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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:

COPY

APPLICATION OF ENSTOR GRAMA RIDGE STORAGE CASE NO. 14332
AND TRANSPORTATION, LLC FOR APPROVAL OF A
GAS STORAGE WELL, GRAMA RIDGE MORROW
STORAGE UNIT, LEA COUNTY, NEW MEXICO

APPLICATION OF ENSTOR GRAMA RIDGE STORAGE CASE NO. 14333
AND TRANSPORTATION, LLC FOR THE
EXPANSION OF THE GRAMA RIDGE MORROW STORAGE
UNIT AND THE AREA SUBJECT TO THE SPECIAL PROJECT
RULES AND OPERATING PROCEDURES FOR THIS STORAGE
UNIT, LEA COUNTY, NEW MEXICO

TRANSCRIPT OF PROCEEDINGS
Hearing
July 23, 2009
9:52 a.m.

1220 South St. Francis Drive, Room 112
Santa Fe, New Mexico 87504

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BEFORE: TERRY G. WARNELL, HEARING EXAMINER
RICHARD EZEANYIM, TECHNICAL ADVISOR
BRYAN JAMES, LEGAL ADVISOR

REPORTED BY: CONNIE JURADO, RPR, NM CCR #254
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1 MR. WARNELL: Call Case Number 14332,
2 application of Enstor Grama Ridge Storage and
3 Transportation, LLC for approval of a gas storage well,
4 Grama Ridge Morrow Storage Unit, Lea County, New Mexico.
5 Call for appearances.

6 MR. CARR: May it please the Examiner, my
7 name is William F. Carr with the Santa Fe office of Holland
8 & Hart, LLP. We represent Enstor Grama Ridge Storage and
9 Transportation, LLC in this matter.

10 Mr. Examiner, this is a case involving the Grama
11 Ridge Morrow Gas Storage Project. The following case, Case
12 14333 is a companion case, and I would request that they be
13 consolidated for the purpose of hearing.

14 MR. WARNELL: Very well. We will
15 consolidate, and we call Case 14333, application of Enstor
16 Grama Ridge Storage and Transportation, LLC for the
17 expansion of the Grama Ridge Morrow Storage Unit and the
18 area subject to the Special Project Rules and Operating
19 Procedures for this storage unit, Lea County, New Mexico.

20 MR. BRUCE: Mr. Examiner, Jim Bruce of Santa
21 Fe representing Apache Corporation. I have no witnesses.
22 Apache is simply an interested offset operator.

23 MR. WARNELL: Very well. Mr. Carr, you may
24 proceed.

25 MR. CARR: Mr. Examiner, I have three

1 witnesses who need to be sworn. I also have Mr. Tom Barron,
2 who is the drilling engineer, who is present, that we can
3 call if there are questions that he can respond to. And so
4 with your permission, I would ask that all four witnesses be
5 sworn.

6 MR. WARNELL: Very well. The four witnesses
7 will stand, state your name, and be sworn.

8 MR. GEE: Daryl Wayne Gee.

9 (Note: Mr. Gee was duly sworn.)

10 MS. DEVINE: Vicki V. Devine.

11 (Note: Ms. Devine was duly sworn.)

12 MR. BARRON: Thomas F. Barron.

13 (Note: Mr. Barron was duly sworn.)

14 MR. WELLS: John A. Wells.

15 (Note: Mr. Wells was duly sworn.)

16 MR. WARNELL: Call your first witness.

17 MR. CARR: Mr. Examiner, with your

18 permission, I would like to give an opening statement.

19 We're talking about the Grama Ridge Morrow Gas Storage

20 Project in Lea County, New Mexico. It has been in operation

21 since the early 1970's, and as it has historically evolved,

22 we are operating at under what I think is fair to

23 characterize as an unusual regulatory scheme.

24 And I would like to give a brief opening that I

25 think provides some general information on this project that

1 I think will help put the testimony of the following
2 witnesses into context. I would ask that you take out
3 Exhibit Number 1, which is a large copy of the area of
4 review map.

5 And I would also ask you to take out the last
6 exhibit, which is Exhibit Number 5. I will refer to these
7 briefly in the opening. What we have here is one gas
8 storage project, but this project is regulated under two
9 different regulatory schemes. If you look at the plat, the
10 Grama Ridge Storage area or project consists of the five
11 sections outlined in the dark black line on this exhibit.

12 Today's hearing involves the addition of the
13 acreage in Section 9 to the project area. Exhibit 5 is
14 simply a summary of the key regulatory components for -- on
15 the first page, state and fee lands, the second for federal
16 lands, and the last page addresses the special rules that
17 this division adopted several years ago. And I would like
18 to refer to these because I think you will understand what
19 the complications we're dealing with as we have approached
20 this project.

21 If you look at page 1 of Exhibit 5 and compare it
22 to the map, what we have is three state or fee sections. It
23 is sections -- the northern Sections 33, 34, and then
24 Section 3 on the eastern boundary of the unit. These are
25 state sections, and they are operated pursuant to a unit

1 agreement that was approved by the division in January of
2 1973 by Order R4473. That was later amended. It originally
3 was Section 34 and Section 3. It was later amended to
4 include Section 3.

5 But what you have is a unit agreement, and the
6 purpose of the unit as stated in that document is for
7 storage and enhanced recovery. In fact, this has always
8 been a storage project, but the enhanced recovery component
9 comes in because there is some BTU enhancement as you cycle
10 through the reservoir, and a small amount of indigenous
11 gasses produce with the storage operations.

12 Back at that time, two injection wells were also
13 approved. They are the wells shown in Sections 3 and 34.
14 And at that time, when the case came before the division, it
15 predates the C-108 process, and the witnesses advised the
16 commission that as they went forward -- or the division as
17 it went forward with this project, they intended to only
18 report to the Land Office. And that is, in fact, what they
19 did.

20 The amendment, the initial unit agreement is
21 attached to Exhibit 5. It is Exhibit A. And the amendment
22 is Exhibit B, and I just included those because they may not
23 be easy to locate. The other things have been handled by
24 OCD orders. But that is the scheme as it evolved initially
25 for the development of the state and fee lands.

1 In 1975, it became apparent that Section 4 was
2 potentially in communication with the storage project. It
3 is federal land, but the BLM refused to commit that tract to
4 the unit agreement. They didn't want to be in a three way
5 agreement with the state and the unit operator, and so a
6 separate agreement -- the agreement is entitled "Agreement
7 for Subsurface Storage of Gas Morrow Formation Grama Ridge
8 Area, Lea County, New Mexico."

9 It was a simple storage agreement. So the federal
10 lands are governed by an independent agreement. The unit
11 agreement and these separate agreements cross-reference that
12 they are separate and independent regulatory schemes. So
13 back in 1975, that agreement was executed for Exhibit 4, and
14 it was amended in 1981 to include Section 10. And those
15 approvals were obtained from the BLM.

16 I think it's important to note that all of these
17 lands and all of the wells were committed to the storage
18 project over 28 years ago in 1981, and they have been
19 operated since that time. There was concern about offset
20 development and how it might impact the integrity of the
21 storage reservoir. And so back in 19 -- I believe it was
22 2001, the Oil Conservation Commission adopted special rules
23 to protect this area, just requiring that notice be given
24 and special casing requirements basically be employed. But
25 in any event, those rules were adopted, but they are limited

1 in effect to just the five sections that are in the project
2 as of today.

3 In 2005, Enstor acquired interest in the area and
4 became the unit operator. And since that time, they have
5 been engaged in an effort to sort out what is truly a
6 confusing, I think, outdated, certainly unique, regulatory
7 system that has been difficult to understand, both from an
8 operating point of view and from the regulator's point of
9 view. And so part of the effort of Enstor to make sense out
10 of the system and to bring it under current rules and
11 regulations, both at the state level, Land Office, as well
12 as the OCD and BLM, they started sort of rebooting the
13 project.

14 They also decided that it was apparent that
15 Section 9 might also be in communication, and to get this
16 all done right one time, it needed to be included. And
17 that's what is the cause for our being here today, the
18 effort to bring in Section 9. Section 9 is leased to BTA,
19 and we have been working with the BLM since the first of the
20 year, and we found ourselves in a very tight time bind with
21 BTA because of delays getting final signatures from the BLM.

22 We agreed to bring Section 9 into the project. It
23 means we have to get an injection well approved, and the
24 time was short. So this week, we met with the director of
25 the OCD, Mr. Jones was there, Ms. Altamira was there, and

1 explained our need to proceed. This whole thing was
2 triggered by the C-108 that we filed for the new well.
3 That's what you do today.

4 We agreed in our meeting with the director,
5 Mr. Jones, and Ms. Altamira, that we would as quickly as
6 possible come forward with a full case for the project to be
7 sure there is C-108 coverage for all wells. And that's
8 really required for the enhanced oil recovery portion of
9 this project because storage wells stand in somewhat of a
10 different position under the Underground Injection Control
11 Program.

12 We have agreed to do that, and we will be filing
13 that as quickly as we can. We would like to give you a time
14 frame on that, but we have to go back and determine how many
15 of the wells are in the areas of review, but I will assure
16 you that we are going to do it as quickly as it is possible
17 for us to get back here with this.

18 Now, the project and the approvals, most of them
19 were granted 35 years ago, and I think it is important for
20 you to understand that even though the approvals are old,
21 the OCD has not been left completely out of the process.
22 They have regularly filed, both Enstor now and its
23 predecessors, the C-138 report showing injection withdrawal
24 and pressures in the unit area. And when an order is
25 entered in this case, it will be actually the 19th order,

1 counting the couple of dismissals, that have been entered
2 since 1903 -- 1973 impacting the Grama Ridge.

3 Today, we're asking for only two matters. Since
4 Section 9 is federal land, and under this regulatory system,
5 the BLM is the party that approves adding this to their
6 storage agreement, we are not asking to expand the project,
7 but we are asking for authorization to -- for the injection
8 well on that tract subject to coming back to the subsequent
9 hearing.

10 When this expansion occurs, we also are asking
11 that the order that established these special rules to
12 protect the integrity of this storage project, that that
13 order also be applicable to a section of the new land that
14 we're entering -- that we're adding.

15 I have three witnesses today. My first witness is
16 Daryl Gee. Mr. Gee is the director of land and regulatory
17 matters for Enstor, and he can provide you with perhaps a
18 more detailed history of this project. He will address the
19 special operating procedures that were approved in 2001 and
20 can review the recent efforts to bring this project under
21 current BLM and State Land Office rules and will also
22 address the notice provided for today's hearing.

23 Our geologist is Vicki Devine. She participated
24 in the preparation of the C-108 and will review her study
25 with you. John Wells is a reservoir engineer who was

1 responsible for the C-108 and will be here to review that.
 2 And if you have any questions concerning the drilling
 3 aspects of what we're proposing, Thomas F. Barron is here,
 4 the drilling engineer, and we can call him. And so with
 5 that, with your permission, I would call our first witness.

6 MR. WARNELL: Mr. Bruce, do you have any
 7 statements?

8 MR. BRUCE: I have no comment.

9 MR. WARNELL: No comment. Please proceed.

10 MR. CARR: Mr. Examiner, at this time I call
 11 Daryl Gee.

12 DARYL WAYNE GEE

13 After having been first duly sworn under oath,
 14 was questioned and testified as follows:

15 EXAMINATION

16 BY MR. CARR:

17 Q Would you state your name for the record, please?

18 A My full name is Daryl Wayne Gee.

19 Q Your last name is spelled?

20 A G-E-E.

21 Q Where do you reside?

22 A Houston, Texas.

23 Q And by whom are you employed?

24 A I am employed by Enstor Operating Company, LLC.

25 Q What is your current position with Enstor?

1 A I am director of land and regulatory affairs for
2 Enstor.

3 Q I think initially you should explain to the
4 Examiners who is Enstor.

5 A Enstor is an affiliate of Iberdrola Renewables,
6 and the parent of Enstor. Iberdrola Renewables, of course,
7 has a parent, and that is Iberdrola SA in Spain. Enstor
8 Grama Ridge Storage and Transportation, LLC, is a subsidiary
9 of Enstor, and it is authorized to do business in New
10 Mexico.

11 Q That is actually an Oregon LLC?

12 A That is correct. And we have owned and operated
13 the Grama Ridge Storage facility since 2005.

14 Q Have you previously testified before the New
15 Mexico Oil Conservation Division?

16 A I have not testified before the OCD, but I have
17 testified in other state regulatory bodies as well as the
18 Federal Energy Regulatory Commission.

19 Q Were you qualified as a landman in those other
20 proceedings?

21 A As a corporate witness, a land representative, and
22 also as an expert witness.

23 Q Could you review your educational background for
24 the Examiners?

25 A Sure. I have -- in 1985, received a bachelor of

1 applied arts and sciences degree with a double major in
2 petroleum technology and petroleum land management. And in
3 '87, further postgraduate studies towards business
4 administration. And after -- in 1987, began work as an
5 independent landman in Houston, Texas. Did that since --
6 until about 1991 when I left my own business and began work
7 for Western Gas Resources, a Denver based company, but we
8 had an office in Houston, as their land manager.

9 And then in 1999, I left Western Gas Resources and
10 began work as the manager due diligence for Aquila, a Kansas
11 City based company, but it had a Houston office. And in
12 2002, I was a part of the divestiture of the gas storage
13 assets that Aquila owned and operated in Texas that we sold
14 to Enstor. And since 2002, I have been an employee of
15 Enstor Operating Company, LLC, both as director of business
16 development, and I moved into director of project
17 management, and now as director of land and regulatory
18 affairs for the company.

19 Q Mr. Gee, are you familiar with the applications
20 filed in these cases for Enstor?

21 A Yes, I am.

22 Q Are you familiar with Enstor's plans to expand,
23 inject, store and withdraw natural gas from the Grama Ridge
24 Morrow Storage Project?

25 A Yes.

1 Q Are you familiar with the status of the land and
2 the area that is the subject of the application?

3 A Yes.

4 MR. CARR: May it please the Examiners, we
5 would tender Mr. Gee as an expert witness -- as an expert
6 landman.

7 MR. WARNELL: Mr. Gee is so qualified.

8 Q (By Mr. Carr) Mr. Gee, would you summarize for the
9 examiners what it is that Enstor seeks with these
10 applications?

11 A Yes. As previously mentioned, Enstor is seeking
12 approval to utilize the Grama Ridge Federal 8817P well #1 as
13 an injection withdrawal well, and that well is located in
14 Section 9. Secondly, Enstor is also seeking that special
15 rules be applied to this new addition, Section 9, as well.

16 Q Could you refer to what has been marked Exhibit 1,
17 the plat, and review the information contained on this
18 exhibit for the Examiners?

19 A Exhibit 1 is a plat depicting the well. It is
20 basically a land plat, but it depicts the Grama Ridge
21 Storage Area, comprising of the five sections and also the
22 additional section crosshatched that we would like to
23 include. In addition, on this plat, you will see the radius
24 from the proposed injection well emanating a half mile away
25 from the proposed injection well, and also, it depicts the

1 ownership in the surrounding area.

2 Q So what we have here is we have the red circle,
3 which is the area of review for the proposed injection well?

4 A That's correct.

5 Q And then we have a one mile circle and a two mile
6 circle; is that right?

7 A That is correct.

8 Q After you finish this effort with the OCD and the
9 BLM and Land -- well, the BLM in this case, this will be a
10 six section storage project?

11 A That will be a six section storage area, that's
12 correct.

13 Q Could you summarize for the Examiners the general
14 history of the development of this area?

15 A The general history, again, developed back in
16 1973. And, again, the state lands, being Sections 34 and
17 33, were a part of the earlier development. And through
18 different years and processes and procedures, both at the
19 State Land Office and also with the addition of the Bureau
20 of Land Management, additional acreage and sections were
21 added for the Grama Ridge Storage Area.

22 But it has a long and historied past going all the
23 way back to 1973. Again, the State Land Office has the unit
24 agreement. The Bureau of Land Management, again, would
25 refuse -- refused to join into the unit, so again, we have

1 two distinct, separate bodies, but yet again, the -- in
2 2001, the OCD issued the special rules applicable to the
3 five section area.

4 Q Mr. Gee, we talked about fee lands in the unit
5 area. Where are they?

6 A The fee lands are up in the northwest or northeast
7 quarter section of Section 4, and also, as you will see, you
8 will see a reference to Merchant Livestock. I believe it is
9 in Section 33, small interests.

10 Q And the fee interest in Section 4 is actually the
11 Surface Estate; is that right?

12 A That's correct.

13 Q Recently, the way the fee lands are managed has
14 been altered in an agreement with the Land Office, has it
15 not?

16 A Yes. We took a proactive approach with the State
17 Land Office, and in 2006, we were successful in negotiating
18 a new agreement with the State Land Office here in New
19 Mexico allowing for the storage of natural gas underneath
20 their lands, and it is more in a -- it is styled an
21 easement, but it allows for the use and enjoyment of the
22 property, as well as storage of natural gas underneath the
23 state lands.

24 Q And this easement governs all storage aspects of
25 the project; is that right?

1 A That is correct.

2 Q Any secondary recovery or enhanced recovery aspect
3 remains under the old unit agreement?

4 A Correct.

5 Q Let's look at the federal lands. How are these
6 handled?

7 A The federal lands, we were governed by an
8 agreement back in 1975 that was executed by the federal
9 government. Additional acreage was added pursuant to
10 expansion, so you have amendments of that. And we have
11 recently been in contact with the Bureau of Land Management
12 to add Section 9, and we're currently in the last throes of
13 a negotiation and agreement being reached with the Bureau of
14 Land Management for the inclusion of Section 9 to the Grama
15 Ridge Storage Area.

16 Q When the 1975 agreement and the 1981 amendment
17 were entered, the current regulatory scheme at the federal
18 level was not in place, was it?

19 A That's correct.

20 Q Since that time, they have adopted new guidelines
21 and forms?

22 A That is correct. They have adopted new guidelines
23 and forms, and we are utilizing those new guidelines and
24 forms with this new agreement with the Bureau of Land
25 Management.

1 Q And that new agreement will cover all three
2 sections that contain federal amendments?

3 A That is correct. It is amended and restated and
4 with the inclusion of Section 9.

5 Q So with the easement on state lands, you have
6 current regulatory clear authority with the Land Office?

7 A That is correct.

8 Q And when this agreement is entered with the BLM,
9 you will have clarified and put on current forms the storage
10 arrangement with the federal government?

11 A That is correct.

12 Q And what we're in need of here will be temporary
13 authorization or initial authorization today, and then full
14 C-108 coverage for everything, so we're consistent and in
15 line with all of the --

16 A That is correct.

17 Q Now, in the past, there has been concern about
18 development in the area and its impact on the storage
19 reservoir. Could you review that?

20 A Yes. Briefly, L & B Operating pursuant to Order
21 7582 back in June 29, 1984, there was an order issued there.
22 It was repeat formation testing within the area. Again, I
23 think Mr. Carr had alluded to it in his opening, the Order
24 11611, which was Nearburg Production where the special rules
25 and procedures were addressed and issued by the OCD as it

1 relates to Grama Ridge.

2 Q Back in the L & B hearing, the then operator,
3 Llano, reviewed how it was operating this storage project
4 and discussed all injection wells and all aspects of that
5 project, did it not?

6 A That's correct.

7 Q And the thing that triggered the special rules was
8 the fact that there was concern that Nearburg had, in fact,
9 completed a well and a storage project; isn't that right?

10 A That is correct.

11 Q And there was concern that they were not only
12 producing from the storage project, but selling back to the
13 storage project, and that was later determined not to be the
14 case; is that correct?

15 A That is correct.

16 Q Let's go to what has been marked as Enstor Exhibit
17 Number 2. Would you identify that for the Examiners and
18 reviewers, please?

19 A Enstor Exhibit Number 2 is the OCD Order R-11611,
20 Cases 12588 and 12441 dated July 3, 2001.

21 Q And this was a result of the concern that popped
22 up with the Nearburg issue; is that right?

23 A That is correct.

24 Q And what did this order do?

25 A It adopted the special rules and operating

1 procedures for the Grama Ridge Morrow Gas Storage Unit.

2 Q Now, these special rules apply to federal lands as
3 well as the state and fee interests; is that right?

4 A It applies to the federal and state and fee lands.

5 Q And to what lands does it apply?

6 A It identifies the state lands and the unit area as
7 Section 33, 34 of the Township 21 South, Range 34 East, and
8 then the federal lands, of course, were the Sections 4 and
9 Section 10, but it did not allow for any kind of buffer. It
10 was only the five sections of the Grama Storage Unit.

11 Q So if the BLM adds Section 9 to the federal
12 storage agreement, has the order that promulgated the
13 operating rules for this area, as they now stand, they
14 wouldn't apply to Section 9?

15 A They would not apply.

16 Q And so Enstor is asking that they be expanded to
17 also include that section since it is -- has the BLM agreed
18 to add Section 9?

19 A They have agreed.

20 Q And so when that comes in, you need this coverage?

21 A We will need that protection.

22 Q Could you just generally for the Examiners explain
23 what these rules were designed to do?

24 A Sure. Rules number 2 and 3 define the unit
25 project area. Again, it set aside the state lands and

1 addressed the federal lands. It did not address any kind of
2 buffer zone, so therefore, you only have the five sections
3 included in the storage area.

4 Rule number 5 talked about the notice where other
5 operators who must provide us the -- Enstor or whomever the
6 operator would be notice for drilling of another well or a
7 well within the storage area and providing additional items
8 such as drilling reports and copies of well logs.

9 Rule number 6 was a special casing and cementing
10 rules, and it addressed completion of wells both above and
11 below as the well penetrated through the storage interval
12 and isolation of that storage interval, and also addressed
13 plugging requirements and confidential -- I'm jumping ahead
14 of myself.

15 Rule 7 was a special casings requirements for
16 below, and Rule 8 was the special plugging requirements.
17 Rule 9, confidentiality provisions, and Rule 10 is a
18 prohibition against any operator other than the project
19 operator completing in the storage interval itself.

20 Q Mr. Gee, has notice of this application been
21 provided in accordance with the rules and directives of the
22 Oil Conservation Division?

23 A Yes, it has.

24 Q To whom has notice been provided?

25 A Notice has been provided all the surface owners

1 within a one-half mile radius of the proposed injection
2 well, as well as the leasehold operators within that radius.
3 And then pursuant to the directives that we received from
4 the OCD, we also added additional notice to the offsetting
5 operators directly adjacent to and southwest and just
6 directly south of the proposed Section 9 as additional
7 notice recipients.

8 Q And you met with Mr. Brooks and others with the
9 OCD to determine the parties to whom notice should be given?

10 A That is correct, we did.

11 Q Was the application, the C-108 application
12 provided to all of the affected parties?

13 A It was.

14 Q Is Exhibit Number 3 an affidavit confirming that
15 that notice has been provided?

16 A Yes, it is.

17 Q And have you been contacted by any other operators
18 in the area concerning this proposal?

19 A We have been contacted by Chaparral Energy, LLC.
20 We talked about the application. They did not have any --
21 or express any concerns about our planned activities. They
22 wanted to have copies of the exhibits in this proceeding.

23 Q What about Apache? Mr. Bruce is here for Apache.

24 A We have had some discussion with Apache. We've
25 got some other items going on within this project, but

1 again, I think the only thing that they are concerned about
2 is informational purposes only. And one additional
3 landowner or owner contacted us. That would be the estate
4 of C.W. Trainer. They, too, just wanted information as it
5 related to our activities.

6 Q Is it your understanding that no other operator in
7 the area is objecting to this application?

8 A No other operator is objecting.

9 Q Will Enstor call technical witnesses to review the
10 geological and engineering portions of this case?

11 A Yes, we will.

12 Q Have you seen Exhibit Number 5, the history of
13 this storage project?

14 A Yes, I have.

15 Q Attached to that are four documents: The unit
16 agreement, an amendment to the unit agreement, the surface
17 storage agreement, and the amendment to that agreement. Are
18 these records from the files of Enstor?

19 A They are.

20 Q And are these the kinds of records that Enstor
21 keeps in its ordinary course of business?

22 A Yes, they are.

23 MR. CARR: May it please the Examiners, at
24 this time --

25 Q (By Mr. Carr) And were Exhibits 1 through 3 either

1 prepared by you or compiled under your direction and
2 supervision?

3 A They were.

4 Q Can you testify as to their accuracy?

5 A They are accurate.

6 MR. CARR: May it please the Examiners, at
7 this time, I would move the admission into evidence of
8 Enstor Exhibits 1 through 3 and Exhibit Number 5.

9 MR. BRUCE: No objection.

10 MR. WARNELL: Exhibits 1 through 3 and
11 Exhibit Number 5 are admitted.

12 (Exhibits 1, 2, 3, and 5 admitted.)

13 MR. CARR: That concludes my direct
14 examination of Mr. Gee.

15 MR. BRUCE: I have no questions.

16 MR. WARNELL: Richard?

17 MR. EZEANYIM: Let me defer my questions at
18 this point.

19 MR. WARNELL: Okay, Mr. Gee, other than -- it
20 sounds as though you are rather attached to Houston. I have
21 a couple of questions for you. I noticed here on Exhibit 1,
22 on the half mile radius, it looks like that goes right
23 through a dry hole there?

24 THE WITNESS: That --

25 MR. WARNELL: Section 9.

1 THE WITNESS: That well in Section 9 is a
2 temporarily abandoned well.

3 MR. WARNELL: Will we see anything here this
4 morning talking about that well?

5 THE WITNESS: Our technical experts will
6 provide some additional data as to that.

7 MR. WARNELL: Okay. Fine. Can you tell me
8 who it is at BLM that you have been talking with or working
9 with?

10 MR. CARR: I can answer that. We have been
11 there together, but it is Wesley Ingram in the Carlsbad
12 office that has been the BLM person responsible for this.
13 He is aware of today's hearing and indicated to me that if
14 you had questions, you could call him in the Carlsbad
15 office. He would be happy to confirm that they are going
16 forward with Section 9.

17 MR. WARNELL: Okay. Appreciate that. No
18 further questions.

19 MR. CARR: With that, we would call Vicki
20 Devine, the geological witness. Ms. Devine will be
21 addressing the portions of the C-108, the geological
22 portions of that exhibit. It is marked Exhibit Number 4.
23 She will be specifically referring to pages 10, 11, and 12
24 in that exhibit.

25 VICKI V. DEVINE

1 After having been first duly sworn under oath,
2 was questioned and testified as follows:

3 EXAMINATION

4 BY MR. CARR:

5 Q Would you state your full name for the record,
6 please?

7 A Vicki V. Devine.

8 Q Ms. Devine, where do reside?

9 A Denver, Colorado.

10 Q By whom are you employed?

11 A I am self-employed.

12 Q What is your relationship with Enstor Grama Ridge
13 Storage and Transportation?

14 A I am a consulting geologist on the Grama Ridge
15 Project.

16 Q Have you previously testified before the New
17 Mexico Oil Conservation Division?

18 A No, I have not, but I have testified in Wyoming
19 and in Colorado to the Oil and Gas Conservation --

20 Q And in those other states, were you qualified as
21 an expert witness in petroleum geology?

22 A I was.

23 Q Can you review for the Examiners your educational
24 background?

25 A Yes. I have a bachelor's of science degree from

1 the University of Georgia in geology. That is in 1977. I
2 have a master's degree in geology from the University of
3 Texas, 1980. And then I have a master of business
4 administration in finance from the University of Colorado at
5 Denver, 1990.

6 Q And for whom have you worked?

7 A Oh, goodness. I started out --

8 Q Focus where you've done land work.

9 A Okay. I started my career with Tenneco Oil
10 Exploration and Production in Englewood, Colorado. I was
11 with them for six years, and ended as a senior exploration
12 geologist. Tenneco decided to get out of the oil and gas
13 business, and everybody in it left. I started my own
14 consulting company then and have worked for a lot of
15 companies, living in Denver, and I have worked the Rockies
16 and the Permian Basin.

17 Q And you have been employed as a geologist in all
18 of those positions?

19 A In all of those positions, exploration and
20 development and geology, and have been a consultant for 22
21 years.

22 Q Are you familiar with the applications filed in
23 these consolidated cases for Enstor?

24 A I am.

25 Q Are you familiar with their plans to inject,

1 store, and withdraw natural gas in the Grama Ridge Project?

2 A Yes, sir, I am.

3 Q Have you made a geological study of the area that
4 is the subject of these cases?

5 A I have.

6 Q Are you prepared to share the results of your
7 study with the Examiners?

8 A Yes, sir, I am.

9 MR. CARR: We tender Ms. Devine as an expert
10 witness in petroleum and geology.

11 MR. WARNELL: Ms. Devine is so recognized as
12 an expert in petroleum geologist.

13 Q (By Mr. Carr) Have you prepared exhibits for
14 presentation today to the Oil Conservation Division?

15 A I have.

16 Q Are those exhibits contained in the Form C-108
17 application filed in these cases?

18 A Yes, they are.

19 Q And we're talking about pages 10, 11, and 12?

20 A Ten, 11 and 12 of Exhibit 4.

21 Q And these consist of a geological summary?

22 A Geological summary, a structure map, and a
23 stratigraphic cross-section.

24 Q I think it would be helpful if initially you
25 described the general nature of the Morrow formation in this

1 general area, and particularly focus on Section 9 and that
2 part of the storage project.

3 A Okay. I will be referring to the structure map,
4 which is on page 11, I believe, and the stratigraphic
5 cross-section, which is on page 12. If you will look at the
6 cross-section first, you will see that the Pennsylvanian
7 Morrow formation in this area of the Delaware Basin is
8 typically divided into an upper unit called the Morrow
9 limestone, which is limestone and carbonate shales, and then
10 a lower clastic interval consisting of a series of
11 interbedded sandstones and shales which are called the
12 Morrow clastics.

13 On this cross-section, the top of the Morrow
14 clastics is the datum for the cross-section, and it is the
15 black line. Above that is the Morrow limestone, and below
16 that is the Morrow clastics. The gas at Grama Ridge is
17 stored within the clastic interval, and that is marked with
18 the red bars on the cross-section running down the gamma ray
19 tract on the left side.

20 Now, if you will -- I will come back to the
21 cross-section in a minute, but if you will refer to the
22 structure map, I will give you a general idea of the
23 structural position.

24 During the Pennsylvanian time, structural
25 movements separated the Delaware Basin from the Central

1 Basin platform, and it activated the faults within the area.
2 As you can see on the structure map, there is a very
3 well-defined structural nose which plunges from the
4 northeast to the southwest through the storage area, and it
5 is bounded on the west side by a regional fault, which has
6 between 500 and 800 feet of vertical throw to the west.

7 And there is also a secondary fault peeling off of
8 that which is in the northwest there. That also shows
9 evidence of being active during the Morrow deposition. Now,
10 go back to the cross-section.

11 Q As you do that, Ms. Devine, could you show the
12 Examiners the line or trace for this cross-section on
13 Exhibit Number 11? It seems to start --

14 A It starts -- yes.

15 Q With the well in Section 9?

16 A It starts with the subject well in Section 9. It
17 goes to the Grama Ridge #4, which is in the Southeast
18 Northwest of Section 4, and then goes to the Grama Ridge #1
19 Unit Well, which is in the Southwest Northwest of Section 3.

20 Q Okay. All right. Let's go now to that --

21 A Okay.

22 Q -- cross-section.

23 A So now we're back on the cross-section. The
24 sandstones within the Morrow clastic interval, which is the
25 storage interval, comprise four stratigraphic sequences.

1 Those are commonly in the industry referred to as A through
2 D. Sandstones are developed in all of those zones within
3 the storage unit, but only the Unit #3 Well, which is up on
4 the isolated fault block, has sandstone in all four zones.
5 So there is not necessarily sand in each zone in every well.

6 The subject well, which is the leftmost well on
7 this cross-section, has no significant sand in the B, and
8 the B is marked in green on there. And although it does
9 have sand in the D, that sand is all tied in nonproductive,
10 and the D is on the base there marked in yellow. The well
11 has reservoir quality sand and has produced from the A and
12 the C. Both are perforated, and the perforations are marked
13 on the depth tract in green.

14 Q Those are the --

15 A Those are within the storage unit. And then there
16 are additional perforations in this well in the Morrow
17 limestone above the clastics, but those perms will be
18 squeezed because they are not within the storage unit.

19 Q And injection will occur then in this well --

20 A In the A and the C --

21 Q Okay.

22 A Yes, sir. The sandstones in the A and C at Grama
23 Ridge were deposited during base-level rise into incised
24 valleys. They were cut into the marine Morrow shale during
25 the previous sea level low-stands. Then the flooding of the

1 valleys resulting in dip-oriented, channel-fill sandstones
2 along with more strike-oriented deltaic and estuarine-marine
3 sandstones and shales. You have a whole lot of different
4 environments filling in this valley system that was cut
5 previously.

6 These multiple depositional environments resulted
7 in discrete sandstones, which are about ten to 30 feet
8 thick. They are discontinuous, and they are generally less
9 than one mile wide. They vary widely in porosity and
10 permeability, and they are interbedded both vertically and
11 laterally with shales. The discontinuous nature of the
12 Morrow clastics I think causes the gas within the storage
13 unit to be very highly compartmentalized.

14 Q Could you summarize for the Examiners the
15 conclusions that you have reached from your geologic study
16 of this reservoir?

17 A This Morrow reservoir does have sufficient
18 porosity and permeability to be used to inject and withdraw
19 natural gas. And because of the bounding fault, the
20 structural position, and the nature of the sands themselves,
21 we have geologic containment in the storage reservoir.

22 Q Were the structure map -- and a summary of your
23 geological presentation is --

24 A Is on page 10.

25 Q -- contained on page 10 --

1 A Correct.

2 Q -- is that right?

3 A Uh-huh.

4 Q Were the structure map, cross-section, and summary
5 prepared by you?

6 A Yes.

7 MR. CARR: May it please the Examiners, at
8 this time, we would move the admission into evidence of the
9 geological summary, page 10 of the C-108, the structure map,
10 page 11, and the cross-section, page 12, of the C-108 of
11 Exhibit Number 4.

12 MR. BRUCE: No objection.

13 MR. WARNELL: Page 10, 11, and 12 of Exhibit
14 4 will be admitted.

15 (Pages 10, 11 and 12 of Exhibit 4 admitted.)

16 MR. CARR: And that concludes my direct
17 examination of Ms. Devine.

18 MR. WARNELL: Thank you. Mr. Bruce, any
19 questions?

20 MR. BRUCE: No, I have no questions.

21 MR. EZEANYIM: Can you tell us about the
22 porosity and permeability of the unit?

23 THE WITNESS: I'm sorry? The --

24 MR. EZEANYIM: The porosity and the
25 permeability of the unit.

1 THE WITNESS: I used -- you can see on the
2 cross-section, actually I used a six percent porosity cutoff
3 for reservoir quality. So if you have reservoir quality
4 rock, it can range from six to 12 percent, and it can go
5 down to zero very quickly.

6 MR. CARR: Permeability?

7 THE WITNESS: I have no permeability data. I
8 have no core data or anything for that. I have to assume
9 that in this well, it has certainly got permeability because
10 it produced a lot of gas.

11 MR. EZEANYIM: Thank you.

12 MR. WARNELL: Ms. Devine, you mentioned the
13 perforations on the depth tract in the green?

14 THE WITNESS: Yes.

15 MR. WARNELL: Can you point those out a
16 little better for me as far as on the first well, just below
17 13,000 there, we have perforation --

18 THE WITNESS: That is in the C unit, and then
19 there is another set from. About 12850 in there.

20 MR. WARNELL: Okay. So there's two sets
21 of --

22 THE WITNESS: Those are in the clastic
23 interval, and then there's another set of perms that will be
24 squeezed and that is at about 12680 to 12700.

25 MR. WARNELL: Up in the limestone?

1 THE WITNESS: That's up in the limestone,
2 correct.

3 MR. WARNELL: And tell me a little bit more
4 about the containment. I guess you've got a nice cap there
5 with that limestone.

6 THE WITNESS: Yes, definitely. That is a
7 very tight limestone. There is also a shale right beneath
8 the limestone, which is tight. We have the structural
9 advantage of being on the structural nose. There is -- on
10 your structure map, that is actually done on the top of the
11 A. There is -- if you look at the structure map on the top
12 of the C, it looks virtually identical, but it is 150 feet
13 lower.

14 There is no isopach difference there to change
15 that structure map. Below on the A, I believe it said there
16 is a gas water contact, so everything south of that is wet
17 and nonproductive. Then on the west side, you have the
18 ceiling fault. And then up dip, you have the contained
19 nature of the sands themselves. Even though they were
20 deposited in this valley, which is continuous, the sands
21 within the valley are not necessarily continuous. And they
22 definitely are -- if they are even present up to the north,
23 they are completely tight.

24 MR. WARNELL: How deep are these wells? Do
25 you know what their TDs -- I see the log goes down to just

1 below --

2 THE WITNESS: That is the TD for most of
3 them, yes.

4 MR. WARNELL: Okay. Any questions?

5 MR. EZEANYIM: Yes. What is the exact
6 perforated interval in this? I have been looking at this in
7 your logs.

8 THE WITNESS: I can get that.

9 MR. CARR: Mr. Examiner, our engineer will
10 review that, and there is a schematic for the well showing
11 its present completion on page 4 of the C-108.

12 MR. EZEANYIM: Okay.

13 MR. CARR: And it shows perforations.

14 MR. EZEANYIM: I wanted to find the exact
15 depth of those perforations.

16 MR. CARR: And if I can read this correctly,
17 it looks like they are from 12,6.

18 THE WITNESS: That is up in the limestone,
19 yeah.

20 MR. CARR: That is up in the limestone. It
21 would be from 12 --

22 THE WITNESS: I think it is 12699 --

23 MR. EZEANYIM: 12,6 or 12,7.

24 THE WITNESS: 12699 is the limestone, is the
25 base of those perfs.

1 MR. CARR: And down to 13,39, I believe, but
2 we will have the engineering witness give you those exact --

3 MR. EZEANYIM: Okay.

4 MR. WARNELL: One other question. Oh, I'm
5 sorry.

6 MR. EZEANYIM: Yeah. On the -- maybe the
7 engineering witness will know, but I want to know what the
8 productive zones above and below the injection interval are,
9 and maybe the engineer will tell us what it is.

10 MR. CARR: Yes, he will.

11 MR. EZEANYIM: Okay.

12 MR. WARNELL: Did you ever work with Carol
13 Peavey?

14 THE WITNESS: Yeah.

15 MR. WARNELL: Tell her I said hello, please.

16 THE WITNESS: I will do that.

17 MR. CARR: I gather you both like Carol
18 Peavey.

19 THE WITNESS: She is a live wire.

20 MR. WARNELL: We used to work together up in
21 the San Juan Basin.

22 THE WITNESS: I'll be darned.

23 MR. WARNELL: Thank you.

24 MR. CARR: Okay. Thank you, Mr. Examiner.

25 At this time, we call John Wells.

1 JOHN WELLS

2 After having been first duly sworn under oath,
3 was questioned and testified as follows:

4 EXAMINATION

5 BY MR. CARR:

6 Q Will you state your full name for the record,
7 please?

8 A John Wells.

9 Q And Mr. Wells, where do you reside?

10 A Sugar Land, Texas.

11 Q By whom are you employed?

12 A Wells Chappell and Company, Incorporated.

13 Q And what is your relationship with Enstor Grama
14 Ridge Storage and Transportation, LLC?

15 A I am consulting reservoir engineer on the storage
16 project.

17 Q Have you previously testified before the New
18 Mexico Oil Conservation Division?

19 A I have.

20 Q Have you testified before Examiners Warnell,
21 Ezeanyim, and Mr. James?

22 A I don't recall, but I don't believe so.

23 Q Could you review for them your educational
24 background?

25 A In 1971, I earned a bachelor of science in

1 mathematics and chemistry from Delta State University,
2 Cleveland, Mississippi. And then I earned a master of
3 science in physics in 1973, Mississippi State University,
4 Starkville, Mississippi.

5 Q And generally summarize for me your employment.

6 A In 1973 through 1979, I was employed by Texaco
7 Production Research in Houston, Texas. And then in 1979
8 through 1984, I was director of gas projects with Intercomp
9 Worldwide Consultants in Houston, Texas. In 1984, I formed
10 a consulting company along with partners, and that company
11 evolved to the point today where I am now president of Wells
12 Chappell and Company, consultants, Sugar Land, Texas,
13 specializing in all aspects of reservoir engineering,
14 underground gas storage.

15 Q To beat Mr. Ezeanyim to the punch, are you a
16 registered engineer?

17 A I am not a registered engineer. I have several
18 people in my shop that are.

19 Q Are you familiar with the application filed in
20 this case on behalf of Enstor?

21 A I am.

22 Q And are you familiar with Enstor's plans for
23 natural gas storage in the Grama Ridge Morrow Storage
24 Project?

25 A Yes.

1 Q Have you conducted an engineering study of the
2 area that is the subject of this application?

3 A I have.

4 Q And were you the person primarily responsible for
5 the preparation of the C-108 application filed with the OCD?

6 A Yes. I primarily reviewed it and confirmed the
7 accuracy of it.

8 MR. CARR: We would tender Mr. Wells as an
9 expert witness in reservoir engineering.

10 MR. WARNELL: Mr. Wells is so recognized.

11 Q (By Mr. Carr) Mr. Wells, could you identify what
12 has been marked Grama Ridge Exhibit Number 4?

13 A Yes. That is the C-108 application for
14 authorization to inject.

15 Q Does it contain all of the information required by
16 this form?

17 A To my knowledge, it does.

18 Q Is this an expansion of an existing project?

19 A It is.

20 Q I would like to direct your attention to -- I
21 believe it is pages 6 and 7, the area of review maps, and I
22 would ask you to review the current status of development in
23 this area for the Examiners.

24 A Right. These are orientation maps from the C-108
25 application. The proposed injection well location is

1 indicated here. The lease ownership and the area is
2 depicted. It also shows all of the wells within a two mile
3 radius. It shows the required one-half mile area around --
4 centered around the proposed injection well, and it shows
5 all of the wells which penetrate the Morrow within a
6 one-half mile area. It shows all of the other wells in the
7 area and identifies all the offset operators.

8 Q This is actually the same plat that was offered as
9 Exhibit Number 1; is that correct?

10 A That is correct.

11 Q Let's go to page 8. Could you explain what that
12 is?

13 A Well, that is a -- it's a compilation of pertinent
14 well information as required by the OCD form.

15 Q And this contains the information on the type of
16 well, its status, things of that nature as required by that
17 form?

18 A That's correct.

19 Q Are there any plugged and abandoned wells within
20 the area?

21 A No.

22 Q Do you have information on the temporarily
23 abandoned wells that Mr. Warnell discussed a few minutes
24 ago?

25 A We do have some information on it, yes.

1 Q And can you respond to his question? What is the
2 status of that well?

3 A Well, I mean, I don't know that I personally know
4 the status of the well, other than that it -- it has not
5 produced, temporarily abandoned, it is just not producing
6 right now.

7 MR. WARNELL: Do you know who drilled it?

8 THE WITNESS: I don't. I think we may have
9 someone here in the room who could answer that question.
10 I'm not sure.

11 MR. BARRON: I don't have any information on
12 it.

13 MR. CARR: I don't believe Mr. Barron has
14 information on that either, other than it is currently a
15 well in a temporarily abandoned status.

16 MR. WARNELL: We will just see what we can
17 find.

18 Q (By Mr. Carr) Mr. Wells, could you refer to the
19 work over program for this well? And I'm referring here to
20 the wellbore data sheets that are included in this exhibit
21 on pages 3 through 5. It is a data sheet and a couple of
22 schematics.

23 A Right. On page -- we'll start with the schematic
24 on page 4. That schematic is a depiction of the current
25 down hole configuration of the existing wellbore, the

1 proposed wellbore that we propose to inject into. And then
2 if you turn to the next page, that is a similar schematic,
3 but it shows what the post work over down hole configuration
4 then would look like.

5 And the important things here I think there are
6 generally three different -- three things that are generally
7 important. Number one is the fact that we're going to
8 change out the tubing from the existing 2 3/8". We are
9 going to install five-inch tubing.

10 The second thing is we intend to mill out the
11 lower packer that you see there on the schematic and the
12 tailpipe, and we will push those down and install a bridge
13 plug at 13,255 feet.

14 The third point of interest is that we intend to
15 squeeze the Morrow limestone perforations at 12,677 to 699.
16 And throughout this work over, we intend to use high quality
17 carbon steel tubing, just like the tubing that we have used
18 in our existing injection wells that have not given us any
19 problems. We also intend to fill the annulus in this well
20 with corrosion inhibited KCL water.

21 Q Will the annulus face be pressure monitored to
22 assure the integrity of the well?

23 A Yes.

24 Q And you will otherwise comply with the
25 requirements of the Federal Underground Injection Control

1 Program as they would apply to this well?

2 A That's right.

3 Q How large an interval in the Morrow does Enstor
4 plan actually to perforate?

5 A The perforations that we will propose to preserve
6 in this well are 12,844 feet to 13,039 feet.

7 Q You're going to squeeze the other perforations?

8 A That's right.

9 Q Are there other productive formations in the half
10 mile area for you --

11 A Only Morrow limestone.

12 Q And that is productive?

13 A Right.

14 Q And what is the character of the gas that Enstor
15 proposes to inject in this subject well?

16 A We propose to inject pipeline quality natural gas.

17 Q And what will Enstor's maximum daily injection
18 rates be?

19 A Well, the maximum daily injection rate will, of
20 course, depend upon the level of inventory in the storage
21 facility at any given time and the activities of our
22 customers, but at our existing storage, we have injected in
23 the range of 30 to 40 million cubic feet a day in a given
24 injection well. In this particular well, we think that we
25 might be injecting as high as 60 million cubic feet a day.

1 Q But the application is seeking for 50 million, is
2 that -- no, no. You're right. I'm sorry. I'm jumping
3 ahead on the question.

4 A All right.

5 Q I will quit trying to provide engineering
6 testimony to the commission. Will the system be open or
7 closed?

8 A It will be a closed system.

9 Q Are you going to be injecting under pressure?

10 A We will.

11 Q And what surface pressure does Enstor propose to
12 use?

13 A On average, we propose 3,850 pounds per square
14 inch surface injection pressure. On a maximum, we might get
15 up as high as 5,000 pounds per square inch maximum.

16 Q Mr. Wells, can Enstor safely inject into this
17 reservoir at this pressure?

18 A Yes, they can. The original discovery pressure in
19 this well was 7,500 pounds at 12,900 feet, and that
20 translates to about 6,200 pounds of surface pressure,
21 discovery pressure. And so we're only proposing on a
22 maximum to go to 5,000 pounds surface pressure. And it
23 should be noted also that we have successfully injected at
24 4,000 pounds routinely for the last 30 years, 4,000 surface
25 pressure in our other wells.

1 Q Does the proposed injection impact any producing
2 horizon in this area?

3 A It does not. We believe that this well is a
4 typical isolated Morrow compartment, and it certainly
5 heretofore has been depleted, so we're just going to
6 repressure that same compartment.

7 Q Are there fresh water zones in the area?

8 A There are two major ground water aquifers found in
9 the area. The Ogallala is encountered in unconfined
10 conditions at depths of 50 feet or less, but typically at
11 depths of 100 to 500 feet below ground, and then there is
12 the Capitan Aquifer encountered at 500 to 1,000 feet below
13 ground surface.

14 Q Are there any fresh water wells within a mile of
15 the proposed injection well?

16 A There is one well. It is the water supply well
17 over at the Grama Ridge compressor station, and it is
18 completed in the Ogallala at a depth of 62 feet.

19 Q Is a summary report on the analysis of ground
20 water sampled from the well after it was completed in 2000
21 included in this exhibit?

22 A Right, that is included in Exhibit 4, page 13.

23 Q Mr. Wells, have you examined the available
24 geological and engineering data on this reservoir?

25 A I have.

1 Q As a result of that examination, have you found
2 evidence of open faults or any other hydrologic connections
3 between the injection zone and any underground source of
4 drinking water?

5 A I have not found any evidence of any such faults
6 or hydrologic connections, no.

7 Q Will approval of this application and adding of
8 injection -- of the injection well in Section 9, as well as
9 expanding the operating rules to cover that section, in the
10 best interest of conservation and the prevention of waste
11 and the protection of correlative rights?

12 A In my opinion, yes.

13 Q Were the portions of Exhibit 4 not addressed by
14 Ms. Devine prepared by you or under your direction and
15 supervision?

16 A They were.

17 Q Can you testify to their accuracy?

18 A Yes, they are accurate.

19 MR. CARR: May it please the Examiner, I
20 would move now all of Exhibit Number 4 into evidence.

21 MR. WARNELL: All of Exhibit Number 4 is
22 admitted.

23 (Exhibit 4 admitted.)

24 MR. CARR: That concludes my direct
25 examination of Mr. wells.

1 MR. WARNELL: Mr. Bruce?

2 MR. BRUCE: I have no questions.

3 MR. WARNELL: Richard?

4 MR. EZEANYIM: Good presentation there
5 because you've answered most of my questions. But let's
6 talk about the production above and below this injection
7 area. I am asking you for only outside of the -- above and
8 below. Do you know any production history above the
9 injection interval or below the injection interval?

10 THE WITNESS: Like I say, only that little
11 bit of production from the limestone.

12 MR. EZEANYIM: Which is above?

13 THE WITNESS: Right.

14 MR. EZEANYIM: That is the only production?

15 THE WITNESS: Right.

16 MR. EZEANYIM: Is there any other development
17 around the storage area?

18 THE WITNESS: Not to our knowledge, no.

19 MR. EZEANYIM: So how does the production
20 above and below be squeezed out? It will be squeezed out,
21 right?

22 THE WITNESS: That's right.

23 MR. EZEANYIM: So to answer our question, the
24 exact perforation in your well now is between 12844 to
25 13039, right?

1 THE WITNESS: The interval --

2 MR. EZEANYIM: I looked at the --

3 THE WITNESS: In the schematic on page 5,
4 Exhibit 4, the bottom two sets of perforations there, that
5 is what we will end up with when the work over is completed,
6 and that will be from 12,844 to 13,039.

7 MR. EZEANYIM: This well, what was it used
8 for? Production?

9 THE WITNESS: It was just a -- it was a
10 primary producing gas well, yes.

11 MR. EZEANYIM: And you're converting it to --

12 THE WITNESS: We're converting it to gas
13 storage primary unit, just like all of our other wells were
14 at Grama Ridge.

15 MR. EZEANYIM: Right. So your testimony says
16 that the total pressure is about 7500 BSI. Is that --

17 THE WITNESS: Discovery pressure was, yes.

18 MR. EZEANYIM: And do you know what it is
19 now?

20 THE WITNESS: Current pressure right now, I
21 think is in the neighborhood of maybe 1,000 pounds,
22 something like that. Reservoir pressure, not surface
23 pressure.

24 MR. EZEANYIM: I'm just trying to examine you
25 on injection pressure. Right now you're injecting at 4,000

1 pounds, right? You're injecting at 4,000 pounds?

2 THE WITNESS: Yeah, in the other part of our
3 storage project, yes, surface pressure.

4 MR. EZEANYIM: Okay. Good. Let's talk about
5 water because -- can you tell me more about water in the
6 area? How close they are to this storage area? Any fresh
7 water?

8 THE WITNESS: Well, I mean, we're so far
9 below the fresh water, that the only way that that would
10 come into play is if there was some problem, you know, in
11 the injection well that allowed communication, but certainly
12 there is no water down at 12,000, 13,000 feet where we're
13 operating.

14 MR. EZEANYIM: Okay.

15 THE WITNESS: And we certainly intend to
16 protect the well from any type of leakage into any fresh
17 water zones, the same way we have done all of our other
18 wells for the last 30 years.

19 MR. EZEANYIM: This section on page 5 of the
20 schematic, is that the -- that would be the schematic of the
21 current well status? Have you done that, or are you going
22 to do it?

23 THE WITNESS: Page 5 is the -- page 4 is the
24 current well configuration.

25 MR. EZEANYIM: Okay. And then the --

1 THE WITNESS: And 5 is what we intend to do
2 to it.

3 MR. EZEANYIM: Okay. You haven't done that?

4 THE WITNESS: This is what it will look like
5 once we get approval to inject into this well. The first
6 thing we will do is go out and perform this work over to
7 prepare the well for injection.

8 MR. EZEANYIM: What about fluid that is going
9 to be in the annulus? Is that chloride? Is that what you
10 said?

11 THE WITNESS: Yes. As indicated there on the
12 schematic, we intend to put corrosion inhibited KCL water in
13 the annulus.

14 MR. EZEANYIM: Okay. How many wells in the
15 area of review?

16 THE WITNESS: How many wells in the area of
17 review? Well, it depends on whether you're talking about
18 the half --

19 MR. EZEANYIM: The half mile.

20 THE WITNESS: The half mile? I will have to
21 turn back to that exhibit and take a look at that. I don't
22 recall just off the top of my head how many were in there.
23 There are only two.

24 MR. EZEANYIM: Two wells within one-half
25 mile?

1 THE WITNESS: The well we're talking about,
2 you know, is in the center of the half mile.

3 MR. EZEANYIM: And the other well that is --

4 THE WITNESS: That is that temporary
5 abandoned well, I believe. Right?

6 MR. EZEANYIM: Do you have a schematic of
7 that well?

8 THE WITNESS: I don't believe that I have
9 that handy today.

10 MR. EZEANYIM: Yeah, we need to have a
11 schematic of that well, since nobody knows the history of
12 that well.

13 MR. CARR: And Mr. Examiner, we are going to
14 call Tom Barron, who will give you some information on that,
15 but we will provide following the hearing a schematic for
16 you.

17 MR. EZEANYIM: Yeah, that would be very
18 important.

19 MR. WARNELL: I think the temporary abandoned
20 well is the third well.

21 MR. CARR: I think it actually is. I think
22 it is right outside of that circle, and the two wells that
23 are within the area of review -- well, if you go to page 8
24 of the C-108, it identifies the wells in the area. And
25 there is the temporarily abandoned well shown there.

1 MR. EZEANYIM: Is that on page 8?

2 MR. CARR: Yes.

3 MR. EZEANYIM: Okay. The first one or the
4 second one?

5 MR. CARR: Yeah, the second one is
6 temporarily abandoned.

7 MR. EZEANYIM: And the one we are looking for
8 a schematic?

9 MR. CARR: Correct.

10 MR. WARNELL: So what is that other well?

11 MR. CARR: I think you're looking at the 9
12 that didn't show up, so I wrote it in the corner of that.
13 If you're looking right in the center --

14 MR. WARNELL: Uh-huh.

15 MR. CARR: -- right between "Minerals: USA
16 (BLM) Surface: USA (BLM)" and it looks like a well spot,
17 that is the numeral 9 for Section 9.

18 MR. WARNELL: Oh, that is the section?

19 MR. CARR: I couldn't read them either so
20 that is my handwriting where I put the sections up in the
21 corner.

22 MR. EZEANYIM: So you're going to use this
23 well both as an injector and as a withdrawal?

24 THE WITNESS: That's correct.

25 MR. EZEANYIM: You say you inject pipeline

1 quality gas. Do you process gas before you inject it
2 through there?

3 THE WITNESS: I'm sorry?

4 MR. EZEANYIM: Do you process the gas --

5 THE WITNESS: Process it before we inject it?

6 MR. EZEANYIM: Yeah. You said pipeline
7 quality, I mean --

8 THE WITNESS: Not typically, no. It is
9 already processed gas. It is gas that is running through
10 the pipeline system.

11 MR. EZEANYIM: Okay. So you're just getting
12 the --

13 THE WITNESS: Right, right, right.

14 MR. EZEANYIM: So what will you be asking for
15 injection pressure here, 5,000 pounds?

16 THE WITNESS: We're asking for 5,000 pounds
17 surface pressure, maximum -- surface pressure maximum.

18 MR. EZEANYIM: What is the -- this well that
19 we're looking at right now, you are using it to withdraw.
20 What is it doing now? Is it shut in?

21 THE WITNESS: What is it doing right now?

22 MR. EZEANYIM: Yeah.

23 THE WITNESS: It is just shut in.

24 MR. EZEANYIM: And you acquired this property
25 what month in 2005? When did you acquire this property?

1 THE WITNESS: I don't know that.

2 MR. CARR: I believe it was April 2005.

3 MR. GEE: March.

4 MR. CARR: March 2005.

5 MR. EZEANYIM: From BTA?

6 MR. CARR: No. It was --

7 MR. EZEANYIM: Who did you acquire it from?

8 MR. CARR: Acquired the storage project from?

9 MR. EZEANYIM: Yes.

10 MR. CARR: It was acquired from Raptor
11 Resources. It was a Conoco entity. And then Section 9 will
12 be acquired from BTA as soon as we get approval.

13 MR. EZEANYIM: And then according to Section
14 9 -- that was my last question.

15 MR. CARR: Yeah.

16 MR. EZEANYIM: You're one of the -- the other
17 positions, in the other five sections that you apply to
18 Section 9?

19 MR. CARR: Yes.

20 MR. EZEANYIM: Okay. Now, what is your --
21 did you talk with BLM? Did they agree --

22 MR. CARR: Yes.

23 MR. EZEANYIM: They agreed?

24 MR. CARR: Yes. And you could check with
25 Mr. Ingram if you're concerned about that.

1 MR. EZEANYIM: Mr. Ingram?

2 MR. CARR: Yes.

3 MR. EZEANYIM: And then on the -- you know,
4 we are dealing with two cases here, separate cases,
5 Application of Enstor Grama Ridge Storage to include Section
6 9.

7 MR. CARR: Yes. And that, Mr. Ezeanyim, will
8 be handled by the BLM because it is only under the federal
9 agreements, since they won't allow it to be part of the
10 unit.

11 MR. EZEANYIM: Okay.

12 MR. CARR: So we've got these two separate
13 systems. We've got a unit agreement, and we've got the BLM
14 acreage, so they have agreed to put it in.

15 MR. EZEANYIM: Okay.

16 MR. CARR: But your rules still apply on
17 those lands, and so that's what we're trying to do is get
18 your part of it in place with what they're doing.

19 MR. EZEANYIM: Okay. I understand.

20 MR. CARR: May it please the Examiners, I
21 have some additional information now on the temporarily
22 abandoned well. I would like to tell you what it is, and if
23 you would like, I will call the drilling engineer,
24 Mr. Barron, who can confirm it. But if you look at Exhibit
25 8 in the C-108 application, there are two wells identified.

1 MR. EZEANYIM: Yes. I have that. Page 8?

2 MR. CARR: Yes, sir. And that bottom well
3 says "temporarily abandoned." That is what we call the BTA
4 #2, and it is temporarily abandoned. It is within the area
5 of review, but it is a well. That is a shallow well, and it
6 doesn't penetrate the injection interval. And so that's why
7 there was no schematic for it. If you would like, I can
8 call Mr. Barron, who can confirm that, but that is the
9 status of that well.

10 MR. WARNELL: So that BTA #2 is this --

11 MR. CARR: It is right on the extreme left
12 side of the circle that straddles the red area of review
13 line.

14 MR. WARNELL: Yeah. It goes right through
15 it?

16 MR. CARR: Yes. And that is a shallow well
17 that doesn't penetrate the injection interval.

18 MR. WARNELL: We may want to call him. I
19 have a question or two, Mr. Carr.

20 MR. CARR: Okay.

21 MR. WARNELL: First thing is this is 5-inch
22 tubing, and I haven't seen tubing in injection wells come
23 across my desk with 5-inch tubing in there. That's
24 interesting to see. The other thing is that usually on an
25 injection order, we require that the tubing be seated within

1 100 feet at the top perfs, and we're going to exceed that by
2 quite a bit. So I would like to talk about that. So our
3 top perfs is at -- correct me if I am wrong, is at
4 12,844 feet? That would be the top perf?

5 THE WITNESS: The top perfs is 844, right.

6 MR. WARNELL: 12,844?

7 THE WITNESS: Uh-huh.

8 MR. WARNELL: And our packer is going to be
9 set at 11,435?

10 THE WITNESS: Uh-huh.

11 MR. EZEANYIM: Why do you set the packer at
12 11,400? Why do you set the packer down there -- up there?
13 Can't we set it below that to the perf -- the squeezed out
14 zone?

15 THE WITNESS: Yeah, I mean, I am really not
16 the person to be asking that question about --

17 MR. EZEANYIM: Oh, okay.

18 THE WITNESS: -- the decisions on how to, you
19 know, set the packer and that kind of thing.

20 MR. EZEANYIM: That was an area of concern
21 because the packer should be set within 100 feet or 100 feet
22 of the top perfs, but this one is almost thousands of feet
23 above. But who do we ask the question?

24 THE WITNESS: Tom, I think --

25 MR. EZEANYIM: Well, if we have to ask him

1 the question, it has to be on the witness stand.

2 THE WITNESS: Yeah, I think we can bring
3 Mr. Barron on.

4 MR. CARR: Yes, we will bring Mr. Barron on.

5 MR. WARNELL: I think that is it for
6 Mr. Wells.

7 THE WITNESS: Okay.

8 MR. CARR: At this time, may it please the
9 Examiners, we would call Thomas F. Barron to the stand.

10 THOMAS F. BARRON

11 After having been first duly sworn under oath,
12 was questioned and testified as follows:

13 EXAMINATION

14 BY MR. CARR:

15 Q Would you state your full name for the record,
16 please?

17 A Thomas F. Barron.

18 Q Mr. Barron, where do you reside?

19 A In Houston.

20 Q And by whom are you employed?

21 A Essex Energy Storage Services.

22 Q And what is your relationship with Enstor Grama
23 Ridge Storage and Transportation?

24 A We have been providing drilling and work over
25 engineering support.

1 Q Have you previously testified before the New
2 Mexico Oil Conservation Division?

3 A No, I have not.

4 Q Could you review your educational background and
5 work experience for the Examiners?

6 A Sure. I have an undergraduate degree in petroleum
7 engineering, also, from the University of Houston. MBA from
8 Texas. Started my career with Exxon. Worked as a drilling
9 work over reservoir engineer for them for a number of years,
10 and then went to work for a small company specializing in
11 manufacturing drilling equipment. And then got into the
12 storage business about 25 years ago with an engineering
13 consulting firm, PVKVB.

14 And then in 1998, started a partnership
15 specializing in consulting services for natural gas and
16 natural gas liquid storage. And in 2004, started my own
17 company specializing, again, in natural gas storage and
18 depleted reservoirs and salt caverns and liquid storage and
19 salt caverns.

20 Q And you are consulting with Enstor on this
21 project?

22 A Yes.

23 Q Are you familiar with the applications filed --

24 A Yes.

25 Q -- in these cases?

1 MR. CARR: We tender Mr. Barron as an expert
2 witness in drilling engineering.

3 MR. BRUCE: No objection.

4 MR. WARNELL: Mr. Barron is so qualified.

5 Q (By Mr. Carr) Mr. Barron, you have been present
6 for the hearing today?

7 A Yes.

8 Q There have been questions concerning the BTA Well
9 #2, a temporarily abandoned well approximately one-half mile
10 west of the proposed injection well.

11 A Correct.

12 Q What is the status of that well?

13 A Well, it's temporarily abandoned.

14 Q And how deep is that well?

15 A We've got a schematic here, and I will have a hard
16 copy of it, but the total depth was 13,362.

17 Q What is the injection interval in this case? Do
18 you know?

19 A Well, the producing interval was the Morrow
20 formation.

21 Q Can you provide a hard copy following the hearing

22 --

23 A Yes.

24 Q -- a schematic on that wellbore?

25 A Certainly.

1 Q In terms of the proposed configuration for this
2 well if the application is granted, and in fact, it is
3 converted to an injection, the Examiners had some questions
4 concerning the placement of the packer in the well.

5 A Uh-huh.

6 Q Could you explain why you're placing the packer at
7 the depth you have selected?

8 A Well, it gives us the ability to set a full bore
9 four-and-a-half or five-inch packer to complement the
10 five-inch string, and we wanted to set it above the liner
11 top.

12 Q And that is the basis for that decision?

13 A Yes, uh-huh.

14 MR. CARR: May it please the Examiners, I
15 have no further questions for Mr. Barron, but I would pass
16 the witness to you so you can ask him whatever questions you
17 have concerning these issues.

18 MR. WARNELL: Okay. Thank you. Well, our
19 concern is where that packer is set. It's about -- what is
20 that? 1,300 feet above the top perf?

21 THE WITNESS: Yes, uh-huh.

22 MR. WARNELL: What size is that casing just
23 below the -- that is five -- four-and-a-half inch?

24 THE WITNESS: Four-and-a-half-inch line below
25 the seven-inch casing, yes.

1 MR. WARNELL: And the top of that
2 four-and-a-half-inch goes up to -- I'm sure it is here --

3 THE WITNESS: 11,463 or something like that.
4 Yeah, 11,468.

5 MR. WARNELL: Okay. So you're getting your
6 five-inch tubing down there about as close as you can?

7 THE WITNESS: Exactly.

8 MR. EZEANYIM: To comply with the rules, we
9 need to set the packer within 100 feet of that 12844 feet.

10 THE WITNESS: We made a number of attempts to
11 determine if there were rules for that and talked to a
12 number of people about -- within the state about that. We
13 could never come up with any requirement like that.

14 MR. CARR: Mr. Barron, is it physically
15 possible for you to do that?

16 THE WITNESS: Yes.

17 MR. WARNELL: You would have to run something
18 smaller than a five-inch tubing?

19 THE WITNESS: Yes, we would have to run some
20 -- probably 2 7/8" tubing down in the liner.

21 MR. EZEANYIM: That's why I said that.
22 Regardless of what packer is set, you will have to set that
23 at 75 feet, 100 feet. Anything below 100 feet at the top of
24 the perforations, we have to have that. So it is good that
25 I asked the question initially, have you done this? You

1 said no. But this is something -- a correction you have to
2 make in this schematic.

3 THE WITNESS: Uh-huh. Okay.

4 MR. EZEANYIM: To be able to have that packer
5 down there.

6 THE WITNESS: Okay.

7 MR. EZEANYIM: But you can -- it is not
8 impossible to do, is it?

9 THE WITNESS: Oh, no.

10 MR. EZEANYIM: Okay.

11 MR. CARR: And Mr. Barron, would it be
12 possible to inject at the volumes being anticipated through
13 the smaller tubing?

14 THE WITNESS: It should be, yes.

15 MR. WARNELL: Would that change your
16 pressure, surface pressure requirements then?

17 THE WITNESS: Well, it will certainly be a --
18 more pressure drop in the smaller tubing. We just have to
19 make -- run an analysis to see what the effect would be, but
20 I don't think it is going to be an appreciable change. It
21 would only be, like you pointed out, 1,300 feet of smaller
22 tubing in a 13,000 foot well, so it is -- majority of the
23 pressure drop is going to be in the five-inch.

24 MR. EZEANYIM: Yeah. We would like to have a
25 schematic of that --

1 THE WITNESS: Okay.

2 MR. EZEANYIM: -- abandoned --

3 MR. CARR: We will provide that. And we can,
4 I have been advised, have a schematic for you by the end of
5 the week, and we can make this change, and we will.

6 MR. EZEANYIM: Very good. Thank you.

7 MR. WARNELL: No further questions?

8 MR. CARR: I hate to tell you this, but I
9 have a -- have been working on proposed orders. And I just
10 passed them out to Enstor representatives, and I thought I
11 could do it to clarify the history, but I have the error in
12 them, so I'm going to have to redo them. I will submit
13 proposed orders to you, and I hope by the end of the week,
14 if not the first of the week, as soon as they clean up my
15 work.

16 MR. WARNELL: Okay.

17 MR. CARR: And that concludes our
18 presentation in this case.

19 MR. WARNELL: On these two cases, right?

20 MR. CARR: On these two cases, yes, sir.

21 MR. WARNELL: Thank you. With that then,
22 Case Number 14332 and Case Number 14333 will be taken under
23 advisement.

24 MR. CARR: Thank you very much.

25 MR. WARNELL: Thank you, Mr. Carr. If there

1 is nothing else, I believe that concludes Docket Number
 2 26-09, and we stand adjourned.

3 (Hearing concluded at 11:20 a.m.)
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 12

13 I do hereby certify that the foregoing is
 14 a complete record of the proceedings in
 15 the Examiner hearing of Case No. _____
 16 heard by me on _____

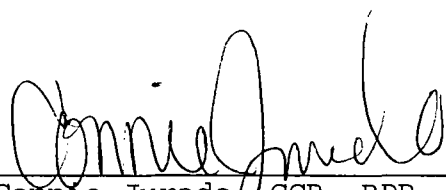
17 _____, Examiner
 18 Oil Conservation Division
 19
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 25

REPORTER'S CERTIFICATE

I, CONNIE JURADO, do hereby certify that I reported the foregoing case in stenographic shorthand and transcribed, or had the same transcribed under my supervision and direction, the foregoing matter and that the same is a true and correct record of the proceedings had at the time and place.

I FURTHER CERTIFY that I am neither employed by nor related to any of the parties or attorneys in this case, and that I have no interest whatsoever in the final disposition of this case in any court.

WITNESS MY HAND this 23rd day of July, 2009.



Connie Jurado, CCR, RPR
New Mexico CCR No. 254
Expires: December 31, 2009