STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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

APPLICATION OF MACK ENERGY CORPORATION FOR CONTRACTION OF THE EAST EMPIRE-YESO POOL AND EXTENSION OF THE HORIZONTAL BOUNDARIES AND THE VERTICAL LIMITS OF A PORTION OF THE GRAYBURG-JACKSON (SEVEN RIVERS-QUEEN-GRAYBURG-SAN ANDRES) POOL, EDDY COUNTY, NEW MEXICO

APPLICATION OF MACK ENERGY CORPORATION FOR AN AMENDMENT TO ORDER NO. R-3127-A EXTENDING THE VERTICAL LIMITS OF THE GRAYBURG-JACKSON WEST COOPERATIVE UNIT AND FOR THE EXPANSION OF INJECTION OPERATIONS, EDDY COUNTY, NEW MEXICO

and 13,609

) CASE NOS. 13,608

(Consolidated)

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID K. BROOKS, Jr., Hearing Examiner

April 13th, 2006

Santa Fe, New Mexico

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These matters came on for hearing before the New Mexico Oil Conservation Division, DAVID K. BROOKS, Jr., Hearing Examiner, on Thursday, April 13th, 2006, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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APPEARANCES

FOR THE APPLICANT:

MILLER, STRATVERT P.A. 150 Washington Suite 300 Santa Fe, New Mexico 87501 By: J. SCOTT HALL

* * *

ALSO PRESENT:

WILLIAM V. JONES, JR. Hearing Examiner New Mexico Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, NM 87505

WHEREUPON, the following proceedings were had at 9:25 a.m.:

EXAMINER BROOKS: Okay, call Case Number 13,608, Application of Mack Energy Corporation for contraction of the East Empire-Yeso Pool and extension of the horizontal boundaries and the vertical limits of a portion of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool, Eddy County, New Mexico.

Call for appearances.

MR. HALL: Mr. Examiner, Scott Hall, Miller Stratvert, PA, Santa Fe, on behalf of the Applicant, Mack Energy Corporation. I have two witnesses this morning.

And we would also request that you call Case Number 13,609 and that the cases be consolidated for purposes of hearing.

EXAMINER BROOKS: Okay, at this time call Case
Number 13,609, Application of Mack Energy Corporation for
an amendment to Order Number R-3127-A extending the
vertical limits of the Grayburg-Jackson West Cooperative
Unit and for expansion of injection operations, Eddy
County, New Mexico.

Call for appearances.

MR. HALL: Mr. Examiner, again, Scott Hall,
Miller Stratvert, PA, Santa Fe, on behalf of the Applicant,
Mack Energy Corporation, and the same two witnesses this

morning.

EXAMINER BROOKS: No one else being here, I assume there's no objection to consolidation of these two cases as requested, so at this time Cases Numbers 13,608 and 13,609 will be consolidated for purposes of hearing.

Witnesses stand to be sworn.

(Thereupon, the witnesses were sworn.)

MR. HALL: Mr. Examiner, just by way of brief introductory explanation, I think the best way to get your hands around these two cases is by taking the two Applications side by side and comparing them.

And you'll see that in the second case, Case
Number 13,609, Mack Energy is asking for approval of the
vertical extension of the unitized formation of a preapproved unit. Contained within the unit, the GrayburgJackson West Cooperative Unit, are two pools, the East
Empire-Yeso Pool and the Grayburg-Jackson (Seven RiversQueen-Grayburg-San Andres) Pool.

In order to accomplish the expanded vertical extension of the unitized formation, it would require the contraction of a portion of the East Empire-Yeso Pool and the concomitant expansion of the Grayburg-Jackson Pool. So we thought it would be best to present these to you in consolidated fashion.

EXAMINER BROOKS: Okay.

1 MR. HALL: With that, we'll call our first 2 witness, Mr. Ron Lanning. 3 RONALD W. LANNING, the witness herein, after having been first duly sworn upon 4 his oath, was examined and testified as follows: 5 DIRECT EXAMINATION 6 7 BY MR. HALL: For the record, please state your name, sir. 8 Q. Ronald W. Lanning, Artesia, New Mexico. 9 Α. And by whom are you employed and in what 10 Q. capacity, Mr. Lanning? 11 I'm the land manager for Mack Energy Corporation. 12 Α. Have you previously testified before the Division 13 Q. 14 or one of its Examiners and had your credentials 15 established as a matter of record? Yes, I have. 16 Α. Are you familiar with the two Applications in 17 0. this case and the lands that are affected by the 18 Applications? 19 20 Α. I am. 21 MR. HALL: Mr. Examiner, we'd offer Mr. Lanning 22 as an expert petroleum landman. 23 EXAMINER BROOKS: He is so accepted. 24 Q. (By Mr. Hall) If you would, please, Mr. Lanning, 25 explain to the Hearing Examiner what Mack Energy is asking

by way of the two Applications.

A. Mack Energy is the current operator of the Grayburg-Jackson West Cooperative Unit, the agreement for which was originally approved by the Commission in 1966. The original unit agreement defines the unitized formation as that portion of the Grayburg-San Andres formation between the depths of 2200 feet and 3600 feet underlying the unit area. Both primary and secondary recovery waterflood operations are being conducted in the unitized interval, and we propose to extend the vertical limits of the unitized interval to include those depths from the top of the Seven Rivers to the base of the Glorieta-Yeso-Paddock formation and to expand primary and secondary recovery operations into that vertical extent.

And in Case Number 13,609 we're asking the Division to extend the horizontal boundaries and the vertical limits of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool throughout the unitized interval and in conjunction with that to contract the East Empire-Yeso Pool from within the unit area so a single consolidated common source of supply is established throughout the horizontal and vertical extents of the unit area.

Q. Mr. Lanning, have you prepared certain exhibits in conjunction with your testimony today?

A. I have.

- Q. Turn to Exhibit 1, please, sir, and identify that for the Hearing Examiner.
- A. Exhibit 1 is a plat that shows the current boundary of the unit outlined in green, the boundaries of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool outlined in blue, and the East Empire-Yeso Pool outlined in orange.
- Q. Now, Mack Energy is currently the operator of the unit?
 - A. Yes.
 - Q. Would you explain who Concho Oil and Gas is?
- A. Effective January 1st, a company named Concho Resources, Inc., was formed. Mack Energy and its affiliates contributed a portion of their assets to that company, and then COG Oil and Gas, LP, contributed all of its assets to that new company. And this unit is a part of the assets that were contributed to the new company, and Mack Energy and its affiliates are majority shareholders in that company. The operator of record with the OCD is currently being changed to COG Operating, LLC, and Mack Energy Corporation will continue to physically operate all the New Mexico properties under a contract operating agreement with COG Operating, LLC.
 - Q. All right, you're authorized to speak on behalf

of both Concho and Mack Energy today; is that correct? 1 I am. 2 Α. All right, let's identify Exhibit 2, please, sir. 3 0. Exhibit 2 is a copy of the unit agreement. 4 might state that there is no unit operating agreement 5 because the working interest has always been 100 percent 6 held by a single party. 7 All right. And was this unit agreement the 8 subject of an amendment to bring in additional acreage? 9 Α. It was, there was an amendment shortly after 1966 10 where the additional lands were brought in, and the unit 11 now covers a total of 2400 acres. 12 MR. HALL: All right. Mr. Examiner, we have the 13 second amendment available to you if you wish. We didn't 14 deem it necessary for purposes of the hearing. 15 Exhibit 4 which is in their EXAMINER BROOKS: 16 package is labeled "second amendment". 17 MR. HALL: I'm sorry, first amendment --18 Oh, okay. 19 EXAMINER BROOKS: 20 MR. HALL: -- I misspoke. 21 EXAMINER BROOKS: Okay. You may continue. 22 Q. (By Mr. Hall) When did Mack Energy Corporation 23 actually assume operations over the unit? 24 Α. 1992. 25 Q. Okay, and explain briefly the nature of

operations on the unit.

A. I think we de

- A. I think we decided Matt was going to cover that, didn't we?
- Q. Okay. Do unit operations consist of primary and secondary --
 - A. Yes, they do.
 - Q. -- recovery operations?
- A. Yes, they do.
 - Q. All right. Let's look at Exhibit 3, please, sir.
 - A. Exhibit 3 is very similar to an Exhibit B to most unit agreements. It's simply a list by tract. There are 10 tracts in the unit. You'll notice that Tract 1 is a fee tract, and the balance of the tracts are all state. And the original lessee, the date of the lease and the lands covered by each lease are listed. And then the current lessee, which is COG Oil and Gas, LP, is listed with 100-percent working interest in each tract, and there's also not any overrides --
 - Q. And do you have one 40-acre fee parcel dedicated to the unit?
 - A. Yes, and we have a ratification from Midwest Investment Company. Our approval from the State is pending, and it will be furnished when it's available.
 - Q. Okay. Now is the working interest and mineral interest ownership in the currently defined unitized

formation, and then the proposed expanded vertical interval 1 of the unitized formation, as amended, the same? 2 3 Α. Yes, it is. Okay. And do Concho and Mack speak for and 4 0. 5 otherwise control 100 percent of the working interest in 6 the expanded unit? They do. 7 Α. Let's refer back to Exhibit 2, the unit 8 0. agreement, briefly. And if you would turn to the third 9 page, which is actually the first page of the unit 10 agreement itself, does that identify the current unitized 11 formation? 12 Α. Yes, it does. 13 And what is that? 0. 14 "...that portion of the Grayburg-San Andres 15 formation underlying the lands described in Exhibit "A" 16 17 which is encountered between the depths of 2200 feet and 18 3600 feet". 19 All right, let's turn now to Exhibit 4. Q. Exhibit 4 the second amendment to the unit agreement? 20 Yes, it is. 21 Α. And if you'll look at the italicized language on 22 Q. 23 the first page of the second amendment, is that the new 24 definition of the unitized formation?

25

Α.

Yes, it is.

And does that comport with the Application and 1 Q. the advertisement in this case? 2 3 Α. Yes, it does. 4 Okay. Just explain briefly your efforts to obtain working interest owner and mineral interest owner 5 consent to the amendment and the ratification by the one --6 Well, the --7 Α. -- the interest owner. 8 -- the amendment is signed by the working 9 A. interest owners that were effective December the 1st, which 10 is all affiliates of Mack Energy Corporation. And then 11 also attached is a ratification by Mossman-Midwest Company, 12 which is the only fee royalty interest in the unit. 13 then attached -- the last attachment is a ratification by 14 COG Oil and Gas, LP, which is the new working interest 15 owner effective January 1st. 16 17 Q. So you have --EXAMINER BROOKS: Which exhibit are we looking 18 19 at? 20 THE WITNESS: Four. 21 EXAMINER BROOKS: Four, okay. (By Mr. Hall) So you have consents, approvals 22 Q. 23 and ratifications from 100 percent of the owners except the 24 State Land Office at this point; is that correct?

25

A.

That's correct.

1 Q. And have you been in discussions with the State 2 Land Office to obtain their approval? 3 Α. Yes. 4 0. And do you expect to obtain that --5 Shortly. Α. -- in the short term? 6 Q. 7 MR. HALL: Mr. Examiner, we do not have a preliminary approval exhibit for you yet, but we will 8 9 provide that one and ask that the record be supplemented to 10 include that just as soon as we receive that. EXAMINER BROOKS: Okay. 11 (By Mr. Hall) Mr. Lanning, will any other 12 Q. 13 amendment, other than the amendment shown on Exhibit 4, be necessary? 14 15 A. No. 16 Q. Now to your knowledge, Mr. Lanning, are other 17 operators in the area currently operating those vertical 18 intervals from the top of the Seven Rivers to the base of 19 the Glorieta-Yeso-Paddock formation as a single common 20 source of supply? 21 Α. Yes, they are. 22 0. And where are those? 23 Marbob Energy Corporation operates the Dodd 24 Federal Unit and the Burch Keely Unit, which are north and

easterly offsets to the G-J West Co-op Unit. And if you'll

look at the second page of Exhibit 1, you'll see that the Dodd Federal Unit was approved under R-12,256 and the Burch Keely Unit was approved under Order Number R-10,067, and the subject intervals are precisely the same as what we're asking for.

Q. And so the applications and approvals for the

- Q. And so the applications and approvals for the Dodd Federal Unit and the Burch Keely Unit are consistent with what Mack Energy is asking the Division to approve here as well?
 - A. It is, it's exactly the same.
 - Q. Okay. And what is Exhibit 5?
- A. Exhibit 5 is a compilation of the various orders issued by the Commission and/or the Division with respect to the unit and the two pools that are affected by our Applications.
- Q. Could you just briefly run through those for the Hearing Examiner? What do each of those orders do?
- A. Okay, Order Number R-3127, dated October 4th, 1966, is the original approval of the unit agreement.

Order Number R-3127-A, dated March 4th, 1968, is the approval of the first amendment to the unit agreement to include an additional 300 acres of land.

Order Number R-3069, dated June 1st, 1966, is where approval was given for waterflood operations in Section 28.

Order Number R-10,067, dated February 22nd, 1994, extended the vertical limits of the Grayburg-Jackson Pool to include the Glorieta-Yeso-Paddock formation.

Order Number R-10,067-A, dated March 1st, 1994, deleted the Paddock formation from R-10,067.

Order Number R-12,228, dated December 1st, 2004, was the order approving unitization of Marbob's Dodd

Federal Unit area and authorizing the conduct of secondary recovery operations in the Grayburg-Jackson and East Empire-Yeso Pools.

And then Order Number R-12,256, dated January 3rd, 2005, authorized the contraction of the East Empire-Yeso Pool and simultaneous extension of the horizontal boundaries and vertical limits of the Grayburg-Jackson Pools for the Dodd Federal Unit Area.

And then Order Number R-12,255, dated January 3rd, 2005, authorized waterflood operations for the Dodd Federal Unit, including the Yeso-Paddock formations.

- Q. And so Mack Energy is simply asking the Division to follow the precedent established in those orders; is that right?
 - A. That's correct.
- Q. In your opinion, Mr. Lanning, will the Division's approval of both the Mack Energy Applications facilitate coordinated primary and recovery operations throughout the

1	unit area as expanded both vertically and horizontally?
2	A. Yes.
3	MR. HALL: If you would, Mr. Examiner, Exhibits 6
4	and 7 are my notice affidavits given to the interest owners
5	in each of the two cases, a determining consultation with
6	Examiner Catanach that notice would go to each of the
7	interest owners in the unit. So that includes all of the
8	parties to the unit agreement, as well as the State Land
9	Office.
10	Q. (By Mr. Hall) Mr. Lanning, were Exhibits 1
11	through 5 prepared by you or at your direction?
12	A. Yes.
13	MR. HALL: That concludes our direct of this
14	witness, Mr. Examiner.
15	We'd move the admission of Exhibits 1 through 7.
16	EXAMINER BROOKS: Okay, 6 and 7 are both
17	affidavits. One through 7 are admitted.
18	MR. HALL: That concludes our direct of this
19	witness.
20	EXAMINER BROOKS: Okay. Well, I'm going to have
21	to look at these things before I will have any input. So
22	Mr. Jones, do you have any questions? Go ahead.
23	EXAMINATION
24	BY MR. JONES:
25	Q. Mr. Lanning, so you're asking for vertical

extension of the pools over the entire horizontal 1 2 boundaries of the pool? Yes -- No, only within the --3 Α. Only within the unit? 4 Q. 5 Α. Only within the unit. MR. JONES: Okay. So I guess is the first time I 6 7 am aware that pools were -- actually had varying vertical 8 extents, depending on some horizontal boundaries. thought those were consistently -- but -- Okay. 9 Well, as far as the notice goes, you noticed 10 everybody in the offset two units, the interest owners? 11 MR. HALL: We did not. I -- We filed this 12 Application in November, and I had trouble recalling why we 13 noticed people, why we did. So I looked through my notes, 14 and there were some notes where I had a conversation with 15 Mr. Catanach about that and whether that would be necessary 16 17 to notify the offset operators, and we determined that it 18 would be sufficient to notify just the interest owners in 19 the unit, as well as the mineral interest owner. 20 MR. JONES: Oh, in the unit. We're talking about 21 the G- --22 The unit area, correct. MR. HALL: 23 MR. JONES: -- -J West Co-op Unit? 24 MR. HALL: Yes. 25 MR. JONES: As far as the pool itself, this is

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1
     affecting both pools, correct?
2
               MR. HALL:
                         Yes --
3
               MR. JONES:
                           So -- but --
               MR. HALL: -- portions of --
4
               MR. JONES: -- portions of --
5
                         -- the pools.
6
               MR. HALL:
               MR. JONES: -- both pools.
7
                          And it is making them consistent
8
               MR. HALL:
     vertically with the pool changes to the east.
9
               MR. JONES:
                           Okay.
10
               MR. HALL: And if you go through that compilation
11
     of orders, Exhibit 5, you can walk your way through that,
12
13
     see how that was done over time.
               MR. JONES: Okay, I definitely need to do that.
14
     But as far as the operators, the other operators within
15
     those two units that are being affected -- I mean, no, two
16
17
     pools, I'm sorry, that are being affected, those pools
18
     extend beyond any of these three units, I guess.
               THE WITNESS:
19
                          So the decision was made not to -- to
20
               MR. JONES:
     notify all operators within the two pools, there being
21
22
     changed -- because they're only being changed within the
23
     dot -- this --
24
               MR. HALL: Within the unit area, correct.
25
               MR. JONES: -- within the unit area.
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Okay, if that sounds reasonable to you, it sounds reasonable to me.

EXAMINER BROOKS: Well, I'll have to review the Rules to be sure, because I really had not looked at those Rules. And of course, as you know, you have to look at exactly what it says. If Mr. Catanach has looked at it, he probably -- he has a lot of experience with these things, and he's probably right, but I will definitely look at it again.

- Q. (By Mr. Jones) Okay. And the operator that you guys are going into here, that's confusing to me, that the operator of record is going to be COG --
 - A. -- Operating, LLC.
- Q. -- Operating, LLC. And yet Mack Energy is going to do the operating?
 - A. The physical operations, yes.
- Q. The physical operations. So our people in Artesia, they contact -- they send notices or letters, and so do we, to Mack. And yet COG Operating, Inc., LLC, is in Dallas, it's --
 - A. They're in Midland.
- Q. Midland?
- 23 | A. Yeah.

- Q. So it's just a little confusing to me that --
 - A. I know it is. And that's the reason we extended

1 so many times, is because that business transaction went on 2 for many weeks there, and we're just now having time to 3 take care of this. Okay. So is it fair to say that Mack Energy is 4 5 -- that any correspondence should be directed to Mack Energy, with the stipulation that COG -- that they are 6 7 representing COG Operating, LLC ---- I'm not sure --8 -- in all --9 0. -- Mr. Jones, how that's being handled, but I can 10 assure you that it probably wouldn't make any difference 11 whether it went to Midland or Artesia. 12 13 Q. Okay, that -- I saw the COG Operating, LLC, bond that -- for a well that I was working on, and it looked to 14 me like it was in Dallas, but --15 16 Α. No. 17 Q. So the address of record is in Midland --18 A. Yeah. 19 -- for COG? Okay. Q. And Concho Resources, Incorporated, and Mack went 20 21 together for all of this? 22 That's a simplistic way to put it, but --A. 23 Q. Okay. Okay, that's -- And then we got COG Oil 24 and Gas, LP. 25

Title to the leases is now in COG Oil and Gas,

Α.

1 LP. Okay, that's -- Mr. Brooks --MR. JONES: 2 3 **EXAMINATION** 4 BY EXAMINER BROOKS: Okay, on Exhibit 1, you said that the limits of 5 Q. the Empire-Yeso Pool were in orange, and that's pretty easy 6 7 to follow. The limits of the Grayburg-Jackson Pool are in blue, and it doesn't look to me like the blue line closes 8 anywhere. Can you outline for me -- let's see, does it go 9 10 -- It goes off to the north, does it not, off of the map? I can't... 11 A. If it's the blue-lined area. Q. 12 I think our other witness could better answer 13 Α. 14 that question than me. Okay. Okay, well, that's -- Now can you explain 15 0. to me exactly what is going on here, because this all went 16 a little fast, and I understand what you're doing is, 17 you're expanding the vertical limits of the unit, and in 18 19 order to do that you have to contract this East Empire-Yeso 20 Pool; is that correct? 21 Α. Yes, sir. 22 Because that pool is not a part of the unit, Q. right? 23 24 Α. That's correct. 25 Q. And so you will be taking the portion of the East

Empire-Yeso Pool that is in the -- within the horizontal 1 2 boundaries of the unit, will be taken out of that pool? 3 Α. Correct. Okay, that's going to leave it discontinuous. 4 5 It's going to be -- the portion over to the east and the 6 portion over to the west will be left into the pool? I would assume that's correct. 7 Okay. And then the -- now the Grayburg-Jackson 0. 8 Pool, is that pool -- What's being done to that pool? 9 Within the unitized interval, it's being expanded Α. 10 to include the Paddock formation. 11 To include the what formation? 12 0. Paddock-Yeso. 13 A. I'm sorry, I'm not hearing you, the Yeso --14 Q. The Paddock. 15 Α. Paddock, oh. Okay. So the Grayburg-Jackson is 16 Q. 17 being pooled -- is going to continue to include the unit, but it will --18 19 Α. Correct. -- be expanded to --20 Q. -- to include those deeper depths --21 Α. 22 -- include the additional vertical --Q. 23 Correct. A. 24 Q. The vertical boundaries will be expanded, the 25 horizontal boundaries will not be changed?

1	A. Correct.
2	Q. And in the case of the East Empire-Yeso Pool, the
3	reverse is true: The horizontal boundaries will be changed
4	to exclude the unit area, but the vertical boundaries of
5	that pool will not be changed?
6	A. Correct.
7	Q. Okay.
8	MR. HALL: Well, let's be clear here, see if I
9	can add to that. Under the current unitized formation, it
10	is entirely within the Grayburg-Jackson Pool now.
11	EXAMINER BROOKS: The current unitized
12	interval
13	MR. HALL: Yes
14	EXAMINER BROOKS: is entirely within the
15	MR. HALL: a hundred percent
16	EXAMINER BROOKS: Grayburg-Jackson?
17	MR. HALL: within the pool.
18	EXAMINER BROOKS: Yeah, I Okay.
19	MR. HALL: To expand it vertically puts you into
20	the East Empire-Yeso Pool.
21	EXAMINER BROOKS: That was what I was assuming at
22	this
23	MR. HALL: Yes, yes
24	EXAMINER BROOKS: So
25	MR. HALL: to do that.

1	EXAMINER BROOKS: when we get through,
2	assuming we do this, when we get through, the unit will
3	still be entirely in the Grayburg-Jackson Pool
4	MR. HALL: Correct.
5	EXAMINER BROOKS: and because the Grayburg-
6	Jackson Pool will be expanded vertically?
7	MR. HALL: Right. And to do that, you contract
8	out if you look in Section 22, 27 and 28, you contract
9	out those portions of the East Empire-Yeso Pool.
10	EXAMINER BROOKS: Right, that's what was my
11	understanding
12	MR. HALL: Okay.
13	EXAMINER BROOKS: of the witness's statement.
14	So what I said, then, again remains true: The Grayburg-
15	Jackson Pool will be expanded vertically, but its
16	horizontal within the unit only?
17	MR. HALL: Yes, that's right.
18	EXAMINER BROOKS: But its horizontal boundaries
19	will be unchanged?
20	MR. HALL: Right.
21	EXAMINER BROOKS: The East Empire-Yeso Pool will
22	be contracted out of the unit so that there's no portion of
23	the unit in that pool, and the unit becomes discontinuous,
24	but
25	MR. HALL: Not the unit.

1 EXAMINER BROOKS: I mean the pool becomes discontinuous, but it's -- the vertical boundaries of that 2 3 pool will not be changed? 4 MR. HALL: That's correct. EXAMINER BROOKS: Only the horizontal boundaries? 5 THE WITNESS: Yeah, and that's the same thing 6 that was done in the other two units. 7 EXAMINER BROOKS: 8 MR. JONES: Okay, I understand that -- Okay, I 9 think I understand this. But originally, instead of 10 changing the unit borders themselves, you wanted to work on 11 the pool boundaries and do nomenclature, right? 12 Yeah, it's a nomenclature case --13 MR. HALL: MR. JONES: Nomenclature. 14 MR. HALL: -- and the only reason we're here for 15 the unit is because there was an original unit approval, 16 and that seemed to be the precedent from the unit's cases 17 18 to the east, that you got approvals for those as well. 19 MR. JONES: Now, let's say those -- instead of --20 on those, instead of being nomenclature cases, they could 21 have actually modified their statutory unitization, right? 22 MR. HALL: And they did that. In fact, they had three cases heard simultaneously, because one was a 23 statutory unit, as I recall. And so they had three going 24 25 at once.

1	MR. JONES: Okay.
2	EXAMINER BROOKS: Now this is a voluntary unit,
3	is it not?
4	MR. HALL: Yes, it is.
5	EXAMINER BROOKS: That's what I thought. And
6	you're going to supply the ratification from the State Land
7	Office?
8	MR. HALL: Yes.
9	EXAMINER BROOKS: But you don't have that yet?
10	MR. HALL: We don't have that yet. We'll
11	supplement the record with that.
12	EXAMINER BROOKS: Okay. Nothing further for this
13	witness?
14	MR. HALL: No, sir.
15	At this time, Mr. Examiner, we would call Matt
16	Brewer.
17	EXAMINER BROOKS: Okay, he's been sworn.
18	MATT BREWER,
19	the witness herein, after having been first duly sworn upon
20	his oath, was examined and testified as follows:
21	DIRECT EXAMINATION
22	BY MR. HALL:
23	Q. For the record, state your name.
24	A. Matt James Brewer.
25	Q. Mr. Brewer, where do you live and by whom are you

employed? 1 Artesia, New Mexico, for Mack Energy Corporation 2 as a geologist and geological engineer. 3 And have you previously testified before the 4 Division and had your credentials established as a matter 5 of record? 6 7 Yes, I have. A. And you're familiar with the Application and the 8 lands that are the subject of the two Applications in this 9 10 case? Yes, I have. 11 Α. MR. HALL: At this point, Mr. Examiner, we'd 12 offer Mr. Brewer as a qualified petroleum geologist. 13 EXAMINER BROOKS: He is so qualified. 14 (By Mr. Hall) Mr. Brewer, briefly summarize 15 Q. current unit operations in the Grayburg-Jackson West Co-op 16 17 Unit. We currently have 91 pumping wells, 10 injection 18 Α. wells and 15 plugged wells in the unit. 19 If you could refer back to Exhibit 1, would you 20 Q. briefly orient the Hearing Examiner where primary and 21 secondary operations are being conducted? 22 23 Okay, primary operations are mostly in Section 16 24 on the north end of the unit --25

(Off the record)

1 MR. JONES: I'm sorry. THE WITNESS: That's okay. 2 Do you need another set? MR. HALL: 3 MR. JONES: No, no, I've got it here. 4 THE WITNESS: Exhibit 1, right there on the top. 5 EXAMINER BROOKS: May not have a copy of this 6 7 one. Go ahead. 8 THE WITNESS: Primary operations are mostly on 9 the north end of the unit in Section 16 and also on the 10 east end of the unit in Section 22. Secondary operations 11 are primarily in Section 28 and Section 21, with the 12 exception of one injection well on the north end of the 13 unit in Section 16. 14 (By Mr. Hall) All right, let's turn to Exhibit 15 Q. 8, if you would identify that, please, sir. 16 Exhibit 8 is a list of all of the injection wells 17 Α. and producing wells, along with their locations, their API 18 numbers, and I believe there's also some wells that have 19 20 been staked on this unit, in this list. 21 Now, all the injectors on Exhibit 8, do they have Q. 22 -- they have current C-108 approvals or other form of 23 approvals for operations by the Division? Yes, they all have been approved by the Oil 24 Conservation Division, either administratively or by some

They may not have been C-108 approvals. 1 other form. Let's turn to Exhibit 9, your cross-section. 2 Pull that out, please. And if you would refer to the 3 4 cross-section, could you identify the current vertical interval where unit operations are currently ongoing? 5 The current unitized interval is in green on the 6 Α. log in the middle. This log is in the unit in Section 28. 7 This is called the Diamondbacks State Number 1, the current 8 unitized interval in green from 2200 feet measured to 3600 9 feet measured depth. 10 Now by the way, Mr. Brewer, under the 11 0. current unit agreement are unitized substances allocated on 12 a surface acreage basis? 13 14 Α. Yes. Is the well log for the Diamondback State 15 Number 1 the well that is referred to in the second 16 amendment to the unit agreement? 17 A. Yes. 18 And on that one could you identify the top of the 19 Seven Rivers and the base of the Glorieta-Yeso for the 20 21 Hearing Examiner? The top of the Seven Rivers on the log in the 22 Α. 23 middle, again, which is the Diamondbacks State Number 1, is 24 approximately 1115 feet measured depth. The base of the

Yeso would be approximately 4635 measured depth on that

1 log. 2 0. So --It would also be the top of the Blinebry. 3 All right. And so the expanded unitized interval 4 is shown bracketed by the orange bar on the middle well 5 log; is that right? 6 7 Α. Yes, it is. Okay. Mr. Brewer, are there currently any other 8 9 wells producing from the proposed expanded unitized interval that will be brought into the unit? 10 No, there is not. A. 11 Okay. Are there any other temporarily abandoned 12 or plugged and abandoned wellbores within the expanded 13 unitized interval? 14 Yes, there is one Atoka well in the northeast of 15 the southwest of Section 28, which is a plugged well. 16 There's an Atoka well in the southeast of the southeast 17 quarter of Section 21, and also in the southeast of the 18 northeast of Section 21, which are both plugged. 19 All right. Now in terms of operations, will 20 Q. initial operations in the expanded unitized area be limited 21 to primary production? 22 23 Yes, initially. A. And then what are Mack's plans for expanding the 24 Q.

waterflood operations in the extended unitized interval?

We will evaluate the waterflood operations in the Α. 1 extended unitized interval after production is established. 2 And does Mack have plans to drill any new 3 Q. producing or injection wells within the unit area? 4 5 Α. Yes. And what's the source of water being utilized for 6 0. secondary recovery operations now? 7 It is produced water from unit operations. 8 Okay, and has Mack evaluated the potential 9 Q. effectiveness of the waterflood project in the expanded 10 unit area? 11 No, we have not. We will evaluate this potential 12 of waterflooding by gathering the data from primary 13 development such as logs, cores and production performance. 14 Have you had the opportunity to evaluate whether 15 the water you're currently utilizing for waterflood 16 17 operations would be compatible with the fluids in the 18 expanded vertical intervals? 19 Yes, we have. As Mr. Jones is well aware of, we 20 are currently downhole commingling to the west of this unit 21 on several of our leases where we downhole commingled the 22 Yeso and the Grayburg-Jackson Pool, and these have been 23 approved by the Division. Now, can all the water that you'll need for 24 Q.

expanded waterflood operations in the future be made

available from current unit wells? 1 No, we would have to have makeup water, and we 2 Α. have disposal wells in the area that we believe that we 3 could put on pump to make up this water, and this water has 4 also been tested and compatible. 5 How many additional wells do you anticipate will Q. 6 7 be necessary to reach full unit development? We believe that it's approximately 145 wells to 8 reach full development of this unit. We currently have 20 9 wells that we have plans to drill this year on this unit. 10 And do you anticipate that the waterflood pattern Q. 11 will be the same throughout the expanded unit? 12 Yes, our intentions are to design a 40-acre 13 A. fivespot with new and available wells. 14 And do you anticipate waterflood operations will 15 Q. be conducted in the Yeso? 16 17 Α. Yes, we anticipate that the waterflood operations will be conducted, but only in the Yeso. A lot of times 18 19 the Glorieta-Yeso is mentioned. The Glorieta is nonproductive in this area, so it would only be in the Yeso 20 21 formation. 22 Q. And are you asking the Division to authorize

expanding injection operations into the Yeso throughout the

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entire unit area?

Yes.

Α.

1	Q. Okay, and do you want to be able to do that by
2	filing C-108s
3	A. Yes.
4	Q seek approval that way?
5	A. Yes.
6	Q. Okay. And is that consistent with the precedent
7	established under Order Number R-12,255?
8	A. Yes, it is.
9	Q. Let's look back at your well log. Can you show
10	us where the picks for the tops of the Grayburg and San
11	Andres are?
12	A. Referring back to the well log on the
13	Diamondbacks State Number 1 in the middle, the top of the
14	Grayburg is approximately a measured depth of 2150, the top
15	of the San Andres is approximately a measured depth of
16	2461.
17	Q. And can you show us the tops of the Glorieta and
18	the Yeso?
19	A. The top of the Glorieta would be at a measured
20	depth of 3969, approximately. And the top of the Yeso,
21	which is not currently identified on this cross-section,
22	would be 4040, which is the base of the Glorieta. The
23	Glorieta is a sand package.
24	Q. All right, let's turn to Exhibit 10, your

structure map. Is that a structure map of the top of the

Glorieta?

A. Yes, Exhibit 10 is a structure map on top of the Glorieta. Exhibit 10 also shows the structural cross-section A-A', which is this structural cross-section, A being the well in Section 29, which is the White Star Federal Number 19. The log in the middle is the Diamondbacks State 21 in Section 28. And A' is a Marbob well, the Barnsdall Federal well, on the right-hand side of this cross-section.

As you can see, the structure on top of the Glorieta, if you look across the south half of Section 19, kind of the middle of Section 20, you'll see a nose coming down through those portions of those sections. That nose should -- This nose is very important to the production of the Yeso formation and also the Grayburg-Jackson formations, as I will explain shortly.

- Q. Now, if we keep Exhibit 10 in front of us, let's turn to Exhibits 11 through 14, your production curves, if you would explain those to the Hearing Examiner, what they show.
- A. Exhibits 11 through 14 are production curves.

 The first one, Exhibit Number 11 is the Mesquite State

 Number 10. This well is located in the northwest quarter

 of the northwest quarter of Section 20, and as you can see,

 this well is north of the nose of this structure. And if

you look at the production, the cum oil production on this well is 18,000 barrels at the bottom left of this chart, this being significant that the wells on the north side of this structure do not produce as much oil and gas as the wells on the south side of the structure.

If you'll look at the next exhibit, Exhibit

Number 12, this is the White Star Federal 19, which is the well at the structural cross-section A-A'. It's A in

Section 29. This well has cum'd approximately 55,000 barrels of oil. This well is on the south side of this structure, structural nose. And as you can see, this well has made a lot more oil than the well on the north side of the structure. And that tends to be true throughout this whole area.

Exhibit Number 13 is a Grayburg-Jackson producer on the unit. This well is located in the south half of Section 16. It's in the southwest quarter of the southeast quarter. This well would also be on the north side of this structure, and as you can see, this well has cum'd 37,000 barrels of oil over its lifetime.

If you look at the next exhibit, Exhibit Number 14, this is a well, the GJ Number 101. This well is located in the south half of Section 21, right underneath the section number. And as you can see, this well would fall just on the south side of this structural nose. This

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well has cum'd 75,000 barrels of oil.

The -- You can continue.

- Q. Mr. Brewer, have you made estimates of the ultimate recovery of additional incremental reserves that are likely to result from expanded unit operations?
- A. Yes, I have. Approximately 10 million BOEs on primaries and a conservative 5 million BOEs of reserves from waterflooding, assuming a .5 primary-to-secondary ratio, which is a conservative number of carbonate reservoirs in the Permian Basin.
- Q. And what is the projected ultimate recovery out of the unit wells, if expanded unit operations are not approved?
 - A. Approximately 2 million BOEs.
- Q. Okay. What's been the experience for production from these formations in the adjoining units?
- A. The ultimate recovery of the offsetting wells to the west, which are the adjoining leases, are in the range of 40 to 150,000 barrels, depending on where you are on the structure. As I've -- as we have looked at in the previous exhibits, if you're north of this structure they produce less, if you're on the south side of the structure they produce a lot more.
- Q. In your opinion, Mr. Brewer, should all of the formations contained within the expanded unitized interval

-- are they best managed as a single common source of supply?

A. Yes.

- Q. Okay. Is the potential for production from the Glorieta and Yeso formations within the unit area significant enough to justify drilling stand-alone wells in those formations?
- A. Right, it depends again on where you are on the structure. If you're in the north half -- If you look at the Exhibit Number 10, if you're in the north half of Section 28 and the south half of Section 21 and the south half portions of Section 22, then yes, you could probably drill those wells stand-alone.

If you're anywhere else on the unit, if you're in the north half of 21, north half of 22 and north of there in 16, and also on the south half of 28, due to the Yeso formations getting wet as you go downdip Basinward, that formation does get wet in that area on the adjoining leases, so on those portions of the unit, probably not. You would need to commingle to make these wells economic.

- Q. Okay. Now, what effect will expanding operations to these additional formations have on overall unit economics?
- A. We will be able to produce these reserves from the Yeso and the Grayburg-Jackson pools from each well,

instead of having to drill two wells, and be able to produce these wells into an already existing facility.

Otherwise, we would have to build 10 -- There are 10 leases within this unit. We would have to build 10 tank batteries plus all of the products lines, saltwater disposal pipelines, and that cost is in excess of \$2 million to do that.

- Q. All right. Now, will consolidating the various formations into a single common source of supply simplify your reporting to the Division?
 - A. Yes, it would.
- Q. In your opinion, Mr. Brewer, would approval of both Applications be in the best interest of conservation and otherwise serve to prevent waste?
 - A. Yes.

- Q. And in your opinion will implementation of unit operations in the expanded unitized formation, the Grayburg-Jackson Pool and the Glorieta-Yeso formations, result with reasonable probability in the increased recovery of substantially more oil and gas from the unitized area than would otherwise be recovered?
 - A. Yes, it would.
- Q. And in your opinion will expansion of the unitized formation and unit operations to include additional depths benefit the working interest owners and

the royalty owners in the unit area? 1 Α. Yes. 2 And in your opinion will expansion and amendment 3 of the vertical limits of the pools promote the efficient 4 and orderly development of additional hydrocarbon 5 resources? 6 Yes, it would. 7 Α. And in your opinion would the impairment of 8 Q. 9 correlative rights result anywhere? No, it will not. 10 Α. All right. Now, were Exhibits 8 through 14 11 Q. prepared by you or at your direction? 12 13 Α. Yes, they were. MR. HALL: That concludes our direct of this 14 witness, Mr. Examiner. We'd move the admission of Exhibits 15 8 through 14 at this time. 16 17 EXAMINER BROOKS: Okay, 8 through 14 will be admitted. 18 There was substantial testimony about the 19 20 expansion of the waterflood operations. Now, as I 21 understand what was said, though, the order that you're contemplating now be issued in this proceeding would not 22 23 authorize those expanded operations, but they will be subsequently the subject of administrative application by 24

C-108; is that what you're --

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Yes, that's in accordance with the MR. HALL: 1 precedent from the adjoining unit cases. And what they're 2 3 doing in those cases, they have authorized on a blanket 4 basis the expansion but subject to individual C-108 approvals for each well. 5 EXAMINER BROOKS: Okay. Mr. Jones? 6 **EXAMINATION** 7 BY MR. JONES: 8 That was actually the question that I was going 9 Q. to immediately ask. I guess -- you know, expanding this 10 area substantially and having a real shallow top depth, 11 that limits your allowable pressure that the Division would 12 allow on your injection well, so -- and that might impair 13 14 some of your injection into the lower zones. Is that a 15 concern of yours? 16 I don't believe that you can flood all of that at one time. 17 Q. 18 Okay. 19 So we would be flooding the Yeso, and then the 20 Grayburg-Jackson, and then the shallower zones. believe you can flood all of that at one time. 21 22 Q. Is that what the other offset operator have done --23 24 Α. Yes.

-- Marbob?

Q.

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Yes. Α. 1 Okay, that was the answer I was looking for. 2 Q. 3 4 5

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- Ι don't have one. So are you looking at more of a pressure maintenance project here, or an actual waterflood?
 - No, this is an actual waterflood. Α.
- Okay. So what would be your -- like your typical 0. injection ratio, or something? Would you -- are you -- you actually were going to bring in the additional water?
- Right, yes, we would have to bring in additional Α. water to -- because these wells produce so much water. If you -- that you would have to bring in makeup water to be able to make the flood efficient, yeah.
- Are you planning on aggressively doing this, or 0. -- You say you've got now 91 producers, 10 injectors and some plugged wells, so those 10 injectors, are they just in the -- probably the Grayburg-San Andres, right?
 - Yes, yes. Α.
 - And is that doing pretty good in your recovery? ο.
- No, that is an inefficient flood. If you look at the injection wells, they are -- in Exhibit 10, they do have a pattern, and there are five injection wells in Section -- actually, there are six injection wells in Section 28, and three in Section 21.

This is an inefficient flood, and this is why we want to go back in here and drill the wells where they need

to be drilled to create a 40-acre fivespot to where we can 1 efficiently flood these formations. 2 3 Q. So a 20-acre well spacing? 4 Α. Yeah -- 10-acre well spacing. 5 Q. Are you going for 10? 6 Α. Yes. The --7 So 20-acre fivespots, right? Probably 40-acre Q. fivespots? 8 I think that's still a 40-acre fivespot, if I --9 Α. Okay. Okay, that's okay. But you're going to go 10 Q. for the Yeso first, pretty much, and --11 12 Α. Yes. -- and is that similar --13 Q. Because it's a lower -- the lowest zone. 14 Α. Okay. Is it similar to the Clearfork over in 15 Q. 16 Andrews County, do you think? Same equivalent. I'm not familiar with those 17 Α. over in Texas, but they are the equivalent marker, yes. 18 19 Q. Yeah. 20 Yes. Α. 21 I know there's some -- a lot of waterflood and Q. 22 even CO2-flood work done --23 Α. Right. -- Glorieta-Clearfork over there, and --24 Q. 25 The problem is -- and Vacuum is -- Vacuum-Α.

Glorieta is also another one. But that is flooding a 1 2 different part of the Glorieta-Yeso --3 Q. Oh. -- so it is not similar to this carbonate 4 5 package. Okay. Well, as far as the reservoirs themselves, 6 Q. 7 the Grayburg-San Andres is sour, it's --8 Α. Yes. 9 Q. But the Yeso, is that --10 Α. It's also sour. Is it? 11 Q. Yes. 12 Α. Okay, and the Seven Rivers? 13 Q. Sour. 14 A. Okay, that -- How far up is the salt zone, 15 Q. Sour? or the Yates and the salt? 16 The Yates formation is approximately 300 feet 17 Α. thick, so if you go 300 feet above the -- I don't know if 18 the top of the Yates is on here. No, if you go about 300 19 feet above the Seven Rivers, that would be the top of the 20 Yates. And then above that sits the salt. Base of the 21 22 salt, I believe, is approximately 800 feet. 23 Q. So it's a good ways above --24 Α. Yes.

-- what you're looking at? And the Capitan Reef

25

Q.

is --1 2 Α. No Capitan Reef here in this area. It's way 3 further south, Basinward. Okay. Okay, that's -- It sounds like if the 4 Q. 5 operators would have gotten together, they could have 6 changed the -- both pools, the extent -- vertical extent 7 over the entire length of it -- horizontal --Α. That would save you a lot of downhole 8 9 commingling. Q. Yeah, it would. 10 Believe me, our production people are hounding me 11 about that, Can you not unitize everything over here? 12 13 Q. Or you can change the pool. Or change the pool to where they would -- we 14 Α. would not have to do downhole commingling. 15 That reminds me, is Bryan Arrant on board with 16 Q. this? 17 Α. Yes, he's -- he's the geologist in Artesia. 18 I'm not sure -- I did call him and ask him why the -- in 19 Exhibit 1, why the East Empire-Yeso Pool went across the 20 21 north half of 28 in the unit, and he just said that he was 22 connecting up the stuff on the west side of the unit with

the pool on the east side of the unit. There is no Empire-

Yeso production in that portion of the unit.

23

24

25

Q.

Okay.

1	A. He just told me that he just drew the line.
2	And Mr. Examiner, your question earlier about the
3	Grayburg-Jackson Pool in Exhibit 1, where those where
4	the lines where the blue dotted line ends on the map, it
5	continues to the north on the west side, and also
6	EXAMINER BROOKS: I was beginning to conclude
7	that was probably the case, and I
8	THE WITNESS: Yes, sir.
9	EXAMINER BROOKS: And when he first said the blue
10	line, I saw various blue lines in various places, and they
11	didn't seem to be connected up, but I assume the south
12	limit is the township line.
13	THE WITNESS: Yes, sir, it continues the blue
14	line continues across the bottom of the township line,
15	across Section 36, and they continue to the east.
16	EXAMINER BROOKS: So it continues to the east
17	into the adjoining township?
18	THE WITNESS: Yes, sir, and also to the north,
19	north of Section 9 in 17-29, and also north of Section 12
20	in 17-28.
21	EXAMINER BROOKS: But the south line of 17-29 is
22	the south boundary of the unit?
23	THE WITNESS: Yes, sir.
24	EXAMINER BROOKS: Okay, yeah, I think can see it
25	now. It was confusing at first, but I think I understand

1	it now.
2	Q. (By Mr. Jones) The GORs, are they always in the
3	oil range here? Even if you test all these separately up
4	and down the hole?
5	A. The GORs
6	Q. They're always less than 100,000 GOR?
7	A. They're about one to one GORS
8	Q. Okay.
9	A a thousand to one.
10	Q. Okay. So you really have the same spacing up
11	in because it's all oil, and
12	A. Yes.
13	Q there's no real spacing reason for keeping
14	these separate?
15	A. No, sir.
16	MR. JONES: Sounds good to me.
17	EXAMINER BROOKS: Okay, very good. Subject to
18	the record being supplemented with the preliminary approval
19	from the general Land Office, Case Number 13,608 will be
20	taken under advisement.
21	(Thereupon, these proceedings were concluded at
22	10:23 a.m.)
23	* * * * 1 the bareby cartify that the foregoing is 1 as bareby cartify that the proceedings in 12608:09
24	and the second s
25	heard by me on 13, 2006

STEVENCTIS BREWNER VISION (505) 989-9317

CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL April 24th, 2006.

STEVEN T. BRENNER

CCR No. 7

My commission expires: October 16th, 2006