It does 7 not appear on this particular schematic that there there's a legend that describes which is Fren Seven Rivers 8 injectors and which is a Grayburg-Jackson injector. 9 I'm sorry, please repeat that. 10 The injection wells are just those wells 11 with an arrow through it but it does not appear that the le-12 gend differentiates between a Seven Rivers or a Grayburg-13 Jackson injector. 14 0 Could you please submit to me a --15 Α We could submit a --16 -- that information? 0 -- improved plat that would show that. Α 17 I would take that as an amended Exhibit 18 Number One. 19 MR. STOGNER: I have no further 20 questions at this time. 21 Are there any other questions 22 of this witness? 23 MR. CARR: No questions.

MR. STOGNER:

Is there anything

24

25

further in this case?

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.

Sally W. Boyd Core

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner recording of 183 to. 8315 heard by the on fuguet 12 1984.

Oil Conservation Division

1	STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT
2	OIL CONSERVATION DIVISION STATE LAND OFFICE BLDG.
3	SANTA FE, NEW MEXICO
4	19 September 1984
_	EXAMINER HEARING
5	
6	
7	IN THE MATTER OF:
8	Application of Getty Oil Company CASE for downhole commingling, Eddy 8315
9	County, New Mexico.
10	
11	BEFORE: Michael E. Stogner, Examiner
12	
13	TRANSCRIPT OF HEARING
14	
15	APPEARANCES
16	
17	
18	For the Oil Conservation Jeff Taylor
19	Division: Attorney at Law Legal Counsel to the Division
20	State Land Office Bldg. Santa Fe, New Mexico 87501
21	For the Applicant:
22	
23	
24	
25	

```
1
2
                                 MR.
                                      STOGNER: We will now call
3
    Case Number 8315.
4
                                 MR. TAYLOR: The application of
5
    Getty Oil Company for downhole commingling, Eddy County, New
6
    Mexico.
7
                                 MR.
                                      STOGNER: Mr. Counselor,
8
    this case was heard on August 22nd, 1984; however, it was
    not advertised in the Artesia paper at that time and it had
9
    to be readvertised at this time.
10
                                 We will now call
                                                             any
11
    appearances or additional testimony at this time.
12
                                 Appearing that there is none,
13
    this case will be taken under advisement.
14
15
                        (Hearing concluded.)
16
17
18
19
20
21
22
23
24
25
```

CERTIFICATE SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Con-servation Division was reported by me; that the said tran-script is a full, true, and correct record of the hearing, prepared by me to the best of my ability. Solly W. Boyd Cor