

1 STATE OF NEW MEXICO
2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3 OIL CONSERVATION DIVISION
4 STATE LAND OFFICE BUILDING
5 SANTA FE, NEW MEXICO

6 23 August 1989

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Kelt Oil and Gas, Inc. CASE
for statutory unitization, Chaves 9738
County, New Mexico, and

10 Application of Kelt Oil and Gas, Inc. CASE
for a waterflood project, Chaves 9739
County, New Mexico.

11
12
13 BEFORE: David R. Catanach, Examiner
14
15

16 TRANSCRIPT OF HEARING

17 A P P E A R A N C E S

18
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1 MR. CATANACH: At this time
2 we'll call Case 9738.

3 MR. STOVALL: Application of
4 Kelt Oil & Gas, Inc., for statutory unitization, Chaves
5 County, New Mexico.

6 MR. CATANACH: Are there ap-
7 pearances in this case?

8 MR. CHRISTY: Sim Christy for
9 the applicant, Kelt Oil & Gas, Inc.. I respectfully re-
10 quest the Examiner to consolidate this hearing with 9739,
11 which is the application for a waterflood project in the
12 same unit.

13 MR. CATANACH: Yes, sir, we
14 will do just that.

15 We'll call Case 9739 at this
16 time.

17 MR. STOVALL: Application of
18 Kelt Oil & Gas, Inc., for a waterflood project, Chaves
19 County, New Mexico.

20 MR. CATANACH; Are there any
21 other appearances in these cases?

22 MR. CHRISTY: I have two
23 witnesses, Mr. Examiner.

24 MR. CATANACH: Will the two
25 witnesses stand and be sworn in at this time?

1 (Witnesses sworn.)

2
3 MR. CHRISTY: Preliminarily,
4 Mr. Examiner, this is an old field. The production is down
5 to about 3 barrels a day on most of the wells, been there
6 for quite a few years.

7 We went back and reexamined
8 title on the whole unit to the extent we could. Kelt owns
9 almost all of the unit. There are six or seven other oper-
10 ators. We have written them for title information. We
11 have not received it back. We will receive it or we'll do
12 something.

13 We've tried to check the
14 county records and the BLM and the Commissioner's office
15 and so forth, what we could get. If there're some over-
16 rides or royalty out there, we'd have to go back and exa-
17 mine the whole title again. We're working on that project,
18 but before we submit the matter for final approval we will
19 revise Exhibits B and D, which are the -- B being the
20 ownership map, it's as of May 1, the latest we have; and D
21 is the working interest, expense-bearing, in the unit oper-
22 ating agreement. We will do that.

23 We have received preliminary
24 approval for the BLM and just day before yesterday we re-
25 ceived preliminary approval from the Commissioner of Public

1 I'd like first of all to go into the geology and then I
2 will go into petroleum engineering and the C-108, if that's
3 satisfactory, and our notices.

4 Is that satisfactory, Mr. Exa-
5 miner?

6 MR. CATANACH: Yes, sir.

7 MR. STOVALL: May I ask you a
8 question before you get started?

9 MR. CHRISTY: Yes, sir.

10 MR. STOVALL: Now you are
11 asking, then, I take it, that based upon your statement and
12 and the previous approval of the unit agreements in the
13 other units that you mentioned, that those agreements be
14 approved on that basis and you don't have a witness to
15 testify as to those?

16 MR. CHRISTY: To testify as to
17 what?

18 MR. STOVALL: As -- as to the
19 content of the unit agreement --

20 MR. CHRISTY: Oh, yes, yeah.

21 MR. STOVALL: -- To put them
22 in the record?

23 MR. CHRISTY: No, I'll just
24 give you the unit agreement itself. I tell you that if you
25 want to look, you'll find that they're the same.

1 MR. STOVALL: Would there be
2 any value, and you can ask the Examiner yourself, in
3 adopting -- incorporating into this record portions of
4 those orders, those orders --

5 MR. CHRISTY: That unit oper-
6 ating agreement, yes.

7 MR. STOVALL: I mean the
8 orders that you referred to as --

9 MR. CHRISTY: Oh, the orders,
10 yes, I gave that to you, 8117; no objection at all. We've
11 patterned them after that because it was the nearest one
12 that had recently been approved of the same animal, and the
13 same formation, San Andres.

14 Now, with that --

15 MR. STOVALL: Is it the same
16 participation formula?

17 MR. CHRISTY: No, that parti-
18 cipation formula changed a little bit after our preliminary
19 hearing with BLM, so there is a difference there and I will
20 go over that with one of the witnesses and I will give you
21 an exhibit of how we have reached participation based on
22 that formula, which has been approved by BLM; which, as I
23 said, owns 57.7 percent of the total unit area.

24 MR. STOVALL: I'll just ask
25 the Examiner at this time, would be of any value to you to

1 incorporate that into the record?

2 MR. CATANCH: I don't see that
3 there would be.

4 MR. STOVALL: Okay.

5 MR. CHRISTY: Ready, Mr. Exam-
6 iner?

7 MR. CATANACH: Yes.

8
9 STEVE WALTER,
10 being called as a witness and being duly sworn upon his
11 oath, testified as follows, to-wit:

12
13 DIRECT EXAMINATION

14 BY MR. CHRISTY:

15 Q Would you please state your name, ad-
16 dress and by whom you're employed and in what capacity?

17 A My name is Steve Walter, employed by
18 Kelt Oil & Gas in Houston, Texas, as head of geology.

19 Q What is your occupation, Mr. Walter?

20 A Head of geology for Kelt Oil & Gas.

21 Q All right. Have you ever testified be-
22 fore the OCD?

23 A No, I have not.

24 Q Give us a little bit of your background
25 with respect to your education in the schools of higher

1 learning, your degrees, if any, received, and when.

2 A Received in 1984 a degree in geologic
3 engineering from the Colorado School of Mines and worked
4 for four years with a small, independent oil company in
5 Denver, Colorado, and for the past three years as the head
6 of geology for Kelt Oil & Gas.

7 Q Are you familiar as a head geologist for
8 Kelt with the Cato San Andres area?

9 A Yes, I am.

10 Q Have you made a study of it?

11 A I made a detailed geologic evaluation of
12 the entire Cato Field area.

13 Q I see. Are you familiar with what is
14 sought in this application?

15 A Yes, I am.

16 MR. CHRISTY: Is the witness
17 qualified?

18 MR. CATANACH: Yes, sir.

19 MR. CHRISTY: Thank you.

20 Q All right, now, let's go to Exhibit
21 Four, which I believe is your exhibit, isn't it?

22 A Yeah. Exhibit Four is the waterflood
23 feasibility and unitization study that we have submitted to
24 the BLM and to the OCD for this project.

25 It's broken into five sections, Section

1 2 of which I personally authored, and the remainder of the
2 sections I supervised. I would like to concentrate on
3 Section 2, which is the geology section defining the verti-
4 cal and horizontal limits and the techniques used to define
5 the limits of the proposed unit.

6 Q There appears to be some plats attached
7 to that. Would you just tell us what they are, roughly?

8 A The plats attached included in Exhibit
9 Four are three restored cross sections across the field and
10 then maps or plats 4 through 14, which are computer-gener-
11 ated isopach, structure maps, cum production, and injection
12 maps for the Cato Field.

13 I'd like to concentrate on Plat 7 and
14 Plat 9, which are the total San Andres porous isopach and
15 cumulative oil production for the field, respectively.

16 Q Let's take Plat 7 first. Now, is that
17 your isopach or is that your cumulative?

18 A That's the isopach.

19 Q Isopach, all right. Now would you
20 please briefly explain to the Examiner what that plat de-
21 picts?

22 A Plat 7 is the total net pay isopach for
23 the P-1, P-2 and P-3 Zones of the San Andres formation. It
24 shows the contours of the isopach map, the proposed unit
25 boundary, and the down dip oil/water contact for the re-

1 servoires of +625.

2 The unit boundary was designed and based
3 off this map plus the Plat number 9, which is a cumulative
4 oil production map. The boundaries have been agreed upon
5 and input from the field end was taken into consideration
6 for changing the boundaries.

7 Q What is the purpose -- what are the
8 boundaries, both water and impervious?

9 A The up-dip, or northwest, boundary is
10 caused by a porosity/permeability pinchout in the west to
11 north directions.

12 The southern, east, the southeast and
13 the east limit is controlled by the oil/water contact,
14 which is estimated at +625 above mean sea level.

15 Q Let me refer you to Exhibit One, Section
16 2.H and will you tell me your proposed unitized formation?

17 A The proposed unitized formation is the
18 San Andres formation from the top of the pi marker to the
19 base of the P-3 zone, as identified in the type log, the
20 Crosby -- Thelma Crosby No. 1 in the southwest of the
21 northeast of 17, Township 8 South, Range 30 East, including
22 locally termed P-1, P-2 and P-3 dolomites.

23 Q All right, now please go to Plat 9,
24 isn't it?

25 A Plat 9.

1 Q Yes, Plat 9. Now, go ahead.

2 A Plat 9 is the cumulative isopach of oil
3 production for the Cato Field.

4 Q Wait just a minute until the Examiner
5 can get his copy.

6 A Okay.

7 Q Okay.

8 A Plat 9 is the cumulative isopach for oil
9 production for the Cato Field. It shows the same inner
10 boundary as Plat 7 and it, Plat 9 was used to also help
11 define the unit boundaries by the decreasing production
12 trend to the north and west of the proposed unit boundary.

13 Q Go head.

14 A There is general, fair agreement between
15 Plat 7 and Plat 9, which is it be expected mapping the net
16 pay versus the actual cumulative production from that net
17 pay.

18 Q Is there anything particularly else
19 you'd like to tell the Examiner about Exhibit Four?

20 A No, there is not.

21 Q It has an index into it. Do you sub-
22 scribe to this as being --

23 A I subscribe to it. As I previously
24 stated, I wrote Section 2 and supervised the compilation of
25 the other four sections.

1 Q So Kelt's Exhibit Four was made by you
2 or under your direct supervision.

3 A That's correct.

4 Q All right, sir. As a geologist, to what
5 is -- what is your opinion as to whether or not the pro-
6 posed unitization will substantially increase the ultimate
7 recovery of oil and gas from the unitized portion of the
8 pool?

9 A The current situation on primary produc-
10 tion is that the field is at or below economic limit, unit-
11 ization is necessary in order to set up a fieldwide pattern
12 to adequately sweep the remaining secondary oil with the
13 water injection program.

14 Without the unitization secondary ef-
15 forts in the field would be uneconomical due to the small
16 tract that you would have to put together for each indivi-
17 dual flood area.

18 Q What do you anticipate the ultimate
19 recovery of oil or gas from the unitized formation under
20 secondary?

21 A Estimated secondary recovery is roughly
22 11.5-million barrels.

23 Q Over what period of time?

24 A About 20 years, less -- I'd like to
25 qualify that.

1 That's the proved secondary.

2 Q Proved.

3 A Proved secondary.

4 Q So that I gather the proposed unit
5 operations would substantially increase recovery of oil or
6 gas that would be lost if we didn't --

7 A Estimated remaining primary production
8 under the current situation is about 450,000 barrels of
9 oil.

10 Remaining secondary proved is estimated
11 at 11-1/2 million barrels of oil.

12 Q So there's over 11-million barrels?

13 A There are 11-million barrels under
14 secondary.

15 Q Economically will it work?

16 A Yes.

17 Q In other words, do I understand you cor-
18 rect that it would allow not only recovery of the expense
19 of unitization but a reasonable profit?

20 A Yes, it would.

21 Q Did you have anything to do with the
22 participation formula shown at page 11 of Exhibit One,
23 being in Section 13?

24 A Yes, I did.

25 Q What -- do you subscribe to that as

1 being correct?

2 A Yes, I do.

3 Q Do you think it's fair and reasonable to
4 the working interest owners and the royalty owners?

5 A Yes, it is.

6 Q All right, sir.

7 MR. CHRISTY: Now, I'll go
8 into this unit agreement a little bit more thoroughly with
9 the other -- the next witness, but I'd call the Examiner's
10 attention to the fact it's got numbers A-B through O which
11 tell you what factor you're putting into that, and we have
12 an exhibit on it.

13 Q And you think the allocation is fair and
14 reasonable?

15 A Yes.

16 Q To all interested parties.

17 A Yes.

18 Q Is unitization as proposed in the appli-
19 cation in the interest of conservation and the prevention
20 of waste?

21 A Yes, it is.

22 Q Is there anything further I forgot to
23 ask you that you think it would be interesting to the Ex-
24 aminer?

25 A No. I could go into rather lengthy

1 dissertation on the techniques and methodology used to
2 define both the vertical and horizontal limits to the
3 field. I believe that the E&G report, as we call it, or
4 the water feasibility report adequately explains all the
5 techniques that we used to come up with the unit boundary.
6 All the available information from log to core to detailed
7 computer mapping resultant from detailed computerized log
8 analysis and the summary of all the data, core data, led to
9 the final product, which is basically Plat 7 to Plat 9 to
10 describe the geology detail.

11 MR. CHRISTY: That's all from
12 this witness.

13
14 CROSS EXAMINATION

15 BY MR. CATANACH:

16 Q Mr. Walter, can you give me the unitized
17 interval once again?

18 A The San Andres formation, top of the Pi
19 marker.

20 Q The Pi marker is something I'm unfami-
21 liar with .

22 A The Pi marker is a local gamma ray, hot
23 gamma ray spike in the -- in the Chaves County area.

24 The type well that we're using is the
25 Thelma Crosby 1. It's included in the report, a copy of

1 the log, and on the Thelma Crosby 1 the proposed unitized
2 vertical section is from 3,081 depth to 3,631 depth on the
3 Thelma Crosby compensated density log.

4 Q And that log is included in this
5 package?

6 A Yes, it is.

7 Q Just for reference, where is that well
8 located?

9 A Thelma Crosby 1 is in the southwest
10 northeast of Section 17, 8 South, 30 East, Chaves County.

11 Q Okay. Mr. Walter, is there some portion
12 of the proposed unit that is not being developed by primary
13 means?

14 A Around the fringes and even in some of
15 the infill locations the -- there are areas that do not
16 have wellbores on them. The reason for that is because in
17 1968 economics the fringes, as depicted by the cum oil pro-
18 duction map, they do decrease but yet they're still produc-
19 tive.

20 Originally the boundaries to the west
21 and the north were somewhat larger than they are at this
22 point and the boundary to the southeast was contracted more
23 towards the northwest.

24 At our preliminary meeting with the BLM
25 they requested that we redefine the boundary to decrease it

1 in the north and the west and to expand it on the south and
2 east to encompass the +625 oil/water contact.

3 Q Uh-huh. And how is it advantageous to
4 include some of this undeveloped acreage in the unit?

5 A As the next witness will testify, the
6 development plan proposed for this encompasses all of the
7 proposed unit area.

8 Q Okay.

9 A Including the drilling of new wells to
10 develop the undrilled portion of the proposed unit.

11 Q Has any portion of this unit been sub-
12 ject to secondary recovery operations in the past?

13 A There have been two pilot floods; one
14 down in Section 33 of 8 South, 30, and the second in Sec-
15 tions 11 and 14 of 8, 30. They were limited in terms of
16 the volumes of water that were injected. Our knowledge on
17 the southern pilot flood is not as great as it is on the
18 northern flood.

19 I'd have to refer to the report for the
20 actual numbers, but I believe that roughly 2-million bar-
21 rels of water were injected into the northern part of the
22 flood, which was about a little less than 2-1/2 percent of
23 a pore volume for that area and the incremental recovery
24 was estimated to have been .65 percent of the oil in place
25 for that area.

1 Q Who are those operators?

2 A The northern one was Pan Am, or Amoco.
3 The southern one was Shell.

4 Q What is your -- your estimated secondary
5 reserves, or recoverable reserves, what -- what is that
6 based on, what percentage of oil in place is that?

7 A The proved estimated secondary recovery
8 is 11.5-million barrels, which is an estimated 7 percent
9 increase in production. So it would be 7 percent of the
10 original oil in place attributed to secondary recovery.

11 Q Did you say 11.5?

12 A 11.5-million barrels proved secondary.

13 Q Right.

14 A There are also probable and possible
15 reserves assigned, as well.

16 MR. CATANACH: I believe
17 that's all I have for now.

18 The witness may be excused.

19 MR. CHRISTY: Call the next
20 witness, please. Mr. Degenhart.

21

22

23 MARK DEGENHART,
24 being called as a witness and being duly sworn upon his
25 oath, testified as follows, to-wit:

DIRECT EXAMINATION

1
2 BY MR. CHRISTY:

3 Q Will you please state your name, your
4 address, and by whom you're employed and in what capacity?

5 A My name is Mark Degenhart. I'm employed
6 by Kelt Oil & Gas as a petroleum engineer out of Roswell,
7 New Mexico.

8 Q Have you ever testified before the OCD
9 as a petroleum engineer?

10 A No.

11 Q Tell us a little of your background with
12 respect to the schools of higher learning you've attended,
13 the degrees, if any, obtained and when, and what you've
14 been doing in the petroleum geology field since that date.

15 A I graduated from the Colorado School of
16 Mines in 1986 with a Bachelor of Science degree in petro-
17 leum engineering.

18 After that time I worked for a natural
19 gas market consulting firm as a gas market information
20 analyst, and in July of '87 I was employed by Kelt Oil &
21 Gas as a petroleum engineer and I've been with Kelt ever
22 since.

23 Q Are you the one that's in charge of the
24 Cato Field at this time for Kelt?

25 A Yes, I am.

1 Q And are you familiar with what's sought
2 by the application in Case 9738?

3 A Yes, I am.

4 Q Have you tried to obtain voluntary
5 unitization?

6 A Yes, we -- yes, we have tried.

7 Q What is your success to this date in the
8 sense of percentages or numbers, or something?

9 A I have contacted all the working inter-
10 est owners and royalty owners that I was able to get ad-
11 dresses for and I have -- in fact I have a tabulation of
12 information sent to both the working interest and the
13 royalty owners and that is --

14 Q That's going to be your Exhibit Five, is
15 it not?

16 A Yes, it will.

17 Q All right. In Exhibit Five it shows the
18 working interest owner packet. What is in that packet?

19 A The working interest owner packet?

20 Q Yes.

21 A That packet contains the unit agreement,
22 the unit operating agreement, and the associated Exhibits
23 A, B, C and D, and ratifications for the -- for the agree-
24 ment.

25 Q Did you later send those same working

1 interest owners an engineering and geological report
2 similar to the Exhibit Four in this -- this application?

3 A Yes, I did. On June 1st I called a
4 working interest owners meeting and at that meeting the
5 engineering and geological report with its associated plats
6 was available to those that attended, and to those that
7 didn't attend I sent out by certified mail all that inform-
8 ation that was available.

9 Q Now, Exhibit Five also contains a royalti-
10 ty owners packet. What is in the royalty owners packet?

11 A In the royalty owners packet was the
12 unit agreement and its associated exhibits, Exhibits A, B
13 and C, and ratifications to the agreement.

14 Q Now, returning to Exhibit Five, was this
15 prepared by you or under your direct supervision?

16 A Yes, it was.

17 Q And it reflects alphabetically the name
18 of everybody, when they were sent the working interest
19 owners packet or the royalty interest owners packet, and
20 the certified mail receipt number, and your return receipt
21 with an X, and then if they ratified it, either way, the
22 date of ratification. Is that correct?

23 A Yeah, it contains all of that informa-
24 tion you just mentioned plus the engineering and geological
25 report mailings to those working interest owners that did

1 not attend the working interest owners meeting in Roswell.

2 Q And it also contains information with
3 respect to the record title, record or official title
4 owners currently.

5 A That is correct.

6 Q Let me show you what's been marked as
7 Exhibit One and ask you if that is the unit agreement
8 which -- with the exhibits that you sent to all these
9 people and that you seek approval of in this hearing.

10 A Yes, this -- this is the material.

11 Q Now, let me show you Exhibit Two, which
12 purports to be a unit operating agreement, and ask you if
13 that is the unit agreement, unit operating agreement, that
14 you sent to all the working interest owners and you're
15 submitting to the OCD for record purposes?

16 A Yes, this unit operating agreement was
17 sent to all the working interest owners.

18 Q Exhibit One has attached three exhibits,
19 I believe, A, B, C.

20 A That -- that is correct.

21 Q Tell me what A is.

22 A Exhibit A is a plat map showing the unit
23 boundary within Township 8 and 9 South of Range 30 East,
24 and all the tracts located within that unit area.

25 Q Now what is Exhibit B?

1 A Exhibit B shows ownership within those
2 leases and legal description of the tracts with the name.

3 Q And Exhibit C?

4 A Exhibit C shows the determination of
5 tract participation for each of the tracts within the unit.

6 Q Based on what?

7 A Based on information on Exhibit C and
8 the calculation of the determination of a participation
9 formula.

10 Q Contained in the unit agreement?

11 A Yes.

12 Q Which is page 11 of the unit agreement,
13 is that correct?

14 A That is correct.

15 Q And it has little A's - O to indicate
16 what factors you're talking about, correct?

17 A The parameters, that is --

18 Q Right.

19 A -- that is correct.

20 Q Now, does Exhibit C correlate those A
21 through O given factors and come out with an answer?

22 A Yes, the tract --

23 Q The tract.

24 A The answer being the tract participa-
25 tion.

1 Q All right. Now, the unit operating
2 agreement, Exhibit Two, I notice it has the standard ac-
3 counting procedure, Exhibit E, and the standard insurance
4 clause, Exhibit F.

5 It also has an Exhibit D to it and I'll
6 ask you what Exhibit D is.

7 A Exhibit D shows how cost will be divided
8 to the cost bearing owners, or the working interest owners.

9 Q Well, Exhibit B, then, is net revenue
10 interest, and Exhibit D is cost bearing, is that right?

11 A Correct.

12 Q Did you prepare the exhibits that I've
13 just gone over, except --

14 A Yes, I did.

15 Q Now, --

16 MR. CHRISTY: I forgot to ask
17 you if he was qualified as a petroleum engineer.

18 MR. CATANACH: Yes, sir, he
19 is.

20 MR. CHRISTY: Thank you.

21 Q What's the state of the primary produc-
22 tion at this time out of the Cato?

23 A The primary production? We are current-
24 ly making 200 barrels of oil a day with an estimated re-
25 maining primary of 450,000 barrels of oil.

1 Q In Exhibit Five there is shown those who
2 have ratified the unit operating agreement. Give the exam-
3 iner some kind of idea of how much you've got so far in a
4 percentage or something of the unit area.

5 A Okay. For -- based on -- this is for
6 the unit area?

7 Q Unit area.

8 A Unit area, we have 56 percent.

9 Q All right. There was a figure given me
10 the other day of 95 percent working interest and 79 per-
11 cent royalty interest. What is that?

12 A Okay, that is -- I'll begin with the
13 working interest owners. We received 4 ratifications of
14 the 36 identified working interest owners, and that repre-
15 sents 95 percent unit interest attributed to those cost-
16 bearing people and --

17 Q 97 percent -- 95 percent --

18 A Yes, a little over 95.

19 Q -- of the cost-bearing have ratified.

20 A Correct.

21 Q Now, what's the 79 percent of the roy-
22 alty?

23 A The 79 percent represents 57 executed
24 ratifications to date of the 136 identified royalty owners.

25 Q All right, sir, do you expect some more

1 ratifications in?

2 A Yes, I do. In fact I have verbal --
3 verbal, verbals, I should say, from -- from several royal-
4 ty owners at the present time.

5 Q All right. How many other working
6 interest owners are there in the proposed unit area besides
7 Kelt?

8 A We've -- there's -- we've identified 36
9 and those --

10 Q Working interest owners?

11 A Working interest owners, and that number
12 incorporates some of the undeveloped acreage that has
13 record title people.

14 Q Did you try and draw -- get the opera-
15 tors together and talk this thing over?

16 A Yes, as I'd mentioned, I had called a
17 working interest owners meeting in Roswell June 1st, and I
18 had a local company, Yates Petroleum, show and our company,
19 were the only ones that showed up to the working interest
20 owners meeting.

21 The reason is I had a lot of people call
22 me and say that they would have like to have come but their
23 small interest in the unit did not justify them traveling
24 great distances to come to Roswell.

25 Q So far, after all your mailing and

1 everything, have you had anybody object to the unit or unit
2 operating agreement?

3 A No, I've had no adverse responses.

4 Q From an engineering standpoint will the
5 unitized management operation further development of the
6 proposed unit be -- is it reasonably necessary to effectu-
7 ally carry on secondary recovery operations?

8 A Yes, it is.

9 Q It's necessary to do that.

10 A Yes.

11 Q Will it result in a substantial increase
12 of ultimate recovery of oil or gas?

13 A Yes, it will.

14 Q Now, the unit agreement, I think, speaks
15 for itself, but it does contain a provision for operations
16 -- that's the unit operating agreement -- operations, vot-
17 ing procedures, removal of operator, et cetera?

18 A Yes, it does contain those.

19 Q Is the proposed operations, in your
20 opinion as a petroleum engineer, feasible?

21 A Yes.

22 Q Is it reasonably probable to increase
23 recovery of more hydrocarbons that would have been -- that
24 would have been recovered without the unitization?

25 A Yes.

1 Q You heard Mr. Walter testify with re-
2 spect to ultimate recovery of hydrocarbons from secondary
3 proven. Do you subscribe to that as a petroleum engineer?

4 A Yes.

5 Q What do you think the additional cost
6 will be of the unitization over the life of the secondary
7 recovery?

8 A The capital investment, the capital in-
9 vestment is estimated to be a little over \$13-1/2 million.

10 Q To recover an additional 11-1/2 million
11 barrels.

12 A Correct, due to secondary recovery ef-
13 forts.

14 Q Do you feel you've made a good faith
15 effort to secure voluntary unitization?

16 A Yes, I do feel I have.

17 Q You testified (not clearly heard.). Now
18 let's -- let's go to that participation formula. Do you
19 remember it? Page 11 of the unit agreement?

20 A Yes.

21 Q That was done with negotiation with BLM,
22 is that correct?

23 A Yes, it was.

24 Q Do you think it's fair and reasonable to
25 the working interest owners and the royalty owners, that

1 participation formula?

2 A Yes, I do believe it's fair and reason-
3 able.

4 Q So I gather you subscribe to the parti-
5 cipation formula.

6 A Yes.

7 Q All right. Now let's go to the portion
8 of the hearing that has to do with 9739, which is the water
9 flooding.

10 There was attached to your application,
11 I believe, a C-108, but it didn't have the back-up infor-
12 mation and the application says we will supply it at this
13 hearing.

14 A Correct.

15 Q Did you do that? Have you got it?

16 A Yes, the attachments are here.

17 Q Now, the OCD requirements include noti-
18 fication to the surface owners under the wells and to the
19 working interest owners surrounding the wells within a half
20 mile, right?

21 A Correct.

22 Q Tell me who the surface owners are.
23 Well, first of all, tell me how many injection wells you
24 propose as a pilot plant.

25 A We propose four initial injection wells.

1 Q Tell me the name of the surface owners
2 in -- under those four wells.

3 A The names of the surface owners are --
4 there's only two surface owners under --

5 Q Name them.

6 A Freda Seligson (sic) and Violet Pledger
7 Queen. (sic)

8 Q Now what about working interest owners
9 within a half mile of the proposed injection wells? Who
10 are they?

11 A The other operators, Kelt, ourselves,
12 and Yates Energy.

13 MR. CHRISTY: Mr. Examiner,
14 here is my certificate for the registered return receipts
15 showing proof of mailing of the C-108 to the two surface
16 owners and the working interest owners.

17 There is one that came back
18 and I'd like to ask Mr. Degenhart about it, that's Violet
19 Queen.

20 Q Is that correct?

21 A Correct.

22 Q Yeah, but according to Exhibit Five she
23 received your royalty packet, is that true?

24 A She received my royalty packet because
25 she returned her return receipt from the certified mailing.

1 Q Was that the same address as on Five-A I
2 just handed you?

3 A Yes, it was.

4 MR. CHRISTY: We can't answer
5 why it came back, but there it is.

6 Q All right, now let's go to the C-108.
7 It's Exhibit Three, and would you briefly sell the Examiner
8 about C-108, particularly its exhibits and your proposed
9 injection plans? You may proceed.

10 A Okay. The C-108 with its attachments,
11 I'll refer to Item 3, which is wellbore schematics for the
12 4 initial injection wells, and on the -- on those wellbore
13 schematics I have tabular data for surface casing showing
14 size, sacks of cement, top of cement, hole size, and for
15 the production string that same information, and also I
16 show the perforated intervals on the schematic and I show
17 packer setting depth, and I show the 2-3/8ths plastic-coat-
18 ed tubing, and other information applicable to -- to those
19 injection wells in the area.

20 And that's shown under --

21 Q On each --

22 A -- other data of the --

23 Q -- one of the four?

24 A -- each one of the four.

25 Q All right. We also have attached, I

1 believe, a map showing where the four injection wells are,
2 is that correct?

3 A Yes. It was advised to show a map of
4 wells and leases within two miles of the initial injection
5 wells and that is shown, and also draw a half mile radius
6 circle around each of the proposed injection wells, and
7 that is shown, and that is the area of review and the in-
8 jection wells are identified in blue.

9 Q Now with respect to fresh water in the
10 area, have you received a report from the State Engineer's
11 office with respect to fresh water and is that included in
12 the C-108?

13 A Yes, it is.

14 Q And that's a letter of June 8th, 1989?

15 A June 6th, 1989.

16 Q June 6th.

17 A And, yes, that -- that letter is from
18 the State Engineer's office and that letter advises that
19 the Cato Unit does not lie within a declared underground
20 water basin.

21 Q Will your proposed -- suppose they're
22 wrong -- will your proposed packer and set and your pro-
23 posed operations, will that seal off any fresh water above
24 it?

25 A If there were fresh water or water-bear-

1 ing strata lying above the San Andres --

2 Q Yes.

3 A -- yes, it would seal off, and so would,
4 actually, the top of cement calculations shown on both
5 tabulation data of wells within the area of review, and the
6 top of cement calculated for the four proposed initial
7 wells show that the cement is well above the top perfor-
8 ated interval.

9 Q Will -- what do you anticipate the total
10 to -- the preliminary number of barrels per day of water
11 you're going to be injecting in those four wells?

12 A We plan -- we plan to inject about 1400
13 barrels of water per day into the four injection wells.

14 Q As the pilot flood is expanded, if it
15 is, what will be the total amount of water per day that
16 you're going to inject?

17 A We estimate about 45,000 barrels of
18 water per day maximum, and that being contingent upon water
19 availability.

20 Q At what pressures are you going to put
21 -- inject the water?

22 A Initially at approximately 300 psi.

23 Q Do you think the proposed injection
24 wells you've got here will give you a start on a good, ef-
25 ficient sweep of the recoverable hydrocarbons?

1 A Yes.

2 Q And I understand you're requesting a
3 project allowable, under Rule 701, so that the allowable
4 assigned to the wells will be equal to the ability of the
5 wells to produce, is that correct?

6 A That is correct.

7 Q Do you have a water analysis at this
8 time of the water to be injected?

9 A No, we do not. We are currently looking
10 into the two -- two water sources that are in the closest
11 proximity to the Cato Unit and we have, you know, started
12 preliminary negotiations for that make-up water source.

13 Q You may also inject, may you not, pro-
14 duced water?

15 A Yeah, in fact, the 1400 barrels of water
16 per day that we plan to inject into the four initial injec-
17 tion wells can be sufficiently obtained from produced water
18 within the north part of the field.

19 Q Now, before you start injection of that
20 produced water, or any other water you buy, will you give
21 the OCD a water analysis before -- for its consideration?

22 A Yes, most definitely.

23 Q Now, on the waterflood, do you under-
24 stand that this is a project allowable and you must come
25 back and get approval for further injection wells either

1 administratively or after a hearing? Do you understand
2 that?

3 A We -- we -- yes, we do understand the
4 administrative approval.

5 Q And before you try to expand, you're
6 going to have to again notify the surface owner under that
7 well and the working interest owners within a half mile.
8 Do you understand that?

9 A Yes, we do.

10 Q In your opinion will the granting of
11 this application be in the interest of conservation and the
12 prevention of waste?

13 A Yes.

14 Q I believe you testified Exhibit Three
15 was prepared by you or under your direct supervision?

16 A Yes, it was.

17 Q And you also prepared Exhibit Five your-
18 self?

19 A Yes.

20 Q Do you have the original return receipts
21 if the OCD wants them?

22 A Yes, I do.

23 Q Is there anything further you feel I
24 should have asked you that I didn't ask you in connection
25 with this hearing?

1 A No.

2 MR. CHRISTY: Offer in evi-
3 dence Applicant's Exhibits One through Five-A, inclusive.

4 MR. CATANACH: Exhibits One
5 through Five-A will be admitted as evidence in this case.

6 MR. CHRISTY: That's all from
7 this witness, Mr. Examiner.

8

9

CROSS EXAMINATION

10 BY MR. CATANACH:

11 Q Mr. Degenhart, is it?

12 A Correct.

13 Q That's a very small number of injection
14 wells for such a large area. What are your plans as far as
15 expanding upon that?

16 A That -- the initial injection pattern, a
17 skewed inverted 5-spot, will -- you might notice on the at-
18 tachments to C-108, the plat showing wells and leases with-
19 in the -- within two miles of the proposed injection wells,
20 in Section 10 of Township 8 we have one 40-acre undeveloped
21 in the Queen lease. That would be the northwest quarter of
22 the northwest quarter. That will, once initial injection
23 has begun and things have progressed, we'll be able to --
24 be able to obtain fresh in situ samples from -- from that
25 location, and also this skewed inverted 5-spot allows the

1 best adaptability to other injection patterns before the
2 extrapolation to the full field.

3 Q Again, though, I ask you, what -- what
4 is the time frame of this thing? How many, ultimately how
5 many injection wells do you plan on having in this field?

6 A Ultimately, with a successful, full
7 field flood, it's estimated being near 70 wells. Plat,
8 which would be -- a plat of a successful full field is
9 shown in the engineering and geological report. The exact
10 plat number, I'm not exactly sure.

11 Q How long will it take you to evaluate
12 this initial pattern and initial pilot?

13 A The -- the analysis will start the day
14 water starts, you know, we start to inject water into those
15 four wells, and that will continue until we reach fill up
16 and thereafter. Estimated timeframe would be approxi-
17 mately nine months before sufficient data can be available.

18 Q Okay. As I understand it, you've got 95
19 percent of the working interest owners voluntarily commit-
20 ted?

21 A That's correct.

22 Q And 79 percent of the royalty interest
23 owners.

24 A That is correct, also.

25 MR. STOVALL: Mr. Examiner,

1 may I make sure that we understand this correctly?

2 MR. CATANACH: Sure.

3 MR. STOVALL: Are we talking
4 about numbers of people or percent of interest in --
5 measured in terms of production and cost?

6 A Okay, let me clarify that. For the
7 working interest owners we have received, numberwise, 4
8 of 36 identified working interest owners. Those 4 repre-
9 sent 95 percent of the available interest in the unit.

10 And on the royalty side we've received
11 57 executed ratifications of the 136 royalty owners identi-
12 fied, and that represents 79 percent of the unit interest
13 attributed to the non-cost-bearing owners.

14 Does that clarify?

15 MR. STOVALL: Yes. Your
16 attorney testified -- stated that there were some title --
17 there was some title work to be done yet in the unit area,
18 is that correct?

19 A That is correct.

20 MR. STOVALL: Do you -- that
21 -- does that mean, then, that you have not yet accurately
22 identified all the owners to your satisfaction?

23 A We, I guess -- trying to hit a moving
24 target can be difficult, and I've spoken to the other
25 working interest owners and in the -- since the exhibits

1 were created things have changed and new record title
2 owners and things, and there will be a point in time when
3 we'll have an effective date and we'll bring things up to
4 date once we do decide on an effective date, but for the
5 most part I can say I'm very confident that the current
6 Division orders and the title opinions and information that
7 we have available to us, that we've identified the great
8 majority of all of the working interest owners and the
9 royalty owners in the unit.

10 MR. STOVALL: Do you have an
11 opinion as to whether or not these changes that have oc-
12 curred will affect those percentages? Specifically, will
13 they -- any probability they will bring those percentages
14 below the 75 percent threshold requirement for approval?

15 A No, they will not materially change. In
16 fact, I've mentioned verbal -- verbals from royalty owners
17 saying that they will send in their executed ratifications
18 here shortly, and that will only increase the participation
19 from both the royalty and the working interest owners in
20 the unit.

21 So what I can say is the numbers that I
22 stated as of today, the 95 percent for the working interest
23 owners and the 79.21 percent of the royalty owners, will
24 only increase.

25 MR. CHRISTY: Mr. Examiner,

1 Kelt has no objection if the order wants to provide the
2 75/75 required under the Statutory Unitization Act. We've
3 got it and it won't change, in answer to the gentleman's
4 question. The title problems mainly have to do with over-
5 rides, a 40-acre tract here and 160-acre tract there, and
6 it won't change those percentages enough to make any dif-
7 ference to us. We perfectly agree on the 75/75 required
8 under the Act; no objection to that at all.

9 MR. STOVALL: I have no prob-
10 lem with that. He has testified to that and (not clear)
11 75/75 requirement. The only thing I would suggest is that
12 the unit operating agreement and unit agreement contain
13 specific exhibits which identify the percent and that will
14 change, but there will have to be some -- we'll have to
15 discuss it after we finish with the witness --

16 MR. CHRISTY: Right.

17 MR. STOVALL: -- procedurally
18 how you wish to handle, handle approval of the unit oper-
19 ating agreement and unit agreement.

20 MR. CHRISTY: Right.

21 Q (Mr. Catanach continuing) Does the unit
22 agreement have any type of penalty for non-committing --
23 for non-joinder?

24 MR. CHRISTY: Well, for forced
25 pooling, it is charged under statutory unitization.

1 Q So it does have a penalty.

2 MR. CHRISTY: Well, I'm not
3 sure what the Examiner means by a penalty.

4 MR. STOVALL: Well, I think, I
5 think what he's referring to, and it was a question I was
6 interested in, as well, is that even in a forced pooling
7 you can have nonconsent interest that --

8 MR. CHRISTY: Oh, you're
9 talking about --

10 MR. STOVALL: -- is unwilling
11 to pay their share of costs in the --

12 MR. CHRISTY: Yes --

13 MR. STOVALL: -- manner spec-
14 ified --

15 MR. CHRISTY: -- yes, yeah.

16 MR. STOVALL: -- and therefore
17 the working interest owners retain that interest for a
18 period of time.

19 MR. CHRISTY: It's in the unit
20 operating agreement.

21 MR. STOVALL: Can you tell me
22 where? I looked through it and did not -- was unable to
23 find that -- the provision.

24 MR. CHRISTY: It's supposed to
25 be in there someplace.

1 A It will be in there and it will show 200
2 percent.

3 MR. STOVALL: Yeah, 200 per-
4 cent nonconsent?

5 A Yes.

6 MR. CHRISTY: Operation by
7 less than all parties, isn't it?

8 MR. STOVALL: Usually is for
9 nonconsent, and I didn't -- I didn't see anything of that
10 nature in there as I thumbed through it, and I didn't read
11 it thoroughly.

12 MR. CHRISTY: We'll try and
13 get it for you. I can't at this time but -- but I'm almost
14 positive it's got a 200 percent clause in it some place.

15 MR. STOVALL: I believe the
16 witness has testified to that and that is in the record.
17 We would like to make sure, to go through this and --

18 MR. CHRISTY: Sure, let me
19 write you on it.

20 MR. STOVALL: All right, okay.

21 MR. CATANACH: Theoretically,
22 if the Division entered an order statutorily unitizing this
23 area and subsequently you found some working interest
24 owners that were not contacted, would you -- would they be
25 given the opportunity to voluntarily join?

1 MR. CHRISTY: Yes. If we made
2 a mistake, we'll -- we think we've got them all. 99 per-
3 cent of this stuff really is State -- acreagewise, is State
4 and Federal, and we've checked both of those. I checked
5 them as of June something, and the Commissioner's office,
6 checked it as of day before yesterday.

7 MR. STOVALL: One more ques-
8 tion with respect to your waterflood project area.

9 A Uh-huh.

10 MR. STOVALL: Is it your ap-
11 plication for that project area to be the same as the unit
12 area? Are you familiar with the difference between the
13 terms?

14 A The 15,321 acres is the proposed unit
15 area.

16 MR. STOVALL: Correct. And do
17 you have -- is the -- is the -- under our rules regarding
18 waterflood projects --

19 A Uh-huh.

20 MR. STOVALL: -- you define a
21 project area. Is that project area the same as the unit
22 area?

23 A Yes, it is.

24 Q (Mr. Catanach continuing) Is it your
25 opinion that the undrilled tracts within the unit area will

1 be -- will have producing wells drilled on them before they
2 are actually -- before there are injection wells placed on
3 them?

4 Will you try and develop the primary
5 reserves on the undrilled tracts prior to injecting in an
6 area like that?

7 A I couldn't say specifically on a per
8 tract -- I'd have to wait -- we'd have to wait and see
9 until the flood advances to the full field status.

10 MR. STOVALL: Mr. Christy,
11 this is a problem we've identified in -- in the rules, and
12 I direct your attention, so you understand where we're
13 going, to Rule 701-F-2. If you'd care to take a minute and
14 look at that you'll see what -- or if you wish to do it
15 later, we can. It's on the top of the righthand page
16 there.

17 MR. CHRISTY: Oh, I see. Well
18 I, I really think the witness didn't understand --

19 MR. STOVALL: Well, I would
20 like you to --

21 MR. CHRISTY: The project area
22 is what's shown in C-108. We will be expanding the pro-
23 ject area administratively, if we can, to become the pilot.

24 MR. STOVALL: You may -- we
25 may have to go back and ask the witness to look at the pro-

1 ject -- let me look at it and make sure I understand what
2 --

3 MR. CHRISTY: I think the
4 witness just didn't understand.

5 May I ask the witness one
6 other question?

7 MR. CATANACH: Yes, sir.

8

9

REDIRECT EXAMINATION

10 BY MR. CHRISTY:

11 Q Under your C-108 will the project area
12 of the waterflood be composed of the proration units owned
13 or operator -- owned or operated by Kelt upon which in-
14 jection wells are located plus all production units owned
15 or operated by Kelt and the other working interest owners
16 in the unit, is that correct?

17 A This project area, which is also known
18 as, on the C-108 is referred to as the area of review.

19 Q Right.

20 A Yes.

21 MR. CHRISTY: Have we got it
22 yet?

23 MR. STOVALL: Let's go off the
24 record for a minute and --

25

1 (Thereupon a discussion was had off the record.)

2
3 MR. STOVALL: Back on the
4 record. Do you wish to pursue this or would you like me
5 to, to pursue this line of examination?
6

7 REDIRECT EXAMINATION CONTINUED

8 BY MR. CHRISTY:

9 Q Mr. Degenhart, do you agree that the
10 project area for the initial pilot flood will be the 40-
11 acre tracts on which the four injection wells are located
12 plus any offset 40-acre tract, either directly or diagon-
13 ally, upon which there is a producing well?

14 Do you agree to that?

15 A Yes.

16 MR. CHRISTY: That's all I
17 have.

18 I have no more witnesses. We
19 rest.

20 MR. CATANACH: There being
21 nothing further in Case 9738 and 9739, these two cases will
22 be taken under advisement.

23
24 (Hearing concluded.)
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C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) 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 CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9788 8739 heard by me on August 23, 1989.

David R. Caban, Examiner
Oil Conservation Division