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EXHIBIT NO.	TITLE		
(ITEM NO.)	(TESTIMONY OF)	OFFERED	RECEIVED
Board Exhibit	Hearing Officer Report	11	11
Exhibit C (Items 5, 6, 7 & 12)	Affidavit of notice with attachments (Norton Brooker)	18	18
Exhibit D (Items 5, 6, 7 & 12)	Petition related to Docket No. 3-3-992 (Norton Brooker)	18	18
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Exhibit F (Items 5, 6, 7 & 12)	Petition related to Docket No. 3-3-993A (Norton Brooker)	18	18
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Exhibit H (Items 5, 6,	Petition related to Docket No. 5-20-993 (Norton Brooker)	18	18
Exhibit I (Items 5, 6, 7 & 12)	2/23/99 letter to Board (Dwight L. Wiggins, Jr.	18	18
Exhibit J (Items 5, 6, 7 & 12)	4/23/99 letter to Board (Norton Brooker, Jr.)	18	18

l	EXHIBIT NO.	TITLE		
	(ITEM NO.)	(TESTIMONY OF)	OFFERED	RECEIVED
	Exhibit K (Items 5, 6, 7 & 12)	5/4/99 letter to Board (Norton Brooker, Jr.)	18	18
	Exhibit L (Items 5, 6, 7 & 12)	Affidavit of confidentiality (Robert Wood)	18	18
	Exhibit 1 (Items 5, 6, 7 & 12)	Field development map, Frisco City Field (Robert Wood)	44	45
	Exhibit 2 (Items 5, 6, 7 & 12)	Structure map, base Frisco City sand, two way time, Frisco City Field (Robert Wood)	44	45
	Exhibit 3 (Items 5, 6, 7 & 12)	Velocity gradient map, Frisco City Field (Robert Wood)	44	45
	Exhibit 4 (Items 5, 6, 7 &12)	Structure map, base Frisco City Sand in depth, Frisco City Field (Robert Wood)	44	45
	Exhibit 5 (Items 5, 6 7 & 12)	Interval isopach map, base Frisco City Sand to top of 6% porosity, Frisco City Field (Robert Wood)	44	45

EXHIBIT NO.	TITLE		
(ITEM NO.)	(TESTIMONY OF)	OFFERED	RECEIVED
Exhibit 6 (Items 5, 6, 7 & 12)	Structure map, Frisco City Sand top of 6% porosity, Frisco City Field (Robert Wood)	44	45
Exhibit 6A (Items 5, 6 7 & 12)	Structural cross section A-A', Frisco City Field (Robert Wood)	44	45
Exhibit 7 (Items 5, 6, 7 & 12)	Seismic line locations from 3-D survey, Frisco City Field (Robert Wood)	44	45
Exhibits 8A-8D (Items 5, 6, 7 & 12)	Confidential seismic lines, Frisco City Field (Robert Wood)	44	45
Exhibit 9 (Items 5, 6, 7 & 12)	Net pay isopach map, Frisco City Field (Robert Wood)	44	45
Exhibit 10 (Items 5, 6, 7 & 12)	Type log, Brents Lee 12-7 No. 1, South Frisco City Sand Oil Pool Frisco City Field (Robert Wood)	44 I,	45
Exhibit 11 (Items 5, 6, 7 & 12)	Aquifer levels, Carolyn McCollough 1-13 No. 1 Wiggins 12-3 No. 2, Frisco City Field (Ken Hanby	44 I,	45

EXHIBIT NO.	TITLE	OFFERED	DECENTED
(ITEM NO.)	(TESTIMONY OF)	OFFERED	RECEIVED
Exhibit 11B (Items 5, 6, 7 & 12)	Reservoir fluid data, south and north Frisco City Sand Oil Pools, Frisco City Field (Ken Hanby)	44	45
Exhibit 12 (Items 5, 6, 7 & 12)	Production plot of oil, gas and water Brents Lee 12-7 No. 1, Frisco City Field (Ken Hanby)	44	45
Exhibit 13 (Items 5, 6, 7 & 12)	Water cut plot, Brents Lee 12-7 No. 1, Frisco City Field (Ken Hanby)	44	45
Exhibit 14 (Items 5, 6, 7 & 12)	Production data plot, Wiggins 12-3 No. 2, Frisco City Field (Ken Hanby)	44	45
Exhibit 15 (Items 5, 6 7 & 12)	Water cut plot, Wiggins 12-3 No. 2, Frisco City Field (Ken Hanby)	44	45
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EXHIBIT NO.	TITLE		
(ITEM NO.)	(TESTIMONY OF)	OFFERED	RECEIVED
Exhibit 17 (Items 5, 6, 7 & 12)	Production and bottom hole pressure plot, Brents Lee 12-7 No. 1, Wiggins 12-3 No. 2, South Frisco City Sand Oil F Frisco City Field (Ken Hanby)	44 Pool,	45
Exhibit 18 (Items 5, 6, 7 & 12)	Production data, South and north Frisco City Oil Pools, Frisco City Field (Ken Hanby)	44	45
Exhibit 19 (Items 5, 6, 7 & 12)	Material balance computation, South Frisco City Sand Oil Pool, Frisco City Field (Ken Hanby)	44	45
Exhibit 20 (Items 5, 6, 7 & 12)	Unit Operation plan, Frisco City Field (Ken Hanby)	44	45
Exhibit A (Items 5, 6, 7 & 12)	Tract map, Frisco City Field (Ken Hanby)	44	45
Exhibit B (Items 5, 6, 7 & 12)	Mapping rules and tract participation Frisco City Field (Ken Hanby)	44	45
Exhibit 21 (Items 5, 6, 7 & 12)	Affidavit of testimony with attachments) (James Gordon Powell)	45	46

INCORPORATED BY REFERENCE

Description	OFFERED	RECEIVED
Records & prior orders Related to Frisco City Field, East Frisco City Field, Southeast Frisco City Field, North Frisco City Field	68	69

STATE OIL AND GAS BOARD OF ALABAMA

Tuscaloosa, Alabama

May 21, 1999

Testimony and proceedings before the State Oil and Gas Board in Regular Session in the Board Room of the State Oil and Gas Board Building, University of Alabama Campus, Tuscaloosa, Alabama, pursuant to adjournment, on this the 21st day of May, 1999.

BEFORE:

Gaines C. McCorquodale	Chairman
Matthew S. Metcalfe	Member
M. Stephen Dampier	Member

BOARD STAFF

Dr. Donald F. Oltz	Secretary and Supervisor
Mr. Marvin Rogers	
Mr. Gary Wilson	Deputy Supervisor
Mr. Jay Masingill	Assistant Supervisor
Mr. David E. Bolin	Assistant Supervisor
Mrs. Janyth Pashin	Assistant Supervisor
Mr. Richard Hamilton	Engineer

	NAME	REPRESENTING
1.	Bill Tucker 611 McFarland Blvd. Northport, AL 35476	Land, Inc.
2.	J. Gordon Powell 1433 Regency Oaks Dr. E. Mobile, AL 36609	Independent for JN Exploration & Producti
3.	Norton Brooker 2 North Royal Mobile, AL	JN Exploration & Producti
4.	K. Hanby Tuscaloosa, AL	JN Exploration & Producti
5.	Bob Wood Tuscaloosa, AL	JN Exploration & Producti
6.	Jim Sledge Tuscaloosa, AL	Land, Inc.

1	PROCEEDINGS
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3	(The hearing was convened at 10:12 a.m. on Friday, May 21, 1000, at Tuscaloosa, Alahama)
4	May 21, 1999, at Tuscaloosa, Alabama.
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6	
7	CHMN. MCCORQUODALE: Let the record reflect that the State Oil and Gas Board is
8	now in session. Dr. Oltz, have the items to be heard today been properly noticed?
9	DR. OLTZ: Mr. Chairman, the items to be heard today have been properly noticed. The
10	agenda of today's meeting has been transmitted to the recording secretary.
11	
12	
12	AGENDA
13	STATE OIL AND GAS BOARD MEETING
15	MAY 20 & 21, 1999
16	
17	The State Oil and Gas Board of Alabama will hold its regular monthly
18	meeting at 10:00 a.m. on Thursday, May 20, 1999, and Friday, May 21,
19	1999, in the Board Room of the State Oil and Gas Board Building,
20	University of Alabama Campus, Tuscaloosa, Alabama to consider among
21	other items of business the following petitions:
22	
23	1. DOCKET NO. 1-28-983
24	Continued petition by LOWRY EXPLORATION, INC., a foreign
25	corporation authorized to do and doing business in the State of Alabama,
26	field in Marion County Alabama to be called the Northwest Aston
2/	Branch Field or such other name as the Board deems appropriate and to
20	adopt Special Field Rules therefor. The proposed field limits consist of
30	the Northwest Quarter of Section 30. Township 11 South, Range 15 West
31	and the Northeast Quarter of Section 25. Township 11 South, Range 16
32	West, Marion County, Alabama. The said field limits are underlain by the
33	Carter Sand Gas Pool, said Carter Sand Gas Pool being defined as that

interval between 1,264 feet and 1,280 feet as indicated on the Spectral Density/Dual Spaced Neutron Log for the Leonhardt 30-4 No. 1 Well, Permit No. 11276, located in Marion County, Alabama, and all zones in communication therewith and all productive extensions thereof. Petitioner is requesting well spacing of 320 contiguous acres and the establishment of production allowables.

2. DOCKET NO. 4-8-9814

Continued petition by UNIT MANAGER, CITRONELLE UNIT, Citronelle Field, Mobile County, Alabama, requesting the State Oil and Gas Board to enter an order authorizing the Unit Manager to convert the D-8-7 Well, Permit No. 994, to a fresh water injection well pursuant to Article 3.1.3(d) of the Unit Agreement for the Citronelle Unit and Rule 14 (1)(A) of the Special Field Rules. The D-8-7 Well is located 673.5 feet from the West line and 673.3 feet from the South line of the Southwest Quarter of the Northeast Quarter of Section 8, Township 1 North, Range 2 West, in the Citronelle Unit, Citronelle Field, Mobile County, Alabama.

3. DOCKET NO. 5-13-9817

Continued petition by JN EXPLORATION & PRODUCTION LIMITED PARTNERSHIP, a foreign limited partnership authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board to make a determination pursuant to Section 40-20-1(22) and Section 40-20-2(2), *Code of Alabama* (1975), that the Southeast Frisco City Unit, Monroe County, Alabama, qualifies as a "Qualified Enhanced Recovery Project" as defined in said statutes and to make a determination of the projected annual oil or gas production that could have otherwise been produced without the benefit of the initiation of said Qualified Enhanced Recovery Project.

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4. DOCKET NO. 12-16-987

Continued petition by DE SOTO OIL & GAS, INC., a foreign corporation authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board to enter an order amending Rule 7 of the Special Field Rules for the Northwest Smiths Church Field, Escambia County, Alabama, in order to establish permanent allowables for wells completed in said field.

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5. DOCKET NO. 3-3-992

Continued petition by JN EXPLORATION & PRODUCTION LIMITED PARTNERSHIP, a foreign limited partnership authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board

(hereinafter "Board") to amend Rule 2 of the Special Field Rules for the Frisco City Field, adopted by Order 87-30, issued on February 28, 1987, as last amended by the Board in Order No. 98-44 issued on the 15th of May, 1998, to amend the name of the Frisco City Sand Oil Pool as presently defined therein to the "North Frisco City Sand Oil Pool of the Frisco City Field" and to add and name a new pool to be defined as the "South Frisco City Sand Oil Pool of the Frisco City Field," which shall be defined as that interval of the Haynesville Formation productive of hydrocarbons in the interval between 12,337 feet MD to 12,373 feet MD on the Compensated Z-Densilog, Compensated Neutron, Gamma-ray log for the Brents Lee 12-7 No. 1 Well, Permit No. 10226-B, located 1,185 feet from the North line and 1,941 feet from the East line of Section 12, Township 5 North, Range 6 East, Monroe County, Alabama. The proposed South Frisco City Sand Oil Pool is a separate and distinct pool from the North Frisco City Sand Oil Pool.

This petition is a companion to petitions bearing Docket No. 3-3-993 and 3-3-994 which seek relief related to such petition.

6. DOCKET NO. 3-3-993

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Continued petition by JN EXPLORATION & PRODUCTION LIMITED PARTNERSHIP, a foreign limited partnership authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board (hereinafter "Board") to enter an order pursuant to Section 9-17-80, et seq. of the Code of Alabama (1975), as amended, approving and establishing a partial fieldwide unit for the South Frisco City Sand Oil Pool of the Frisco City Field, hereinafter more particularly defined and referred to herein as the "Unitized Area," consisting of the following described tracts in Monroe County, Alabama to-wit: The North Half of Section 12, the North Half of the Northeast Quarter of the Northwest Quarter of the Southeast Quarter of Section 12; the Northeast Quarter of the Northwest Quarter of the Northwest Quarter of the Southeast Quarter of Section 12; the North Half of the Northwest Quarter of the Northeast Quarter of the Southeast Quarter of Section 12, Township 5 North, Range 6 East, Monroe County, Alabama, and requiring the operating of said Unit Area as a partial fieldwide unit for pressure maintenance, enhanced recovery, development and production of oil, gas, gaseous substances, condensate, distillate and all associated and constituent liquid or liquefiable substances within or produced from the unitized interval in order to prevent waste, to maximize the recovery of the unitized substances, to avoid the drilling of unnecessary wells, and to protect the coequal and correlative rights of interested partied.

The "Unitized Formation" is to be designated as the South Frisco City Sand Oil Pool in the Frisco City Field and shall be construed to mean those strata of the Haynesville Formation productive of hydrocarbons in the interval between 12,337 feet MD to 12,373 feet MD on the Compensated Z-Densilog, Compensated Neutron, Gamma-ray log for the Brents Lee 12-7 No. 1 Well, Permit No. 10226-B, located 1,185 feet from the North line and 1,941 feet from the East line of Section 12, Township 5 North, Range 6 East, Monroe County, Alabama, including those strata which can be correlated therewith. Said pool and proposed unitized area constitutes a separate and distinct oil producing pool in said field, separate and distinct from all other pools in said field.

Petitioner further seeks entry of an order unitizing, pooling and integrating the Unit Area as underlain by the above-described Unitized Formation, into a partial fieldwide unit so as to require all owners or claimants of royalty, overriding royalty, mineral, leasehold and all other leasehold interest within said partial fieldwide unit to unitize, pool, and integrate their interests and develop their lands or interests within said Unit Area as a partial fieldwide unit. Said petition further seeks to have JN Exploration and Production Limited Partnership designated as Unit Operator of the Unit Area in accordance with the laws of the State of Alabama and seeks an order from the Board approving the "Unit Agreement" and "Unit Operating Agreement.

- This petition is a companion to petitions bearing Docket No. 3-3-992 and 3-3-994 which seek relief related to such petition.
- 7. DOCKET NO. 3-3-994

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Continued petition by JN EXPLORATION & PRODUCTION LIMITED PARTNERSHIP, a foreign limited partnership authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board "(hereinafter "Board") to enter an order amending Rule 1 of the Special Field Rules for the Frisco City Field, adopted by the Board in Order No. 87-30, issued on February 28, 1987, and last amended by Order No. 98-44, issued on the 15th day of May, 1998, so as to add thereto lands described as:

1 2 3 4 5 6	The North Half of the Northeast Quarter of the Northwest Quarter of the Southeast Quarter of Section 12; the Northeast Quarter of the Northwest Quarter of the Northwest Quarter of the Southeast Quarter of Section12; the North Half of the Northwest Quarter of the Northeast Quarter of the Southeast Quarter of Section 12, Township 5 North, Range 6 East, Monroe County, Alabama.
7 8 9 10	Said acreage to be added to the defined limits of the Frisco City Field constitutes a productive extension of the said Frisco City Field and coincides with the proposed unit area of the proposed Frisco City Oil Unit.
12 13	This petition is a companion to petitions bearing Docket Nos. 3-3-993 and 3-3-992 which seek relief related to such petition.
14 15 16 17 18 19 20 21 22 23	8. DOCKET NO. 4-7-992 Continued petition by TAURUS EXPLORATION, INC., an Alabama corporation, requesting the State Oil and Gas Board, pursuant to Section 9- 17-1, et seq. Code of Alabama, (1975), and Rule 400-1-306 of the State Oil and Gas Board of Alabama Administrative Code, to enter an order extending the temporarily abandoned status for certain coal degasification wells in the Big Sandy Creek, Oak Grove and Brookwood Coal Degasification Fields located in Tuscaloosa and Jefferson Counties, Alabama, in the following areas:
24 25 26	Township 18 South, Range 7 West Sections 21, 27, 30, 33 and 34
27 28 29 30	Township 18 South, Range 8 WestSections 24, 26, 35 and 36Township 19 South Range 7 West
32 33	Sections 10, 14 and 15
34 35 36	Sections 1, 2, 10, 15, 16 and 22
37 38 39	Township 24 North, Range 6 East Sections 3, 10, 11 and 14
40 41	The previously granted temporarily abandoned status expires on May 21, 1999, and Taurus Exploration, Inc. is requesting this Board to grant a six-

month extension of the temporarily abandoned status beginning May 21, 1999, because all of the wells in the aforementioned Sections have future utility and should not be plugged.

9. DOCKET NO. 4-7-996

Continued petition by LAND AND NATURAL RESOURCE DEVELOPMENT, INC., an Alabama corporation, requesting the Board to extend the temporarily abandoned status for 228 wells, all of which are located in the Moundville Field, Tuscaloosa and Hale Counties, Alabama. Petitioner owns an interest in said wells and proposes to extend the temporarily abandoned status in order that said wells can be re-entered and completed. Petitioner alleges that said wells have future utility. The wells are located in the following Sections:

10. DOCKET NO. 5-20-991

Petition by UNION OIL COMPANY OF CALIFORNIA, a foreign corporation authorized to do and doing business in the State of Alabama, and operator of the Chunchula Field Unit in Mobile County, Alabama, requesting the State Oil and Gas Board of Alabama to enter an order extending for six months the temporary abandoned status of the following twelve wells listed below in the Chunchula Field Unit, Mobile County, Alabama.

	PERMIT NO.	WELL NAME	LOCATION
	2357	I.P.C. 2-6 #1	Sec. 2, T2S, R2W
	2355-В	R.J. Smith 6-10 #1A	Sec. 6, T1S, R1W
	3650	M.V. Kelly 10-3 #1	Sec. 10, T1S, R2W
	4255-B	M.V. Kelly 11-1 #1	Sec. 11, T1S, R2W
	2914	R.L. Smith 12-11 #1	Sec. 12, T1S, R2W
1	2044	J.A. Smith 15-6 #1	Sec. 15, T1S, R2W
	2584-B	R.E. Davis 1-11 #1	Sec. 1, T1S, R2W
	2350	Creola Investment 34-7 #1	Sec. 34, T1S, R2W
	2005-В	Mobile County Board	Sec. 16, T1S, R2W
		of School Commissioners 16	-10 #1
	2324	George Radcliff 30-6 #1	Sec. 30, T1S, R1W
	2252	Richard W. Rascoe 3-10 #1	Sec. 3, R2S, R2W
	2062-B-1	I.P.C. 17-7 #1 A-B	Sec. 17, T1S, R2W
		(Formerly I.P.C. 17-11)	

11. DOCKET NO. 5-20-992

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Petition by UNION OIL COMPANY OF CALIFORNIA, a foreign corporation authorized to do and doing business in the State of Alabama, and operator of the Chunchula Field Unit in Mobile County, Alabama, requesting the State Oil and Gas Board of Alabama to grant a permanent exception to Rules 400-1-1-.01 et seq. (and, in particular, Rules 400-1-3-.12 and 400-1-4-.03) of the State Oil and Gas Board of Alabama Administrative Code and the Special Field Rules for the Chunchula Field (including Rule 4(b) thereof) to provide that underbalanced drilling operations can be conducted with respect to the proposed George Radcliff 30-6 Well No. 1, Sidetrack No. 2, with a proposed bottom hole location in Section 30, Township 1 South, Range 1 West, Mobile, County, Alabama, and to provide that said well can be completed open hole and without the use of a packer. This petition is filed pursuant to Ala. Code §9-17-1 et seq. (and, in particular, §§9-17-6) and Rules 400-1-1-.01 et seq. (and, in particular, Rule 400-1-12-.01 et seq.) of the State Oil and Gas Board of Alabama Administrative Code.

12. DOCKET NO. 5-20-993

Petition by JN EXPLORATION & PRODUCTION LIMITED PARTNERSHIP, a foreign limited partnership authorized to do and doing business in the State of Alabama, requesting the State Oil and Gas Board (hereinafter "Board") to enter an order pursuant to Section 9-17-80, *et seq.* of the *Code of Alabama* (1975), as amended, approving the "Unit Agreement" and "Unit Operating Agreement" for the proposed Frisco City Unit, Monroe County, Alabama.

Petitioner alleges that it has obtained written approvals by or has received commitments to execute and approve in writing, prior to a hearing of this petition, the Unit Agreement and Unit Operating Agreement by the owners of the working interest representing more than 75% in interest as costs are shared under the Unit Agreement and Unit Operating Agreement, and has obtained approval by more than 75% in interest of the royalty and overriding royalty owners in the Unit Area. Said Unit Area being specifically defined as follows:

The northwest quarter of Section 12, Township 5 North, Range 6 East; northeast Quarter of Section 12, Township 5 North, Range 6 East; north half of the northeast quarter of the northwest quarter of the southeast quarter of Section 12; northeast quarter of the northwest quarter of the northwest quarter of the southeast quarter of Section 12, Township 5 North, Range 6 East; and the north half of the northwest quarter of the northeast quarter of the southeast quarter of Section 12, Township 5 North, Range 6 East.

13. DOCKET NO. 3-6-9637

Continued MOTION BY THE STATE OIL AND GAS BOARD OF ALABAMA to repeal and rescind all rules and regulations of statewide application and to promulgate new rules and regulations of statewide application, provided, however, that Special Field Rules shall not be repealed and rescinded. The rules and regulations of the State Oil and Gas Board are set forth in Rule 400-1-1-.01 *et seq.* of the State Oil and Gas Board of Alabama Administrative Code. Under this Motion, the State Oil and Gas Board proposes to make substantial changes to regulations governing coalbed methane gas operations, offshore operations, and various other regulations.

Members of the public are invited to attend this meeting and to present to the Board their position concerning these matters. If special accommodations are needed to facilitate attendance or participation in the meeting, please call 205/349-2852, ext. 211.

The public is advised that the Board may promulgate orders concerning a petition which may differ from that requested by the petitioner concerning the lands described in the notice. Pursuant to this hearing, Section 9-17-1 et seq. of the *Code of Alabama* (1975) and the rules and regulations promulgated thereunder, the Board will enter such order or orders as in its judgment may be necessary based upon the evidence presented.

The State Oil and Gas Board was originally established by Act No. 1 of the Legislature of Alabama in the Regular Session of 1945. The applicable law pertaining to the establishment of the Board now appears in Section 9-17-1 et seq. of the *Code of Alabama* (1975), as last amended. The applicable rules pertaining to the conduct of hearings by the Board are found in Rule 400-1-12-.01 et seq. of the State Oil and Gas Board of Alabama Administrative Code.

1	The next meeting of the Board will be held at 10:00 a.m. on Tuesday, June 29, 1999, and Thursday, July 1, 1999, in the Board Room
2 3	of the State Oil and Gas Board Building, Tuscaloosa, Alabama. The
4	notices for the June meeting should be filed on or before Friday, June 4,
6	or before Tuesday, June 15, 1999. Requests to continue an item or to
7	oppose an item listed on the docket should be received by the Board at
8	least two (2) days prior to the hearing.
10	Donald F. Oltz
11 12	Secretary to the Board
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13	
14	DR. OLTZ: At this time the Hearing Officer will make his report to the Board.
15	MR. ROGERS: Mr. Chairman and members of the Board, I have a written report to the
16	Board of the items heard by the Hearing Officer and the staff on May 20, 1999. Copies of the
17	report are available for the members of the public to review and study. I recommend the report
18	be adopted by the Board.
19	MR. DAMPIER: Move.
20	MR. METCALFE: Second.
21	CHMN. MCCORQUODALE: All in favor say "aye."
22	(All Board members voted "aye")
23	CHMN. MCCORQUODALE: "Ayes" have it.
24	(Whereupon, the Hearing Officer report
25	was received in evidence)
26	MR. ROGERS: I recommend the report be made a part of the record.

1	CHMN. MCCORQUODALE: That request is granted.
2	DR. OLTZ: Mr. Chairman, the staff would recommend approval of the minutes of the
3	following meetings: April 7, 1999, Hearing Officer Meeting; April 9, 1999, Hearing Officer
4	Meeting; April 12, 1999, Board Meeting; and April 27, 1999, Special Hearing Officer Meeting.
5	MR. METCALFE: Move.
6	MR. DAMPIER: Second.
7	CHMN. MCCORQUODALE: All in favor say "aye."
8	(All Board members voted "aye")
9	MR. ROGERS: Mr. Chairman and members of the Board, the items to be heard today
10	are as follows: Item 5, Docket No. 3-3-992, petition by JN Exploration and Production Limited
11	Partnership; Item 6, Docket No. 3-3-993, petition by JN; Item 7, Docket No. 3-3-994, petition by
12	JN; Item 9, Docket No. 4-7-996, petition by Land and Natural Resource Development, Inc.; and,
13	Item 12, Docket No. 5-20-993, petition by JN Exploration & Production Limited Partnership.
14	CHMN. MCCORQUODALE: Mr. Rogers, I understand that Item 9 will be a
15	considerably shorter item than the others which will be consolidated for hearing purposes. Is that
16	right?
17	MR. ROGERS: Yes, sir.
18	CHMN. MCCORQUODALE: It would be the opinion of the Chair that we would hear
19	Item 9 first and dispense with that if there is no objection to that, Mr. Brooker.
20	MR. SLEDGE: Mr. Rogers, I have one witness that needs to be sworn.
21	MR. ROGERS: Will you state your name and address?

1	MR. TUCKER: My name is Bill Tucker. My address is 611 Highway 82 West,
2	Northport, Alabama.
3	(Witness was sworn by Mr. Rogers)
4	MR. SLEDGE: Mr. Tucker is going to talk from this map. He may want to do it up
5	there. Before we get started, my name is Jim Sledge and I do represent the Petitioner in this
6	matter. We are asking that the temporarily abandoned status of the wells in the Moundville Coal
7	Degasification Field be extended for six months. I do need to handle a procedural matter and
8	withdraw the affidavit that was filed by Bruce Sakashita in support of this petition. Mr.
9	Sakashita is the President of AmVest Oil and Gas, Inc. After the filing of that affidavit AmVest
10	elected to not go forward with their participation in the project. Therefore, some of the
11	statements that he made no longer applied. We would just like to withdraw that affidavit
12	altogether.
13	CHMN. MCCORQUODALE: That request will be granted and it will be expunged from
14	the record.
15	MR. SLEDGE: Mr. Tucker, you have previously testified before this Board and your
16	qualifications as an expert petroleum engineer have been accepted.
17	BILL TUCKER
18	Appearing as a witness on behalf of petitioner, Land and Natural Resource Development,
19	Inc., testified as follows:

DIRECT EXAMINATION 1 Questions by Mr. Sledge: 2 If you could, using the map and the other data that you have available, tell the Board Q. 3 where we are with this field and what you see for its future. 4 Mr. Chairman and Board members, we're pleased to be here today to discuss with you 5 A. the activity of Moundville again. I want to be very brief because I know you have a busy 6 morning. I'll make a statement and then if you have any questions I will be happy to 7 answer. At a Baptist training school seminary they said make three points and a prayer. 8 My points are what have we done, what have we learned, and what we would like to be 9 able to do. At the last several meetings I have appeared as a consultant to AmVest Oil 10 and Gas who was our partner since about this time last year. AmVest sponsored our 11 program and put up the financing to recomplete six wells in the Moundville Field which 12 are shown in yellow and to also recomplete three wells in the Big Bend area, just run 13 pumps and produce those wells. In February--January and February, especially February, 14 gas prices got down to \$1.60 and AmVest felt that their capital could be better spent 15 buying existing reserves and existing producing properties rather than the long extended 16 research program at Moundville; so, they elected to withdraw. We have been going 17 through the divorce proceedings and alimony settlement in March and April. 18 19 Q. I don't think the Board is interested in that, Bill. Now we are prepared to resume our program. AmVest wanted to frac and stimulate the A. 20 wells in their own manner and we tried to carry that out as well as we could. This was 21

not what we call the Land, Inc. completion method which was to complete every zone, 1 isolate every zone, and individually frac every zone. The frac jobs they used--we learned 2 a lot of useful information: frac gradients and the velocities and rates that we could 3 stimulate the wells. So, it's not entirely wasted. Three of the wells were unsuccessful 4 and three of them were capable of producing 20 to 25 Mcf a day. Three wells that have 5 just been put on pump are able to do about that amount. In the Big Bend area, a total of 6 maybe 200 Mcf a day. What we are proposing to do this summer is to commence 7 selectively picked wells to plug and abandon. Those will be done on the basis of 8 geology, engineering, logistical problems, land owners that wish for their well to be 9 plugged permanently, lease conditions, and things of that nature. In consultation with the 10 Board's staff we would like to present four wells at a time, get the staff's input, and go to 11 the field and proceed with plugging those. We're shooting for somewhere between 15 to 12 20 wells plugged by September 1. In addition to this we would, should gas prices reach 13 the \$2.75 to \$3.00 range, put these six wells back on production, not that we can make 14 money at 200 Mcf a day but we would like to have some long term tests on that group of 15 wells. Uh, also in that price range we would intend to start some type of pilot completion 16 program using the process that we have worked on so long over the years and wish to try. 17 We have had some encouragement in that process by work that Schlumberger Dowell--18 19 Schlumberger has done in Canada. They were able to use coil tubing and complete multiple zones and isolated zones and even in perforations above the zone they were 20 treating. Their results make us feel even stronger that our method would work very well. 21

1	Q.	Bill, let me just ask you to make sure you cover this. In your opinion, does the field and
2		the wells in it still have future utility for the production of the resource?
3	A.	We believe strongly than ever that Moundville is a viable resource. It's very sensitive to
4		price and price of course is very sensitive to supply and demand. We are currently doing
5		an economic study on whether to even be in the oil and gas business. Sometimes the
6		stock market looks more feasible than getting out there and drilling wells. It's our
7		opinion that with less than 500 rigs running, especially shut down in the offshore rigs,
8		you are having a 20 to 25 percent depletion rate on gas reserves in the Gulf of Mexico
9		and you are having a 4 to 5 percent increase in demand; so, we are losing ground in the
10		25 to 30 percent range. Our projections are that, according to the Hubbard Economic
11		Curve of Depleting Resources, we will start running out of gas in 2002 and gas will
12		become very precious.
13	Q.	I hate to berate the point but I know Mr. Rogers wants a clear answer. It is your opinion
14		that the wells have future utility?
15	A.	Yes, it is certainly my opinion of that. It's contingent on economics.
16		MR. SLEDGE: That's really all that we have. We would be glad to answer any
17	questi	ons that the Board or staff might present.
18		CHMN. MCCORQUODALE: Does the staff have questions or comments? Mr. Sledge
19	or Mr.	Tucker, is there any clamoring by anybody to plug these wells?
20		MR. SLEDGE: There is not any clamoring byI think there may be one or two
21	landov	vners down there that would like to see their well plugged. That's the reason Bill

1	mentioned them. I don't think there is a general clamoring. I think what we are telling you here
2	in a quick summary is that Land, Inc. thinks that the project has viability. They are continuing to
3	try to partner-up with somebody to develop it but they recognize that some of the wells need to
4	be plugged. Perhaps by reducing the size of the project that might actually clean it up and make
5	it more attractive. If we're not successful in getting somebody in there with us we're going to
6	have to keep on plugging wells until we plug them all.
7	MR. METCALFE: Mr. Chairman, I move that we grant the petition.
8	MR. DAMPIER: Second.
9	CHMN. MCORQUODALE: All in favor say "aye".
10	(All Board members voted "aye")
11	CHMN. MCCORQUODALE: "Ayes" have it. Mr. Brooker.
12	MR. BROOKER: I'm Norton Brooker representing the petitioner in 3-3-992, 3A, 4 and
13	our newest petition which I believe is Item No. 9, Docket No. 5excuse me, I'm sorry, No. 12,
14	5-20-993. We would ask that all those be consolidated for today's presentation.
15	CHMN. MCCORQUODALE: That request is granted.
16	MR. BROOKER: I will have three witnesses and I will need them sworn.
17	MR. ROGER: Will you gentlemen state your names and addresses?
18	MR. HANBY: Ken Hanby, Northport, Alabama.
19	MR. WOOD: Bob Wood, Tuscaloosa, Alabama.
20	MR. POWELL: Gordon Powell, Mobile, Alabama.
21	(Witnesses were sworn by Mr. Rogers)

1	MR. BROOKER: At the beginning I would like to introduce into evidence the affidavit
2	of notice that is in the file. This is the notice to the various land owners and owners of working
3	interest and royalty and overriding royalty interest in the area sought to be unitized. It was
4	prefiled.
5	CHMN. MCCORQUODALE: The affidavit is admitted.
6	(Whereupon, the affidavit was
7	received in evidence)
8	MR. BROOKER: I would also like to introduce into evidence or into the record in this
9	matter the various correspondence that is in thein the file as well as the sworn petitions
10	themselves and Mr. Wood's affidavit of confidentiality that was prefiled in connection with the
11	Administrative Procedure Act and the seismic lines.
12	CHMN. MCCORQUODALE: Those items are all admitted.
13	(Whereupon, the correspondence, petitions,
14	and affidavit were received in evidence)
15	MR. BROOKER: My first witness this morning is Mr. Bob Wood. Mr. Wood, your
16	qualifications as an expert in petroleum geology have been accepted by this Board in the past?
17	MR. WOOD: They have.
18	MR. BROOKER: We would tender him as an expert in petroleum geology.
19	CHMN. MCCORQUODALE: Mr. Rogers has just pointed out and maybe we need for
20	the record just to resolve that so there is no confusion, the cover of the booklet which you have
21	handed up for 9910 and 9916 makes reference to Saxon Bay Field, Mobile Bay Area.

1	MR. BROOKER: What? What does?
2	MR. WOOD: When Mr. McCorquodale just raised that it looked like our draftsman
3	made an error in putting the wrong cover from another item on these booklets. We will, after
4	this hearing is over, get them and put in the correct cover. I apologize.
5	CHMN. MCCORQUODALE: Mr. Rogers said that the original is correct, that the copies
6	just came out that way. Just so there was no confusion for the purposes of this record I wanted to
7	clear that. I'm sorry, Mr. Brooker, I didn't mean to interrupt your train of thought.
8	MR. BROOKER: You've derailed it with that. Mr. Wood, your qualifications as an
9	expert in petroleum geology have been accepted by this Board on prior occasions?
10	MR. WOOD: They have.
11	MR. BROOKER: We tender him as an expert in petroleum geology.
12	CHMN. MCCORQUODALE: He is so recognized.
13	ROBERT WOOD
14	Appearing as a witness on behalf of Petitioner, JN Exploration & Production Limited
15	Partnership, testified as follows:
16	DIRECT EXAMINATION
17	Questions by Mr. Brooker:
18	Q. Mr. Wood, you have prepared exhibits for today's presentation?
19	A. I have.
20	Q. I believe it is Exhibits 1 through 10, is it not?
21	A. One through ten including the confidential seismic exhibits.
	10

Q. These exhibits were prepared by you or under your supervision?

2 A. They were.

3 Q. All right. Do they accurately depict what they are intended to depict?

4 A. Yes, they do.

5 Q. Let's go to Exhibit No. 1. If you would, explain Exhibit 1 to the Board and staff.

Exhibit No. 1 is a field development map for the Frisco City Field located in Monroe Α. 6 County, Alabama. The scale of this map is 1-inch equals 1,000 feet. The field limits for 7 the Frisco City Field as they are today is the tan dashed line that outlines the present field 8 limits. What we are doing today is proposing several things. One, we're proposing to 9 revise the field limits to add 12.5 acres south of the Brents Lee 12-7 unit. That is 10 described in Exhibit B for the Unit Operating Agreement. That is the area that would be 11 delineated in the red dashed line, would be the revised field limits. We're also proposing 12 to define a separate pool, the South Frisco City Sand Oil Pool, and to redefine the North 13 Frisco City Sand Oil Pool to only include the area shaded in blue which would consist of 14 the McCollough unit and the Baas unit, the Baas 2-16 unit. That would consist of the 15 Southeast Quarter of Section 2 and the Southwest Quarter of Section 1. We have 16 prepared a new type log for naming the new pool. The type log would be for the Brents 17 Lee 12-7 well and that would be for the South Frisco City Sand Oil Pool. Today we are 18 proposing to create the reservoir-wide unit for that south pool. 19

20

Q. All right. Let's go now to Exhibit No. 2. Explain Exhibit 2, Mr. Wood.

1	A.	Exhibit No. 2 is a structure map based on the base of the Frisco City sand. This is a time
2		map prepared from the 3-D seismic survey that was procured over this entire area. The
3		datum has been processed on the Kingdom Workstation. The datum for the map also
4		incorporates the time data that has been posted in yellow by each of the wellbores. The
5		map shows basically four structures unique to this field in that there is a structural high in
6		each of the four developed units. To the west is the Baas 2-16 unit. East of that is the
7		McCollough 1-13 unit. In the southern portion of the field is the Wiggins 12-3 No. 2
8		well unit and then the most eastward producing unit in the field is the Brents Lee 12-7
9		well unit. The structural highs are areas where the Frisco City sand does not breach the
10		structure. Those no sand areas are shown highlighted in red. This map is the first in a
11		five-step process for constructing a map on top of the Frisco City sand for purposes of
12		delineating the reservoir and establishing the equity for the unit. The map is used in
13		conjunction with time maps, velocity maps, and other maps for construction of the
14		subsequent exhibits.
15	Q.	Go on to your next exhibit and explain it, Mr. Wood.
16	A.	Exhibit No. 3 is the second step in a process identical to the process that we used for
17		establishing the reservoir-wide unit in the Southeast Frisco City Field wherein we are
18		showing the velocity gradient over the area. This is a velocity gradient map, the same
19		scale. The datum has been posted in yellow by each well. We have contoured on a 25
20		foot per second contour interval to show that the velocity relationship is determined
21		based on the data. In other words, we see that there is a velocity gradient increase going

1		from proximal areas to the domes to more distal areas on the flanks of the structures.
2		This is used in conjunction with the time map for a conversion to depth for the base of the
3		Frisco City sand.
4	Q.	In other words, without the velocity it's difficult to determine depth. Is that correct?
5	A.	It's not possible.
6	Q.	Go to your next exhibit and explain this exhibit.
7	А.	Exhibit No. 4 is once again a structure map on the base of the Frisco City sand, however,
8		this is in depth. This is the third step in the process for developing the top of the Frisco
9		City sand map. This is the depth from the base of the Frisco City sand. This would be
10		the base of the sand at six percent porosity. The datum has been posted by each well or it
11		would represent the structure at the top of basement forin the areas where there is no
12		sand. This is also the basis for the time velocity depth relationship.
13	Q.	So then this exhibit combines the prior exhibits. Is that correct?
14	A.	That is correct.
15	Q.	Go on to Exhibit 5.
16	А.	The fourth step in developing the top of the Frisco City sand map would be the interval
17		isopach map. That would be the interval thickness between the base of the sand and the
18		top of the sand based on the six percent porosity cut off. The datum for this well is
19		posted in yellow by each well. We see that the interval thickness between the top and the
20		base of the sand thins as we come proximal to each of the structural highs.
21	Q.	Exhibit No. 6.

1	A.	Exhibit No. 6 is the structure map on top of six percent porosity for the Frisco City sand.
2		The subsurface true vertical depth for the penetrations for each of the wellbores is shown
3		posted in yellow by each of the wells. Of course, the datum for this map is the 3-D
4		seismic survey in the mechanical technique that we have shown in the five-step process
5		for developing this map. This map depicts domes around each of the basement highs. It
6		shows saddles between each of the four highs. There is a prominent "saddle" between
7		the northern two wells and the southern two wells. That would be specifically between
8		the McCollough 1-13 Well and the Wiggins 12-3 No. 2 Well. What we have found in
9		mapping this is that in studying the well logs we have different hydrocarbon
10		accumulations to the north verses to the south. We have also found that the accumulation
11		in the southern portion of the field was not contained within the two developed units for
12		the Frisco City Field. Some of that productive area extended south of the Brents Lee 12-
13		7 Well. We have proposed for that to be included in the proposed unit area. The
14		southern pool has an oil-water contact mapped as established at 11,96excuse me,
15		11,996 feet. That's based on a low proven oil of 11,994 feet in the Brents Lee 12-2 No.
16		1 Well. That's a dry hole that was drilled north of the Brents Lee 12-7 Well and we also
17		have a low proven oil established in the Wiggins 12-3 No. 1 Wellexcuse me, the 12-3
18		No. 2 Well at 11,999 feet. That's the low proven oil. This is in contrast to the data for
19		the McCollough 1-13 Well where that well encountered a low proven oil of 11,960 feet
20		and a high proven water at 11,964 feet. So, I picked an oil-water contact at 11,962 feet
21		which is the mid-point between the high water and the low oil in the McCollough 1-13

	1	
1		well as the oil-water contact. Clearly, there are separate hydrocarbon accumulations
2		between the area to the north and the area to the south. The southern pool has an oil-
3		water contact that does extend south of the Brents Lee unit based on a mapping rule with
4		2.5 acre tracts basically governmental quarter-quarter-quarter-quarter sections. If any of
5		that quarter-quarter-quarter-quarter section was underlain by hydrocarbons as delineated
6		in this mapping process then we included it in the proposed unit area. This is described
7		in the mapping rule under Exhibit B for the Unit Operating Agreement. This creates an
8		additional outlying 12.5 acre area. It's located in the Southeast Quarter of Section 12 and
9		we are proposing to include that in our unit area.
10	Q.	Mr. Wood, I know we are going to go actually look at the seismic lines but could you tell
11		the Board and the staff your opinion with respect to the quality of the seismic information
12		we have?
13	А.	This is high quality data. It is very suitable for delineating this reservoir.
14	Q.	Do you believe that using the minimum size of 2.5 acres is reasonable under the
15		circumstances with the quality of your seismic?
16	A.	Yes, I do. Exhibit No. 6 also shows the location for the following exhibit, cross section
17		A-A'. If you would, note that A-A' existsextends from the northwest to the southeast
18		from the McCollough 1-13 Well through the two producing wells in the south pool.
19	Q.	Go now to Exhibit 9excuse me, 6A. I'm sorry.
20	A.	Exhibit No. 6A is the structural cross section A-A'. The left-hand portion of the exhibit
21		is the northwest. The right-hand portion is the southeast. The McCollough structure can

1		be seen in the left-hand portion of this exhibit. We have shown the oil-water contact of
2		11,962 feet as established in the McCollough well with the difference in the elevation of
3		the oil-water contact in the south pool being 11,996 feet. This map isexcuse me, this
4		cross section is drawn true to the scale and the depth and the vertical scale is posted in the
5		left-hand portion of the panel. The top of the Frisco City sand is highlighted so the area
6		underneath that the areas of accumulation colored in green represent the oil bearing
7		portion of the reservoir.
8	Q.	This structural cross section would indicate separation between these two pools?
9	А.	Yes, it does.
10	Q.	Go now I believe to Exhibit No. 7.
11	А.	Exhibit No. 7 is a plan map showing the location of the seismic lines that we have
12		included in the booklet labeled JN Exploration & Production Limited Partnership, Frisco
13		City Field, Monroe County, Alabama, Exhibits 8A through 8D which are the confidential
14		seismic lines. If you would, please open the booklet and turn to Exhibit No. 8A. You
15		can leave out Exhibit No. 7 which shows the location for each of these lines. If you
16		would like, Mr. Brooker, I can briefly go through each of these.
17	Q.	If you would, go through each one of these lines.
18	A.	Exhibit No. 8A is the west-to-east seismic line No. 1. This shows that the left-hand
19		portion is to the west and the right-hand portion is to the east. Three different events
20		have been labeled on this. The Upper Haynesville marker is the bright red. The Lower
21		Haynesville marker is the green line and the base of the Frisco City sand interval or top

of basement is shown in the dark red. The dark red line represents the base of six percent 1 porosity or the base of the Frisco City sand or the top of the basement in the areas of no 2 sand. It shows--this section shows the Wiggins 12-3 Well and the Wiggins structure in 3 the east-west relationship with the Brents Lee. The saddle between the two producing 4 areas can be-- is evidenced by this exhibit. If you would now, please turn to Exhibit No. 5 8B. This is the north-south seismic line that extends from the Dees well which is a dry 6 hole that was drilled between the Frisco City Field and the Southeast Frisco City Pool 7 Unit. It's in a saddle between those two. We demonstrate the structural relationship of 8 the area of the Dees well to the north and through the developed unit for the 12-7 Well 9 showing the Brents Lee location. If you would now, turn to the west-to-east seismic line 10 No. 3 which is Exhibit No. 8C. This extends from the northeast on the left-hand portion 11 of the exhibit to the southeast--excuse me, the northwest on the left-hand portion of the 12 exhibit to the southeast on the right-hand portion of the exhibit. This seismic line almost 13 parallels Exhibit No. 6A which is the structural cross section A-A'. It shows the Baas 2-14 16 Well in the left-hand portion, the saddle between the Baas well and the McCollough 1-15 13, and it also shows the saddle between the McCollough and the Brents Lee 12-7. If it 16 were oriented a little bit different where this line crossed through the Wiggins or went to 17 the Wiggins structure the saddle between the McCollough well would be more 18 prominent. That's shown on the next exhibit, Line 4. If you would now, turn to Exhibit 19 No. 8D which is north-south seismic line 4. This exhibit shows the saddle between the 20 McCollough structure and the Wiggins structure. The left-hand portion of the exhibit is 21

1		to the north and the right-hand portion is to the south. The structural low between the
2		two basement highs is highly evident. If you would now, turn to Exhibit No. 9. Exhibit
3		No. 9 is our net pay isopach map. This is the map that was planimetered to determine the
4		acre feet of productive area for each of the tracts in the field. This map is based on a
5		culmination of all the data that has been presented thus far plus the netting of the sand
6		thicknesses for each of the wells as based on a six percent porosity cut off. The datum is
7		posted in yellow by each well and that would be the amount of six percent porous feet
8		that occurs above the oil-water contact or the low proven oil. This map is drawn on a 25
9		foot contour interval. Please note that there is a dashed 34 foot contour interval that is in
10		each of the tracts
11	Q.	Explain what this means.
12	А.	and the reason for the 34 feet is that is the maximum thickness of net pay that was
13		found in any one well. The acre feet can be cut offthe thickness can be cut off at 34 feet
14		using this technique.
15	Q.	Is that basedis that cut off based upon prior orders of this Board?
16	A.	Yes, it is. This exhibit is the basis for determining the net pay per tract. That is reflected
17		in Exhibit B to the Unit Operating Agreement and is described in that exhibit. If you
18		would now, turn to Exhibit No. 10. Exhibit No. 10 the type log for the proposed new
19		reservoir. Previously the Frisco City Field had been developed with the definition of the
20		Frisco City sand in the McCollough 1-13 Well. We are proposing for the 1-13 Well to be
21		the type log for the north pool. Today we are proposing to establish the south pool and

1		use this as the type log. This is the compensated density log, compensated neutron,
2		gamma ray log for the Brents Lee 12-7 Well. We are proposing to define the Frisco City
3	2	Field for the south pool at a measured depth of 12,337 feet and the base at 12,373 feet
4		and any portion that would correlate with this log in the southern pool.
5	Q.	The north pool would remain the same as it currently is using the McCollough log?
6	А.	Yes.
7	Q.	Mr. Wood, based upon your work are you satisfied that the pools that we have talked
8		about today, the north pool and the south pool, are separate and distinct?
9	А.	Yes, I am.
10	Q.	Neither drains hydrocarbons one from the other?
11	А.	They do not.
12	Q.	So neither pool is contributing hydrocarbon production to the other pool?
13	А.	That is correct.
14	Q.	Have you reviewed the Unit Agreement and the Unit Operating Agreement from a
15		geological point of view?
16	A.	I have.
17	Q.	Are these agreements consistent with your geology?
18	А.	Yes, they are.
19	Q.	Are the agreements to your knowledge consistent with prior unitizations approved by the
20		Board?
21	А.	Yes, they are.
		28

1	Q.	In your opinion, will the granting of all the petitions brought by JN today prevent waste?		
2	А.	Yes, they will.		
3	Q.	Will it protect correlative and coequal rights of all the owners in the area?		
4	А.	Yes.		
5	Q.	Will it avoid the drilling of unnecessary wells?		
6	A.	Yes.		
7	Q.	Will the unitization allow owners to recover their fair share of hydrocarbons?		
8	А.	It will.		
9		MR. BROOKER: I will now go to my engineering witness, Mr. Hanby. I assume we		
10	will jus	will just save questions for later, right?		
11		CHMN. MCCORQUODALE: Exactly.		
12		MR. BROOKER: Mr. Hanby, have your qualifications as an expert in petroleum		
13	engine	ering been accepted by this Board on prior occasions?		
14		MR. HANBY: Yes, sir, they have.		
15		MR. BROOKER: We tender Mr. Hanby as an expert in petroleum engineering.		
16		CHMN. MCCORQUODALE: He is so recognized.		
17		KEN P. HANBY		
18		Appearing as a witness on behalf of Petitioner, JN Exploration & Production Limited		
19	Partner	rship, testified as follows:		
		29		
	3			
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1		DIRECT EXAMINATION		
2	Questi	ons by Mr. Brooker:		
3	Q.	Mr. Hanby, did you prepare exhibits for today's presentation?		
4	A.	Yes, sir, I did.		
5	Q.	I believe it's No. 11 through A and B?		
6	A.	Eleven through 20 and Exhibit B.		
7	Q.	Now, let's go to Exhibit No. 11, Mr. Hanby. If you would, point out the salient points on		
8		this exhibit.		
9	A.	This exhibit shows the aquifer levels from the two pools. Shown on the left is the		
10		Carolyn McCollough 1-13 No. 1, part of the log on that well, which is representing the		
11		north pool. The Wiggins 12-3 No. 2 is shown on the right completed in the south pool.		
12		What I have shown is the top of the Frisco City sand on each of these logs and also have		
13		shown the aquifer level, this being the level where you reach 100 percent water		
14		saturation. In the Carolyn McCollough the aquifer level is at 12,396 feet which is a		
15		subsea of -11,987. In the south pool the aquifer level is at 12,427 or a subsea of -12,015		
16		TVD.		
17	Q.	What does this indicate, Mr. Hanby?		
18	A.	This indicates that the two pools are totally separate hydrocarbon accumulations with a		
19		common aquifer. The aquifer level is approximately 28 foot separated. We actually have		
20		oil in the south pool in the Wiggins 12-3 No. 2 and also in the Brents Lee that exist below		
21		the water level in the north pool as reflected by the Carolyn McCollough 1-13.		

Q.

Go to Exhibit No. 11B, Mr. Hanby.

Exhibit No. 11B provides the reservoir fluid data from the initial PVT's that were 2 A. conducted on the Brents Lee 12-7 No. 1 and the Carolyn McCollough 1-13 No. 1. At the 3 top of the South Frisco City Oil Pool the PVT test indicated a bubble point pressure of 4 1.895 psia with a formation volume factor of 1.5878 reservoir barrels per stock tank 5 barrels and an initial GOR of 420 primary separator gas to stock tank barrels. The North 6 Frisco City Sand Oil Pool reflected in the PVT by the Carolyn McCollough indicates a 7 bubble point pressure of 3,367 psia, a formation volume factor of slightly more than 2.5 8 or approximately 2.56 reservoir barrels per stock tank barrel and an initial GOR of over 9 2,000. Clearly this indicates different reservoir fluids between the north pool and the 10 south pool. 11

12 Q. Go now if you would to Exhibit No. 12.

Exhibit No. 12 is a plot of the oil, gas, and water production on the Brents Lee 12-7 No. 1 A. 13 from initial production through December of 1998. The oil is shown with the green 14 color, gas with the red color, and the water with the blue color. In October of 1998 the 15 Brents Lee was recompleted. The initial completion had been from 12, 363 feet to 16 12,370 feet. That perforated zone which had begun producing over 90 percent water cut 17 was isolated and new perforations were added above that at 12,336 to 42 and 12,344 to 18 58. Production on the well increased from approximately 20 barrels a day to slightly 19 more than 100 barrels of oil per day. 20

1	Q.	The recomplete of the Lee well, did that make it more in line with the way the Wiggins
2		well had been completed originally?
3	A.	Yes, sir.
4	Q.	Go on to your next exhibit.
5	A.	The next exhibit is a plot of the water cut that has historically occurred from the Brents
6		Lee 12-7. As you can see the water cut significantly increased up to in excess of 90
7		percent. You will notice that after the recompletion in October of 1998 the water cut has
8		fallen back and is in the 60 to 70 percent range with the recompletion.
9	Q.	On this exhibit can you tell us what it has done since then?
10	A.	It has stayed in the same range. It's approximately the same.
11	Q.	Exhibit No. 14.
12	A.	Exhibit 14 is the production data on the Wiggins 12-3 No. 2 commencing in 1994
13		through December 1998. Once again, the oil is in green. Red is the gas production and
14		blue is the water production. The drop in production rates during May of 1998 occurred
15		during a period of time when the well was shut in for a changing out of the bottom-hole
16		pump.
17	Q.	Exhibit 15, Mr. Hanby.
18	A.	Exhibit 15 is the water cut on the Wiggins 12-3. You will note that from July of 1995
19		through approximately September of 1997 the water cut was fairly low, less than 20
20		percent most of the time, less than 10 percent, and then significantly increased during the
21		first part of 1998. After the pump was replaced it has dropped back down and it is in the

1		60 to 65 percent range. It's currently a little bit higher than that but it's still in the 60 to
2		70 to 75 percent range.
3	Q.	Still about 30 percent less than the Lee well?
4	A.	Well, after the Lee was recompleted it's about the same now. This might be slightly
5		more one day thanthey are about the same in water production.
6	Q.	Go to Exhibit No. 16.
7	A.	Exhibit No. 16 shows the gas-oil ratio in cubic feet per barrel on both the Brents Lee and
8		the Wiggins wells. The Brents Lee is in red. The Wiggins is in blue. You can note on
9		this exhibit clearly that the Brents Lee 12-7 has had periods when the gas-oil ratio
10		became extremely high, at one month over 5,000 cubic feet per barrel of oil. Following
11		the recompletion it has settled down somewhat but it is still producing approximately 800
12		towell, actually 500 to 800 cubic feet per barrel more than the Wiggins. This
13		production of the Brents Lee is going to be a key area for monitoring, for maximizing the
14		recovery from this reservoir, and conserving the reservoir energy.
15	Q.	Would you explain why that is so?
16	A.	The expansion of gas in the reservoir is one of the driving mechanisms. If you allow the
17		gas to escape at a much higher rate it is the result of bringing the bottom hole flowing
18		pressure below the bubble point. Excess gas comes out of production and eventually you
19		will build up enough gas saturation around the wellbore to where your well will basically
20		produce nothing but gas. It will remove the reservoir energy plus the mobility of the oil

not only in the immediate area of the Brents Lee but that will spread out throughout the entire reservoir.Q. If you had the ability to shut the well in for periods of time to monitor the high GOR,

would that prolong and enhance the ultimate recovery?

A. It will definitely give the operator the opportunity to maybe not all the way shut it back or shut it in but reduce the rate so that the flowing bottom hole pressure will remain above the bubble point which will minimize the excess gas production. That opportunity is necessary to maximize this recovery.

9 Q. Go now to Exhibit No. 17.

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Exhibit 17 is a plot of production of oil and water from both the Brents Lee and the 10 A. Wiggins well. Shown in the heavy green is the cumulative oil for both the wells. That's 11 not cumulative, it's actually the monthly oil from each of the wells. The heavy blue line 12 is the total water production from both the wells. The screen green line and screen blue 13 line represent the cumulative oil and cumulative water. The heavy black line is the 14 measured bottom hole pressure that has occurred from these two wells. The break that 15 occurred in September of 1994 occurred when the Wiggins well went on production. As 16 you can notice, the drop in bottom hole pressure definitely increased as we had two wells 17 on production as you would expect when you are increasing the recovery from the 18 reservoir. However, starting in May of 1995 North Frisco City began water injection 19 which we have seen effect all of the area, at least in those areas where the aquifers were 20 in communication, which has given pressure support and you can see the significant 21

1		change to the decline in pressure. At the Frisco City Field we also have the injection into
2		the East Frisco City Unit which has also added to that increased support in the aquifers.
3		Another element is the shutting in of several wells in the Frisco City environment with
4		high water production which has also stopped the withdrawal of large water production
5		from the whole region. All of this has contributed.
6	Q.	So that, in effect, has made that curve bend back up from that quick drop?
7	A.	Yes, sir. The drop in reservoir pressure per barrel of oil and water production has been
8		minimized. It has been decreased. It's not totally stable but it has somewhat stabilized.
9	Q.	Go to your next exhibit, Mr. Hanby.
10	А.	This next exhibit basically shows production statistics on the Frisco City Field. At the
11		upper part are the South Frisco City wells, the Brents Lee and the Wiggins 12-3. The
12		typed numbers show a total of 705,576 barrels through November of 1998 for the South
13		Frisco City Oil Pool. Updated numbers through February of 1999 is 339,466 barrels for
14		the Brents Lee and 391,134 barrels for the Wiggins, increasing their total production
15		through February to 730,600 barrels. The oil production from the north pool is also
16		shown. This is only through November of 1998, 925,261. The Baas well is shut in and
17		has been shut in for some time.
18	Q.	Go on to the next exhibit, Mr. Hanby.
19	A.	Exhibit No. 19 is a material balance computation using the production pressure history
20		from the south pool. This is conducted assuming no influx. Shown on this exhibit are
21		the initial reservoir fluid properties and the date of pressure surveys. The reservoir

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1		pressure is shown in the next column. Oil formation volume factors at the different
2		pressures are shown plus the formation water factor, the water saturation, water
3		compressibility, oil production rate and water production rate. Of course, the water
4		influx, as I said, was assumed to be zero. Using the material balance equation you can
5		calculate the oil-in-place. That is shown in the last column. From 1993 to 1995 we
6		reallywe've seen a little shifting of increases in oil-in-place calculations. Some of this
7		is due to some influx naturally but the big change occurs between 1995 and 1998 when
8		we go from six million to twelve million. This is totally the effects from water influx
9		which has come from the injection in North Frisco City and East Frisco City. Obviously,
10		this field is already benefiting from enhanced recovery from theor is experiencing
11		enhanced recovery due to the injection into other aquifers, both from the North Frisco
12		City Unit and from the East Frisco City Unit.
13	Q.	But will it benefit, Mr. Hanby, from further water injection down the road as it gets later
14		in its life?
15	A.	Yes, sir. Additional increase of water will increase recovery and I have an exhibit that
16		quantifies that. In addition, we know that North Frisco City has a timed injection
17		program and we are not sure exactly when that injection in North Frisco City will cease.
18		It will eventually one day happen, the ability, once we have unitized this field, to increase
19		the recovery further here once we can start injecting water here in this reservoir.
20	Q.	Go to the next exhibit, Mr. Hanby, which I believe is the unit operations plan.

1	A.	Yes, sir. This is Exhibit 20. It is broken into subheadings. The first paragraph basically
2		is kind of a summation. The plan is to improve reservoir energy conservation and
3		increase recovery. Some of these have been discussed already. As I have said, the
4		Brents Lee 12-7 has historically produced with high gas-oil ratios during certain periods.
5		We have recompleted and increased recovery from that well. We have dropped the water
6		production but the GOR is still fluctuating. It is producing higher than the solution gas-
7		oil ratio. If it continues then JN will have the opportunity to either restrict production to
8		keep the flowing bottom hole pressure to a point that excess gas is not produced or
9		completely shut the well in to conserve the reservoir energy. An additional recovery well
10		may well be drilled at the optimum geologic location within this field once it is unitized.
11		We will consider the net pay and the structural position from the edge of the reservoir in
12		establishing the location of the well which as of right now would be located in Tract 2.
13		The Brents Lee, if it is shut in, could well be used for an injection well or we may drill an
14		injection well. A water supply well would also be needed to get additional water from
15		the Tuscaloosa formation. As I have discussed several times, we have seen increases in
16		the reservoir pressure in this field as a result of the water injection elsewhere into the
17		aquifer. Diligent monitoring will be undertaken by JN, monitoring the well performance,
18		reservoir performance, and will be used to determine the ultimate development as far as
19		future drilling, conversion to injection wells, and whatever is necessary to maximize the
20		recovery from this reservoir.

1	Q.	As a matter of fact, the amended field rules would require JN to report to the staff each
2		year on the progress of this unitization. Is that correct?
3	А.	That is correct. Currently approximately 300 barrels of oil and approximately 500 barrels
4		of water per day are being withdrawn. The initial injection rate anticipated at those
5		withdrawal rates would be 2,000 to 4,000 barrels of water per day. The original oil-in-
6		place for the south pool is approximately 3.3 million stock tank barrels of oil.
7		Cumulative production through November of approximately 706,000 stock tank barrels
8		yields a recovery factor of about 21.4 percent. The additional recovery through February
9		brings a cumulative production up to 730.6 million barrels. That is slightly over a 22
10		percent recovery factor. It's clear that this recovery factor alone indicates the enhanced
11		recovery that has occurred already from the injection into the other reservoirs. If you will
12		remember, North Frisco City's primary recovery factor was anticipated at about 19
13		percent. With water injection enhanced recovery may yield a total of 39 percent recovery
14		for this pool. That's an additional 350,000 stock tank barrels at the ultimate recovery of
15		39 percent. The cost to convert an existing well to an injection well, drill and complete a
16		water supply well, and lay flowlines is approximately \$580,000. Increased operating
17		costs are estimated to be \$5,500 per month. To drill and complete a producer and lay
18		flowlines is estimated at \$1.1 million with additional operating costs above what I have
19		previously said of \$2,500 per month. It's clear from this that the value of the increased
20		production of 350,000 barrels exceeds this incremental cost that would result from the
21		additional drilling, the conversion, and the commencement of injection wells. Of course,

1		the increased recovery that will come from efficient operating by maintaining reservoir
2		control over pressure withdrawals will cause an increase in production with basically no
3		increase in cost. So, clearly that exceeds the cost for the unitization.
4	Q.	Go now I believe Mr. Hanby to Exhibit A which is entitled "Tract Map."
5	A.	Exhibit A is a tract map which shows the South Frisco City Pool. Tract 1 which is
6		shaded in brown is actually the existing unit for the Wiggins 12-3. In green is Tract 2
7		which is the unit for the Brents Lee. Shown in blue and yellow are the Tracts 3 and 4
8		which are the acreage outside of existing production which propose to be added to the
9		field and be part of the unit area.
10	Q.	These tract numbers are the tract numbers that are shown in the unit order and on Exhibit
11		B of the Unit Agreement for the particular tracts?
12	A.	That's correct.
13	Q.	I believe you now have an Exhibit B. If you would, explain Exhibit B to the Board and
14		staff.
15	A.	Exhibit B is a copy of Exhibit B to the Unit Agreement which provides the mapping rules
16		for the unit area. It shows for each of the tracts the description of the tract and gives the
17		Phase 1 and Phase 2 participation factors, the tract factors for each. At the bottom of
18		page 1 the mapping rules to determine the acre feet of net pay per tract are highlighted
19		with the four criteria, minimum six percent porosity, microlog permeability, gamma ray
20		indication of sand, and hydrocarbon saturation. The hydrocarbon saturation is at a point
21		of 65 percent water saturation and less. Page 2 of Exhibit B is the definition of the tract
	11	

1		participation formula for Phase 1. It is a 25 percent surface acre factor and a 75 percent
2		cumulative production factor for the period commencing September 1994 through
3		January of 1999. A Phase II participation formula is a 25 percent factor for each tract's
4		original productive acre-feet of net oil pay plus a 75 percent factor for each tract's
5		production for the period of November 1998 through February of 1999. The various
6		intervals for the productivity that were determined in Phase I in September 1994 was
7		established because that is the date that both wells commenced production. Prior to that
8		time for approximately two years the Brents Lee well had produced as the only well
9		completed in this pool. The dates of November 1998 through February 1999 on Phase II
10		was determined because it was after the end of October when the Brents Lee was
11		recompleted. This is the period of time when the productivity from both these wells has
12		occurred after the recompletion.
13	Q.	And after the two wells were basically completed in the same fashion?
14	A.	That's correct. Phase I is established in the next section where you will see the
15		calculations or the computations of the tract factors. The first set of data is the surface
16		acre factor. Shown for each of the tracts are their surface acres, the surface acre factor.
17		The second set of data is the cumulative production which would be September 1994
18		through January 1999 for each tract. Shown is 385, 976 barrels for the Wiggins and
19		153,749 barrels for the Brents Lee. The factors for the productivity are shown. The last
20		set of data on page 2 shows the computation of the tract factor by weighting the surface
21		acre factor at 25 percent and the cumulative production factor at 75 percent. Shown are

1	1	the tract factors of approximately 65.7 percent for the Wiggins and 33.4 percent for the
2		Brents Lee and .57 percent for Tract 3 and .38 percent for Tract 4. Those are
3		approximate numbers on the decimal participation. Phase II is shown on Page 3 of this
4		Exhibit B, same set of data. We show the productive acre feet in the first set of data for
5		each of the tracts. This is determined by planimetering Exhibit 9 which is the net pay
6		isopach which Mr. Wood testified to. The acre feet factor is shown. The second set of
7		data is the production factor for each of the tracts shown for November of 1998 through
8		February 1999. The final computation of the Phase II tract participation is shown by
9		weighting the productive acre feet at 25 percent and the production factor at 75 percent
10		with the tract factor from Phase II of 59.6 percent for Tract I, 39.5 percent for Tract 2, .56
11		percent for Tract 3, and .28 percent for Tract 4. Once again, those are approximate tract
12		factor numbers. The initiation of the phases: Phase I will commence the first day of the
13		month after the Board issues the order following the signup of 75 percent of the working
14		interest and 75 percent of the royalty interest. Phase II will commence at 7:00 a.m. on the
15		first day of the month following the commencement of injection into a well in the unit
16		area.
17	Q.	Now Mr. Hanby, could you explain how and why the various parameters were utilized in
18		constructing the formula to be used for relative contribution in the future?
19	A.	JN has worked for some time as you know and have had several proposals before this
20		Board as we have worked through the process of unitization, not only with the working
21		interest owners but also with the royalty owners which have been in contact with or JN

has been in contact with, at least some of them. We looked at the history of unitization in 1 Alabama and the different factors that are involved in unitizations. There has been about 2 sixteen different variations and tract participation formulas. The one that has had the 3 most usage is some kind of 100 percent acre feet of pore volume. There has been approximately 11 unitized under a 100 percent volume factor. The rest of them have 5 been under various phases of multiple factors except approximately four have used 6 remaining reserves. Several have used just productive area. We have several that have 7 used just surface areas. We have four that have used 100 percent production. So, we 8 have gone from 100 percent some type of pore volume to 100 percent production. We 9 have one field that has been unitized at a 50/50 formula and the 50 percent productivity 10 was determined over a three day deliverability test. We have, and I say we, JN has 11 looked at this very diligently. We have two wells in this reservoir. We have one well 12 that had actually watered out in its production interval. It has been recompleted. It 13 produced for approximately two years before the other well went on production. We 14 have recompleted that well now and have production that has been fairly stable since 15 recompletion. We have no immediate absolute plans that we will start injection of water 16 at any particular time. We have two units where current cash flows have been going on 17 for some time and will continue at the current cash flow rates if this field is basically not 18 unitized. The Phase I formula basically will allocate the production basically very similar 19 to this. We don't know how long it will be until injection commences. This has been a 20 compromise type position as all unitizations are where each party has to give and take to 21

1		determine participation. Once we commence injection what is proposed for Phase IIand
2		as you know this has slightly changed since the last meeting when we were prepared for
3		unitization a month ago primarily due to further meetings and discussions and working
4		with the royalty interest owners which of course have to approve this unitization up to at
5		least 75 percent. Phase II is a formula that is very similar to many other injection
6		formulas where we have the pore volume as a factor, which it is a 25 percent factor in
7		Phase II. The productivity is a factor that has changed from being a historical factor to a
8		factor that is more currently based on what is actually occurring right now. That is what
9		lead to the two phase formula that in this particular field, this unique field with two wells,
10		in our opinion does in fact give to each of the owners a share that is relatively indicative
11		of what the contribution from this reservoir is for future production.
12	Q.	So, in your opinion, Mr. Hanby, does this participation factor and the reasoning behind
13		the phases protect the correlative and coequal rights of all the owners in this reservoir?
14	A.	In my opinion, it does, yes, sir.
15	Q.	Historical production is a good indicator, is it not, of future production?
16	A.	It is an indicator because what is going to happen with no additional changes to it, you
17		would expect the forces to remain the same as they were. We have the added advantage
18		of being able to minimize the reservoir pressure withdrawal by controlling the production
19		from the one well that produces with a high GOR.

1	Q.	In your opinion, Mr. Hanby, would the granting of the petitions filed by JN today
2		increase the ultimate effective and efficient recovery of hydrocarbons from the unitized
3		area?
4	A.	Yes, sir, in my opinion it will.
5	Q.	I believe you said this before but in your opinion will the value of those added recovery
6		of hydrocarbons exceed the added costs?
7	А.	Yes, sir.
8	Q.	We have also sought to revise certain field rules for the field?
9	А.	That's correct.
10	Q.	Are those revisions consistent with prior orders of the Board for unitization in the Frisco
11		City area?
12	А.	Yes, sir. They contain the necessary additional rules and the wording that these rules will
13		supercede the other field rules if there is a conflict with the added new rule which is the
14		last one, 21, which requires an annual reporting in October to the Board addressing the
15		status and activity of what has occurred in the last year and the current status of what
16		operations are being conducted in the unit area.
17	Q.	In your opinion, are the amended field rules reasonable and prevent waste and protect
18		correlative and coequal rights of all the owners in the unitized area?
19	A.	Yes. The application of them will protect the correlative rights and prevent waste.
20		MR. BROOKER: That's all I have of this witness. I would ask that the exhibits in the
21	exhibi	t booklet as well as the confidential exhibits be put into evidence.

1	CHMN. MCCORQUODALE: All of the exhibits are admitted.
2	(Whereupon, the exhibits were
3	received in evidence)
4	MR. BROOKER: I have one other witness, Mr. Gordon Powell. Mr. Powell, have you
5	testified before the Board on prior occasions?
6	MR. POWELL: I have.
7	MR. BROOKER: As an expert landman?
8	MR. POWELL: Yes.
9	MR. BROOKER: We would tender him as an expert in petroleum land work.
10	CHMN. MCCORQUODALE: He is so recognized.
11	GORDON POWELL
12	Appearing as a witness on behalf of Petitioner, JN Exploration and Production Limited
13	Partnership, testified as follows:
14	DIRECT EXAMINATION
15	Questions by Mr. Brooker:
16	Q. Mr. Powell, have you executed an affidavit for today's petition?
17	A. I have.
18	MR. BROOKER: I would ask that that affidavit and the attachments thereto be put into
19	evidence at this time.
20	CHMN. MCCORQUODALE: That is admitted.
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1		(Whereupon, the affidavit with attachments
2		was received in evidence)
3	Q.	Now Mr. Powell, rather than going back through all of that again and the detailed math,
4		are the facts as set forth in your affidavit to the best of your knowledge true and correct?
5	A.	Yes, sir.
6	Q.	Now if you would, give the Board a little bit of what has occurred since I believe about
7		the mid-point in April in obtaining ratifications for this unitization?
8	A.	There are a lot of people out there that needed contacting and we realized that we had a
9		very short time fuse to do it. Our first effort was to send notice which included the copies
10		of the things the unit agreements are for with the ratification for them to sign and send
11		back to us. A mailout works but you have got to get out and do personal visits to try to
12		get those others in. We basically picked on the larger landowners for the larger units, the
13		royalty owners, for the purpose of getting our numbers up fast. We alsoof course, those
14		are the people who knew more about what we were talking about. We have had
15		discussions and once they would agree to do that they would be able to contact relatives
16		and say we've talked this thing over and this is what we ought to do. We got a lot of
17		signatures back in pretty fast like that. There are a lot of people out there who own very,
18		very small royalty interest, a lot of those. They are hard to motivate. It just almost
19		doesn't mean anything to them. So, we were working the phones and personal visits and
20		getting these on in. We still have a number that have promised to come in even now and
21		some of them fairly large acreage but we reached our 77 percent in time, in the short

1		period of time that we had to do it. We could figure that formula maybe ten different
2		ways and every time it's over 75 percent.
3	Q.	So you do have others out there who have promised you additional ratifications but they
4		simply have not been received as of this morning?
5	A.	They may be in my post office box now.
6	Q.	Okay. Has anyone specifically refused to sign a ratification agreement in any discussions
7		with you?
8	A.	No one has refused at this point.
9	Q.	In your opinion, obtaining 75 percentgreater than 75 percent signup in less than 30
10		days, is that pretty rapid?
11	A.	That's rapid.
12		MR. BROOKER: I might add for the record that other than the people sitting at this table
13	and th	e Board and staff that there is no one out behind us. That's all I have of this witness.
14	That's	all I have. I submit my witnesses for any questions the Board or the staff may have.
15		CHMN. MCCORQUODALE: Before moving on to questions from the Board and staff,
16	the Bo	pard is going to take about a 15 minute recess.
17		(Whereupon, the hearing was recessed for 15 minutes)
18		CHMN. MCCORQUODALE: Let the record reflect that the State Oil and Gas Board is
19	back in	n session. Are there questions of the staff?
		47

1	MR. BROOKER: Mr. Chairman, we think that we have fixed the covers. If there are
2	any up there that have the wrong thing on them we have some more corrected covers if anybody
3	needs one.
4	CHMN. MCCORQUODALE: Thank you, Mr. Brooker. Are there questions from the
5	staff or the Board?
6	MR. WILSON: Yes, Mr. Chairman, I have questions for Mr. Wood.
7	ROBERT WOOD
8	EXAMINATION BY STAFF/BOARD
9	Questions by Mr. Wilson:
10	Q. Mr. Wood, you have testified that the 3-D seismic data available to you for your studies
11	of this field are in fact quality. How would you describe your level of confidence in the
12	accuracy and the overall accuracy of the geologic maps that you have prepared and
13	presented to the Board today based on both the 3-D seismic and the well control data?
14	A. There have been a number of unsuccessful wells that have been drilled on these four
15	structures. A lot of those initially were drilled with 2-D data. Once the 3-D data was
16	procured, as I understand from Cobra, there were some unsuccessful wells that were
17	drilled and that was basically because of a difference in the philosophy of interpreting the
18	seismic. For example, in the Wiggins unit you can see a well that was drilled almost a
19	bull's eye in the middle of the no sand area. Obviously, there is a learning curve that
20	takes place. I was asked to do this study about the time we were working on the
21	Southeast Frisco City Unit and used all the data including unsuccessful tests. I think that

1		helped us an enormous amount in understanding the seismic, what it was telling us, and
2		interpreting and incorporating that into our concept and for the interpretation. I feel as
3		confident in this data set and in this interpretation as I have in any that I have worked on.
4		I just wanted to explain or qualify because of the number of dry holes that have been
5		drilled in this area. I think that the resolution is absolutely sufficient for delineating this
6		reservoir, for delineating to the degree of accuracy that Mr. Brooker was asking me plus
7		or minus the width of a 2.5 acre quarter-quarter-quarter-sectionquarter-quarter-quarter-
8		quarter section. I feel very confident in this seismic.
9	Q.	You mentioned unsuccessful wells in the region. Is it true that a great majority of these
10		unsuccessful wells indeed just penetrated these basement pinnacles, it was just a matter of
11		incorrect reading of the seismic and knowing exactly where these basement penetrating
12		pinnacles are?
13	А.	Yes. For the Wiggins 12-3 No. 1 Well it did. It was an unsuccessful test but it was a
14		monument to science. It gave us some good data for knowing where the no sand area
15		was. When we came inwhat we did is purchase the Cobra data and so we just
16		interpreted it anew utilizing everything and no prior prejudices.
17	Q.	Your exhibits indicate that the total thickness of the reservoir decreases in the vicinity of
18		these basement highs or pinnacles which are located in the structurally highest parts of
19		the reservoir. Do you have any opinion as to whether lower reservoir porosities and
20		permeabilities may also occur in the immediate vicinities of these basement pinnacles?

1	A.	Other than there has to be a trap or a seal at the terminus of the sand in extreme proximal
2		to the basement high. Looking at the data the Brents Lee 12-7 well which is very close to
3		the crest of the structure adjacent to a basement high has as good or better porosity and
4		permeability than other penetrations, so I think that the reservoir quality is demonstrated
5		as good up to the terminus of the sandpinch-out of the sand.
6	Q.	It's mainly the matter of the thickness of the reservoir available adjacent to these
7		basement pinnacles?
8	A.	Yes.
9	Q.	Okay. Do you believe that, by using your geologic maps, the reservoir thickness can be
10		predicted more accurately in areas that are distant from these basement pinnacles as
11		opposed to areas immediately adjacent to these features? Is it more predictable away
12		from these basement pinncales?
13	A.	The thickness?
14	Q.	Yes.
15	A.	Uh. Well, we have several things happening. As we move distal off the structures we are
16		in an area where we can increase the thickness of the depositional cycle where the sand
17		could be deposited but we are starting to lose the energy environment for the deposition
18		of reservoir quality sand. We know that we have good Frisco City sand that is deposited
19		in the extreme flanks of these structures because we have a common aquifer between so
20		many of these fields, all the way north of here to North Frisco City. I think that in

1		looking at some of the tests like the Dees which is drilled at a relatively low structural
2		position and other shows that there is aquifer quality strata at those positions as well.
3	Q.	Page 3 of Exhibit B shows that Tract II contains almost 62 percent of the productive acre-
4		feet in the reservoir. Again, which of your geologic exhibits were used to determine
5		productive acre-feet values for the reservoirs?
6	A.	My Exhibit No. 9 is a culmination through the methodology of all of the exhibits showing
7		the productive acre feet. That was the exhibit that was used for that.
8	Q.	Given the results of your geologic mapping and the calculations of productive acre-feet in
9		the various tracts and given that the Unit Operation Plan outlined in Exhibit 20 calls for
10		the drilling of a new production well in Tract II, which would be at optimum geologic
11		location with respect to structure and net pay, would this indicate that you believe the
12		eastern part of the field contains the highest percentage of remaining recoverable reserves
13		in the reservoir?
14	A.	Just based on purely mapping, yes, it does.
15	Q.	If this additional recovery well is drilled in Tract II, do you know at this time where this
16		well would be located, the proposed location of the well?
17	А.	It's has been discussed with Mr. Greg Halvatis and I and also Mr. Ken Hanby because it
18		involves drainage factors and that kind of thing. The area in the Brents Lee unit east of
19		the structural high has been most commonly discussed.

1	Q.	In your opinion, would a new well drilled at the optimum locationgeologic location in
2		Tract II encounter reservoir rocks with a greater thickness than the rocks encountered by
3		the Brents Lee well and perhaps even the Wiggins well?
4	A.	I think geologically it is more likely than not that a well drilled inside the 34 foot contour
5		east of the Brents Lee's basement high would encounter thicker reservoir rock than the
6		maximum thickness in either the Lee or the Wiggins well. I think that is inferred or
7		implied by my map.
8	Q.	It would follow then that you would anticipate that the production from any new well
9		drilled in Tract II may very likely increase significantly the total percentage of production
10		from Tract II to total Unit production?
11	A.	Well, you are starting to talk about drainage and recovery and I have to defer those to Mr.
12		Hanby because he is more qualified to answer that. It would depend on whether or not
13		that well was actually produced or if it was an injection well.
14	Q.	As part of your studies of the reservoir, have you determined from the geophysical logs
15		and completion records for both the Wiggins and the Brents Lee wells the percentage of
16		the productive interval for each well that has been open to production throughout their
17		production histories?
18	А.	I evaluated that in a project for JN in conjunction with Mr. Hanby but we were mostly
19		looking at different sand lobes, whether or not they had been opened or completed to the
20		wellbore for drainage. We were looking at where water production was occurring and
21		trying to determine production anomalies. Of course, there is a difference when you have

oil on top of water, there is a difference in looking at the maximum efficiency of a sand interval to produce versus what is the most efficient economically for eliminating--for minimizing water production.

The records on file with the Board indicate that from the time of its initial completion in Q. 4 September of 1994 up to the present time the Wiggins well has produced from 41 feet of 5 perforations which is very close to the entire net pay thickness that you mapped for this 6 particular wellbore. In contrast, the Brents Lee well from the time of its completion in 7 September of 1992 to the time additional perforations were added in October of 1998 8 produced from only seven feet of perforations, which I believe is only about, if my 9 calculations are correct, 27 percent of the total thickness of the pay interval that you show 10 on your maps. Do these figures sound correct? 11

A. Yes, they sound to be correct. That was the study that I was referring to where we recommended that the Brents Lee be recompleted to open up the upper portion of that sand.

Q. Were more perforations in the Brents Lee squeezed off or are they still open to
production also?

17 A. Mr. Hanby can answer that. I don't know.

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Q. What would be your opinion as to whether these completion differences, percentages of
 total net pay thickness that has been open, particularly in the early history of these wells,
 what would be your opinion as to whether these completion differences may have had
 any significant effect on the production volumes of the well?

1	A.	Uh, I think that they could have a significant impact on the production volumes but it's
2		more than just the amount of cumulative oil that would be produced. There would also
3		be a lot more gas and we may have reached a critical position in reservoir energy much
4		sooner.
5	Q.	I noted that the 20 additional feet of perforations added to the Brents Lee well in the
6		Board's records indicate that the production volumes increased 3 to 4 times following
7		those additional perforations?
8	A.	Yes.
9	Q.	The question that comes to mind is if these additional perforations were originally placed
10		in the well would the production volumes or history of the well have cumulative
11		production increased significantly?
12	А.	Oh, undoubtedly, they would have been different.
13		MR. WILSON: That's all I have. Thank you. I think Dr. Bolin has some questions.
14		DR. BOLIN: I do have some questions directed at Mr. Hanby.
15		KEN HANBY
16		EXAMINATION BY BOARD/STAFF
17	Quest	ions by Dr. Bolin:
18	Q.	In Exhibit 11-B it shows the bubble point pressure for the Brents Lee well to be 1,895
19		psia which was based on the PVT test that was conducted in September of 1992. Do you
20		have any information as to whether there was a PVT test that was also run for the
21		Wiggins well?
		54

1	A.	There was not a PVT that I'm aware of. We've never found one.
2	Q.	Okay. Referring to Exhibit 19, the last bottom hole pressure that you are showing was
3		conducted in May of 1998 when the pressure was indicated there to be 2,460 psia. Do
4		you know if there have been any additional more recent bottom hole pressure data that
5		has been obtained for either of the wells?
6	A.	Yes, sir, I know there has not been any.
7	Q.	Okay. Assuming primary production operations are continued as they are now, given the
8		pressure histories, when would you anticipate the reservoir pressure for the proposed unit
9		to decrease below the bubble point, if the current production rates for the wells are
10		continued?
11	A.	With the added pressure support that is being realized and based upon the decline curve
12		analysis and the production, it's entirely possible that if you took an average reservoir
13		pressure in about two years, which I would anticipate the end of primary unless
14		something else is done at today's economics, we would still be slightly above the bubble
15		point. You've got to realize in looking at it that even though that's a shut in pressure
16		after the well is stabilized currently there are periods of time that we are now producing
17		where the producing bottom hole pressure around the Brents Lee and has for some time
18		been below the bubble point because we are getting the excess gas out. Our bottom hole
19		flowing pressure that is occurring in reality is below the bubble point even though if you
20		shut in the reservoir and let the pressure build up you would be above the bubble point.
21		Of course, that's one of the main thoughts that we have in this unitization and immediate

1		responses is watching the productivity and possibly shutting back this Brents Lee which
2		we can do after unitization to keep that flowing bottom hole pressure above the bubble
3		point pressure in this reservoir.
4	Q.	On page 1 of Exhibit 20 about midway down the page where you have a heading
5		subheading of injection well, in the last paragraph it talks about increases in reservoir
6		pressure have been seen through the benefit of water injection from the North Frisco City
7		Unit and the East Frisco City Unit. I believe that was also your testimony.
8	A.	Yes, sir.
9	Q.	As I understand it also, you are basing this on all the data that is available but in
10		particular for the exhibits that are presented on Exhibit 17. You are basing that on the
11		fact that there is a change in the slope of the pressure line?
12	A.	Well, it's not only that. The change in the slope clearly indicates that for the pressure
13		change for the production if you look at the slope of the cumulative curve you will see
14		that during this interval of time the cumulative production slope has remained very
15		constant, indicating that the withdrawals of oil have been very constant. We haven't had
16		a drop in oil production rate or looking at the water production rate, which would result
17		in a higher or a less declining pressure, it's that coupled with Exhibit 19 that clearly
18		shows that with the recent bottom hole pressure survey in 1998 we saw a significant
19		increase in oil-in-place with no assumed water influx which is your tell-tale material
20		balance indication of influx where it actually doubled in that period of time from six
21		million to twelve million, clearly indicating that there is pressure support. It ties in with

1		the commencement of injection of water. All of that goes into the opinion that there is
2		influx from the other injection operations.
3	Q.	Okay. Also you indicated in Exhibit 20 that additionalif we added an injection well for
4		pressure maintenance in the Southeast Frisco City Unit which is already unitized that it
5		could get some additional support from that one also if there was water injection into that
6		reservoir?
7	А.	That's correct.
8	Q.	Okay. On that basis then is it correct to state that it would be your testimony that these
9		reservoirs, the North Frisco City Unit, the East Frisco City Unit, the Southeast Frisco
10		City Unit, and the proposed unit are all connected by a common water leg or aquifer?
11	A.	There is throughout all of these fields and possibly Jones Mill and maybe one or two
12		others either very good aquifer communication or minor aquifer communication, yes, sir.
13		I think the aquifers do all interconnect through these reservoirs.
14	Q.	Continuing on Exhibit 20 in that last paragraph you talked about diligent monitoring of
15		reservoir performance from this field. In the preceding sentence you talked about the
16		Southeast Frisco City Unit. It wasn't clear to me whether you were talking about
17		diligently monitoring the wells in the proposed unit or in the Southeast Frisco City Unit.
18		Can you clarify that?
19	A.	Yes, sir. JN will definitely diligently monitor the performance of this reservoir which is
20		the one we are talking about. As operator of the East and Southeast they will also be

monitoring those. This is a statement that specifically applies to this reservoir but JN will 1 be doing the same thing with the others that they operate. 2 Given the exhibits and the testimony that refer to this increase in reservoir pressure from 3 Q. the other units, would the fact that you do have this type of increase have any bearing on 4 whether or not JN will implement water injection operations in the proposed unit? 5 As I testified, there is a period in time where the big contributor to the pressure support, 6 A. the North Frisco City Unit, will shut down. That may not be too far off. I'm not sure 7 when that's going to occur. Once that occurs you are immediately in a position where 8 you are getting very little pressure support and possibly not even measurable. The 9 decision as to the commencement of injection in this reservoir is one in which if we can 10 add by this injection this additional 350,000 barrels of oil--and this is above what is 11 projected without our injection--that that is a real economic attraction. I do not believe it 12 is JN's position that we are only going to do this if we have to. I think that we are 13 definitely looking at that and at the economics of that with oil price which is a controlling 14 factor right now. The other aspects of the unitization clearly don't deal with water 15 injection per se but they do have the same effect in minimizing the excessive gas 16 withdrawal which can definitely cause a negative impact on our oil recovery if we don't 17 do something about it. 18 I believe it was your testimony that at this time JN has no immediate plans to commence 19 Q.

20 21 injection?

A. There is no date, no AFE sent out to drill a well, no, sir, in this proposed unit.

1	Q.	You have it set out to where it would be a two phase formula for tract participation. Is it
2		correct that Phase II will be implemented only if water injection is initiated into the unit?
3	А.	That is correct. If a new well is drilled as Mr. Wilson was asking earlier to Mr. Wood, in
4		response to that, the Unit Agreement provides for a redetermination in the event another
5		well is drilled on the eastern part of the reservoir. There is a redetermination built into
6		the Unit Agreement.
7	Questions by Mr. Wilson:	
8	Q.	Mr. Hanby, on that issue, is the redetermination, would it be only to redetermine any
9		changes in net acre feet, productive acre feet? Would the cumulative production part of
10		the participation formula remain the same and the redetermination only be if the well
11		encounters something different from what has been mapped?
12	A.	As with the redetermination, normally the acre feet is the factor that is effected by
13		redetermination.
14	Q.	So the 75 percent part of the formula would remain the same, it would be only maybe 25
15		percent that would be adjusted?
16	А.	Yes, sir.
17	Questions by Mr. Bolin:	
18	Q.	So at that point then if there is a new production well drilled in Tract II then that would
19		not implement Phase II, only if you do water injection?
20	A.	Correct.
		59

1	Q.	As a followup to Mr. Wilson's question to Mr. Wood and I think he deferred to you, in
2		regard to the drilling of a new well, would you anticipate the production from Tract II to
3		likely increase significantly as to the percentage of the total unit production, given a new
4		well being located at the optimum geologic location?
5	A.	Would I anticipate a new well drilled would increase the productivity of Tract II?
6	Q.	Anticipate, yeah, that it would increase significantly, the production from Tract II
7		increase significantly?
8	A.	You would have a new well in a reservoir that approximately has the same pressure,
9		thicker zone, with the same pressure and permeability. It might have a higher specific
10		rate. It may not. It would depend on the porosity and permeability encountered, the
11		thickness in the permeability and the reservoir pressure.
12	Questi	ons by Mr. Dampier:
13	Q.	Does that mean the production would or would not go up?
14	A.	It may go up, it may go down. This is a period of time that as we produce the reservoir,
15		pressure with no injection would have continued to decreased. That's the driving
16		mechanism to move the oil. As we move into this area your gas-oil ratio has an effect on
17		your productivity. This may be drilled after the reservoir is very close to the bubble point
17 18		your productivity. This may be drilled after the reservoir is very close to the bubble point and would be at a high gas-oil ratio. Anytime you drill another well in a reservoir your
17 18 19		your productivity. This may be drilled after the reservoir is very close to the bubble point and would be at a high gas-oil ratio. Anytime you drill another well in a reservoir your production could be higher, could be lower. The term of significantlywe recompleted
17 18 19 20		your productivity. This may be drilled after the reservoir is very close to the bubble point and would be at a high gas-oil ratio. Anytime you drill another well in a reservoir your production could be higher, could be lower. The term of significantlywe recompleted the Brents Lee by opening up the upper part and the production did significantly increase

1		believe, to that. Water production was decreased but it could be greater, it could be less.
2		That's true with any well you drill into a reservoir.
3	Questi	ons by Dr. Bolin:
4	Q.	In March of 1998 the Board approved the fieldwide unit for the Southeast Frisco City
5		Field which is located immediately east of the proposed unit. I know you are familiar
6		with that unit and that hearing. Would you agree that the proposed unit and the Southeast
7		Frisco City Unit are quite similar with respect to production, engineering, and reservoir
8		characteristics?
9	А.	There are a lot of similarities. That field has four producers. One of those has been shut
10		in for some time. It was a high water production. The Frisco City reservoir's porosities
11		and permeabilities are somewhat similar. The oil production rate from these wells is
12		actually better than at Southeast Frisco City.
13	Q.	I guess the point I was trying to make was that in addition you do have the common
14		aquifer and the pressure support which we have addressed earlier, the two reservoirs.
15		Based on the testimony that was presented it is my understanding that they have
16		essentially the same primary recovery factor at the time that they came to the Board to be
17		unitized, approximately 20 or 21 percent, and also that the anticipated ultimate recovery,
18		we're looking at about the same percent or 39 or 40 percent.
19	A.	That's correct, of the original oil-in-place. They are not the same numbers but they are
20		somewhat close.

1	Q.	Percentage-wise and the way they perform. In fact, the unit operation plan for this
2		proposed unit is basically the same plan, isn't it, in terms of drilling a new well,
3		converting a producing well to an injection well?
4	A.	Yes, sir, they are similar. Thethe Southeast Frisco City Field had a greater water
5		problem from at least one well. This one has a more high gas-oil ratio problem. For
6		those operations they are slightly different but they both serve the same purpose.
7	Q.	The proposal for unitizing the Southeast Frisco City Field was partially based on the need
8		to inject water for pressure maintenance. In going back and looking at the testimony
9		from that unitization hearing it indicates that JN at the time of the hearing planned to
10		convert the Carpenter well to a water injection well and to drill an additional production
11		well in June of 1998 for secondary recovery. The Board's records indicate that the water
12		injection project has not yet begun for that field. Do you know if JN has submitted an
13		application to convert the Carpenter well or to drill an additional producer in that unit?
14	A.	I know that they are in the process and I believe the location probably has been staked or
15		has been decided on for a new production well. Yes, sir, that is happening right now.
16		I'm not sure that the application has physically gotten to the Board yet. I know that that
17		location has been picked and has either been staked or the directions have been given to
18		stake it. The specific location for it has been picked.
19	Q.	Has the increases in reservoir energy and the pressure that we have seen and talked about
20		here among these common reservoirs, particularly for the Southeast Frisco City Unit, has
21		that had any bearing on the fact that the injection operations has not been implemented?

1	A.	Maybe I lost track of that question.
2		MR. BROOKER: I did too.
3	A.	Please go back over it because I lost you somewhere in there.
4	Q.	You have seen increases in reservoir pressure in these reservoirs.
5	A.	In the Southeast we have measured pressure and we have seen it increase still. It's still
6		being increased. Yes, sir.
7	Q.	My question is that given that fact, has that had any bearing on the fact that JN did not
8		implement their project in June of 1998 as they originally planned and are just now
9		looking at staking the well?
10		MR. BROOKER: I don't think he said he was just looking at it. I mean, I think if I can
11	make	a comment here, I think a lot of this is the price of oil, the economics of the situation which
12	I don'i	believe your question took into account.
13	Q.	Well, all I was asking was has the reservoir energy increases had any bearing. I didn't
14		say the sum total.
15	A.	In view of my discussions with JN, the issue has been the economics of not being able to
16		invest the million dollars in both of these fields, approximately \$1.1 million to drill wells,
17		when the oil price is where it has been for the lastbasically almost a year. We are
18		seeing some change to that. I think that my comment a minute ago that this well is going
19		to be drilled reflects the opinion that the prices are going to be up and are moving toward
20		a place where we can economically do some action in these reservoirs.

1	Q.	Okay. Exhibit 20, page 2 under the recovery factor, it was indicated that the recovery
2		factor through November of 1998 was 21.4 percent. The exhibit also indicates the
3		anticipated total recovery with water injection would be expected to be 39 percent. The
4		resulting incremental recovery that would be realized would indicate that there is, in fact,
5		a significant proportion of the recoverable hydrocarbons that are still yet to be produced.
6		Is that correct?
7	A.	That's correct. Thirty-nine percent of 3.3 million is 1.29 million. Our cumulative
8		production through February is 730,000. So, you are in 400,000 to 500,000 without an
9		exact number, approximately 180,000 remaining without injection and an additional 350.
10		That injection is injecting at 4,000 barrels of oil per day. That's how that was computed
11		calculated.
12	Q.	Based on the testimony that the proposed unit is already receiving pressure support, have
13		you made any calculations or conducted a study to determine the ultimate recovery of this
14		reservoir if the water injection project is not implemented?
15	A.	Yes, sir. That's approximately 180,000 to 200,000 barrels more than it has produced.
16		My study indicates about 200,000 under current conditions.
17	Q.	Okay. Relative to Mr. Wilson's
18	A.	Excuse me. That is not with the Brents Lee shut in. That's assuming that we don't have
19		a gas-oil ratio problem that really gets out of hand. If we have to do something, that will
20		be reduced.

	l	
1	Q.	Okay. Relative to Mr. Wilson's questions to Mr. Wood in regard to the drilling of a new
2		production well, Mr. Wood mentioned drainage factors, that perhaps ya'll had talked or
3		discussed or had look into. Have you made any calculations or conducted a study
4		regarding the radius or area of drainage of either the Wiggins or the Brents Lee well?
5	A.	I have not made any computation of taking a pressure test or anything and actually going
6		in and calculated radius of drainage. With the area of these reservoirs and the experience
7		with the other Frisco City reservoirs, the area that is shown productive in Exhibit 9, it's
8		my opinion that the area that is shown to be productive would be within the area of
9		drainage of these wells.
10	Q.	Without a specific drainage study and looking at it more from a generalized standpoint,
11		given the close proximity of the Wiggins well to the tract line with it being located in an
12		exceptional location, wouldn't it be important to know the drainage area or radius of this
13		well relative to the amount of production that has been realized from this well to date?
14	A.	Dr. Bolin, the exceptional location is there and this well has had a closer proximity to the
15		tract for the Brents Lee well than the 660 feet. In counter to that the Brents Lee well
16		produced for two years unopposed by anything and had the entire reservoir to drain from
17		itself. You know, as far as the Wiggins well, it's my opinion that some of the molecules
18		of oil it has produced have actually moved across that tract line. What I was referring to
19		in the drainage of the area is that the area to the west from the Wiggins well would
20		undergo effective drainage whichwe're talking about the drainage areait would
21		effectively drain that area to the west as well as the Brents Lee well has had effective
drainage to the east, although maybe not quite as well as it has immediately between those two wells.

Q. Okay. In Exhibit B where it addresses the tract participation and determination, Phase II
includes the factor of original productive acre feet of net oil pay. The implied assumption
and the use of that, I assume, is that this factor would be that each acre foot of pay
contains the same quantity of oil. Is that a reasonable and valid assumption for the
purposes of unitizing this reservoir?

The increase in any kind of quality assurance, if you will, per acre foot, the water 8 A. saturations and the porosities are very similar between these two wellbores and also the 9 other wellbore that is not produced, that we have part of the Frisco City reservoir on. The 10 relative change that you would make to the numbers, in my opinion, would be very 11 similar in that you would not have a significant change in the relative weight one to the 12 other if you went in and did water saturation computations, porosity computations. If you 13 consider the fact that the bottom part of the Brents Lee well has watered out, to some 14 measurable degree we know that there is a similar watering out to the Wiggins. The 15 accuracy wouldn't necessarily be increased with the fact that we have only got two 16 wellbores and no real way to determine exactly where water movement has been. 17 It's not unusual in unitization if you are using net pay to use this procedure? Q. 18

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A. That's correct. It's common.

1	Q.	I really wasn't questioning it I was just trying to establish the fact that for a given
2		volume, given acre foot of reservoir, you will have the same oil across each acre foot.
3		That's the assumption that is being made here.
4	A.	That's essentially, yes, sir.
5	Q.	If you look at the production records for the two wells in question that will be in this
6		proposed unit you actually have the Wiggins well that has produced slightly more oil than
7		the Brents Lee well, right?
8	A.	That's correct. Cumulative it has.
9	Q.	So, based on the assumption that you have the same amount of oil in a given acre
10		footage, if the Wiggins well had produced approximately 12 or 13 percent more
11		cumulative oil, then it would have had to have drawn oil and contacted 12 or 13 percent
12		more acre feet of pay? If there's the same amount of oil in each acre foot and if the
13		Wiggins well produced 13 percent more oil, then it would have had to have drawn oil
14		from 13 percent more of acre feet13 percent more volume.
15	A.	Well, you've gotthere's more acre feet on one tract than the other so the equal acre foot
16		it would
17	Q.	I'm not questioning the amount of acre feet in each tract, all I'm saying is that the
18		Wiggins well would have drained more acre foot to get 13 percent more production?
19	A.	Yeah, if you are just looking at those factors and everything else remaining equal, that's
20		right.
21		DR. BOLIN: That's all the questions I have.

1 Questions by Mr. Wilson:

Q. I have just a follow-up question. Mr. Hanby, you stated that you have knowledge that JN
has indeed staked a location for a production well in the Southeast Frisco City Unit. Do
you have knowledge as to whether correspondingly and perhaps simultaneously or soon
thereafter they would also drill a water injection well and begin injecting water or are
they just going to drill a production well only?

Well, the -- the immediate action is to drill the production well. The water injection well 7 A. is still planned and whether they drill one, the Carpenter well or one of the other wells is 8 the most likely to use as an injection well. We've got to get some oil production in that 9 reservoir high enough to start injecting water. If you--the oil production rates and water 10 cuts on all of those wells--the water cuts are fairly high and the rates are fairly low. To 11 recover this oil we've got to get a new producing well that is not in the segment of a high 12 water cut area. That's why the injection--excuse me, the production well is to be drilled 13 first to get some production up to have an area to start injecting a pattern to maximize our 14 recovery. 15

MR. WILSON: Thank you. Mr. Chairman, there has been a number of references made in this testimony regarding other fields in this area of Monroe County. The staff would recommend that we incorporate into this record all the Board's records and prior orders related to the Frisco City Field, the East Frisco City Field, the Southeast Frisco Field, and the North Frisco City Field.

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CHMN. MCCORQUODALE: That request is granted

1		(Whereupon, the Board records and prior
2		orders related to the Frisco City Field, East
3		Frisco City Field, Southeast Frisco City field
4		and the North Frisco City field were
5		incorporated by reference)
6		MR. WILSON: That's all the staff has.
7		MR. BROOKER: May I redirect my witness?
8		CHMN. MCCORQUODALE: Sure.
9		MR. ROGERS: I'd like to ask Mr. Powell a question.
10		GORDON POWELL
11		EXAMINATION BY BOARD/STAFF
12	Quest	ions by Mr. Rogers:
13	Q.	I have read the affidavit that you have filed. Just for clarification, would you state the
14		percentages that you have based on surface acres and then the percentages that you have
15		based on the proposed formula.
16	А.	Okay. Based on just the surface calculation without being awaited for the factors, we
17		have 77.2977 percent rounded off. In the whole of the field and that breaks down by tract
18		to 77.12.
19	Q.	We don't need each tract, just the total amount.
20	A.	Just the total.
21	Q.	You said 77.2977.
		60

1	A.	77.29, rounded up to 8.
2	Q.	That's the royalty owners?
3	A.	That's the royalty and overriding royalty.
4	Q.	What about the working interest?
5	A.	The working interest, we've got about 97, about 97 percent. I forget the exact
6	Q.	It's says 96.4
7		MR. BROOKER: It says 96.64 in here.
8	Q.	96.64. Is that the number for the working interest based on the surface acres?
9	A.	Yeah.
10	Q.	All right. What is the percentage based on the formula of the royalty and then the
11		working interest owners?
12	А.	Uhon the Tract No. I.
13	Q.	I don't really need it by tract, just the total amount.
14	A.	Just the total.
15	Q.	I'm just really trying to interpret your numbers here.
16	A.	Okay. I don't understand your question.
17	Q.	All right. You stated that the other number that you gave me was based on surface acres,
18		those two numbers for royalty and for the working interest owners. Now my question is,
19		what is the percentage ratification based on the formula?
20	А.	Formula, okay. Are we back to royalty acres?
21	Q.	Say the royalty first.

1	Δ	Okay On the royalty acres it is 76.39. That's in Phase I.
	A.	Well show
2	Q.	wen, okay.
3	A.	That's all the tracts put together.
4	Q.	Phase II for the royalty?
5	А.	Phase II is 76.30.
6	Q.	All right, now for the working interest under the formula.
7		MR. BROOKER: Might I hand him his affidavit so that he will have it.
8	A.	Okay. 96.14 percent.
9	Q.	One other question.
10		MR. BROOKER: That was just Phase I, do you want him to give you Phase II because it
11	is abov	ve 75 percent in Phase II?
12	Q.	If that's Phase I then let's get Phase II, if they are different.
13		MR. BROOKER: They are slightly different.
14	A.	They are slightly different. Okay. Let me see if I can work it here. One isPhase I is
15	96.64.	I'm not sure that is the figure I gave you. Phase II is 96.14.
16	Q.	One other question. Do you intend to continue to obtain ratifications from royalty and
17	workin	ng interest owners?
18	A.	We have some that we know we'll get but we used the cutoff as of the 19 th as of the 19 th
19	we rea	lized we had 75 percent and cut it off.
20	Q.	Do you intend to submit those into the record?

1		MR. BROOKER: We can. We'd be happy to but I see no necessity. We will place them
2	ofreco	ord.
3		MR. ROGERS: Thank you.
4		CHMN. MCCORQUODALE: Let me askare there other questions, Mr. Rogers?
5		MR. ROGERS: No, sir.
6		KEN HANBY
7		EXAMINATION BY BOARD/STAFF
8	Quest	ions by Chmn. McCorquodale:
9	Q.	Ken, let me ask you because a lot of this stuff I don't understand so I'm going to ask you
10		about something I think I do understand. Okay? As I understand the formula, 75 percent
11		of that formula is based on cumulative production in Phase I. Is that right?
12	A.	That's correct. From the particular time that it started in September of 1994.
13	Q.	Okay. If I go down on page 2 of your Exhibit B it looks like, if I'm reading it right, the
14		cumulative production from Tract I is 385 and change and Tract II is 153 and change,
15		right?
16	A.	That's correct. From September of 1994 through January 1999, that's the cumulative
17		production.
18	Q.	Okay. Do you know how much of the cumulative production that is being credited to
19		Tract I came from across the section line out of Tract II?

1	A.	No, sir, I don't know. You realize that there was 100 something thousand produced by
2		the Brents Lee prior to that September date, so the cumulative productions are almost
3		identical. This is only in the interval of time when both wells were on production.
4	Q.	I guess my question would be then, would there be some value in knowing whether or not
5		the production of the Brents Lee prior to Wiggins coming on line was somewhere
6		approximately the same as what, in fact, Wiggins has now drained from Tract II, to know
7		that those things are pretty equal?
8	A.	You know, it is a number that probably is very close to balancing out somewhere in that
9		ballgame.
10	Q.	It just seems to me, and I don't know how fine you can get that in terms of determining
11		drainage, but it just seems to meI guess this is sort of a lead in for Mr. Powellif in fact
12		we agreed, that Wiggins has drained from Tract II and given where it is located it looks
13		like it probably ought to. Do you agree with that?
14	А.	Yes, sir. At a location of 660 from a unit boundary which is a normal location from tract
15		to tract you are going to have some drainage in every reservoir. That's why the statute
16		talks about drainage not compensated for by counter drainage. So, it is knownit's
17		impossibleimpossible to prevent.
18	Q.	Logic tells you then that the closer you go to that line, the greater the drainage is likely to
19		be, right?
20	А.	Yes, sir, but there are other circumstances sometimes and it could be in this particular
21		case. For example, the exceptional location came in structurally lower than what we now

1		map as the height which means that at a normal location this well would probably have a
2		greater drainage characteristic than it had where it was actually drilled because
3		structurally it is actually lower than at a normal location, which they found out after the
4		well was drilled.
5	Q.	Don't misunderstand me, I'm not arguing with you about that issue, I'm just wondering
6		about the need to know. You understand? It seems to me that there may be that need to
7		know and here's why I asked the question and this goes to Mr. Powell.
8		GORDON POWELL
9		EXAMINATION BY BOARD/STAFF
10	Quest	ions by Chmn. McCorquodale:
11	Q.	I assume, Mr. Powell, that the Brents Lee owners have signed up?
12	A.	Yes. That includes using the Phase I and Phase II formulas. We've have met all those 75
13		percent requirements.
14	Q.	That takes me back to my question to Mr. Hanby. Hypothetically, if in fact 75 percent of
15		what the Brents Lee owners are going to get is going to be based on cumulative
16		production and that Wiggins is getting a lot more credit for that. I'm just using names
17		now, not tracts. Don't you agree with me that in terms of being completely honest and
18		making a full disclosure to the Brents Lee owners, they should be told. Do you guys
19		understand that the Wiggins well is being given credit for oil that came from under your
20		tract?

1	A.	My response to that would be that the major members of these two families argued for a
2		long time about data that they were receiving from the experts and they finally reached an
3		agreement between themselves, fully aware of what the technical information was.
4	Q.	What I hear Mr. Hanby saying is this, Mr. Powell. Here's what I'm struggling with.
5		What I hear Mr. Hanby saying is there has been no determination made as to whether or
6		not the Wiggins well took some of the Brents Lee oil. Right?
7	A.	I'm not
8		MR. BROOKER: Mr. Chairman, Mr. Hanby is in a position to answer your precise
9	questio	on.
10		CHMN. MCCORQUODALE: That's what I'm looking for.
11		BROOKER: So am I, I might add, I was there.
12		KEN HANBY
13		EXAMINATION BY BOARD/STAFF
14	Questi	ons by Chmn. McCorquodale:
15	A.	The exact barrels that have been or have not been drained from one tract to the other have
16		not been determined in an absolute value. I'm not sure that with the information we've
17		got such a determination with any degree of precision could be made. We simply do not
18		have enough pressure information in this reservoir to make such a determination. Mr.
19		Lee and Mr. Wiggins have both been advised that drainage occurred from the Wiggins
20		tract to the Brents Lee tract for two years prior to the Wiggins well being drilled. Mr.
21		Wiggins came inMr. Wiggins didn't come in, Cobra came in and requested an

exceptional location to drill a well on Mr. Wiggins tract. The Brents Lee people actually 1 opposed that exceptional location. The permit was issued and the well was drilled. Both 2 parties realized that this well is closer than the 660, it's 330, and that because of this there 3 has been additional closeness in hydrocarbons that have been drained from the Brents 4 Lee tract through the Wiggins wellbore due to the fact that it is 330 feet closer. Even 5 thought it's 660, what I was saying a minute ago, even at 660 there would be some 6 molecules that would actually cross the boundary. There is no way you can prevent it. 7 Both parties are aware of the uniqueness of this reservoir, the fact that you have two 8 wells, the timing of the production, and the location of the wells. We have also had 9 discussions with them about the productivity of both the wells, the productivity of the 10 Wiggins well and the GOR there and also the production of the Brents Lee well, the high 11 water production, high gas-oil ratio and the recompletion, what we were able to do as far 12 as increasing the Brents Lee production. A year ago when we started this project the 13 Wiggins well was producing at 200 to 220 barrels a day. The Brents Lee was producing 14 at 20 barrels a day. In other words, that well was fixing to reach a point where it would 15 no longer be economic even to operate. This was a year ago. The recompletion has 16 definitely had a significant impact on increasing the productivity of the Brents Lee tract 17 that we felt was necessary to manage this reservoir between these two owners. In my 18 opinion, both of the owners--royalty owners that is, the main ones, the Brents Lee and the 19 Wiggins, are fully aware of the uniqueness of this reservoir. Our efforts to put together a 20 unitization that does provide a fair allocation of the production to the owners--basically 21

1		JN owns the same interest in both tracts. It really doesn't have much bearing on their
2		outcome. They have spent many hours talking with and working with the royalty owners
3		to put together this unitization. We think that there has been total disclosure, that both
4		parties are fully aware of the uniqueness. I've been in the rooms meeting with them.
5	Q.	That's what I was going to you. You, yourself, have told them these things?
6	A.	Yes, sir.
7		CHMN. MCCORQUODALE: I don't have any further questions. Are there other
8	questi	ons?
9		MR. DAMPIER: Mr. Metcalfe, do you have any questions?
10		MR. METCALFE: No.
11		MR. DAMPIER: I just have a couple of questions.
12		GORDON POWELL
13		EXAMINATION BY BOARD STAFF
14	Quest	ions by Mr. Dampier:
15	Q.	We're talking about these two families, the Wiggins and the Lee. What percentage
16		ownership do they have in Tract I and Tract II and III and IV? They are not the only
17		owners in those tracts so I'm wondering about the full disclosure to everybody else.
18	A.	Everybody else was sent a copy of the agreement. Some of them may not have
19		understood what they were receiving. The family members themselves own substantial
20		interest in there. There is another factor that plays in very importantly. In both of these
21		wells there were a lot of royalty purchases by people from Houston, Jackson, Dallas, etc.

Most of them that are not signed are those kind of people who are knowledgeable and have had--we got some telephone questions back where they were asking specifically aspects of the agreement that we sent to them.

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- Did I hear you correctly, the ones that were more knowledgeable did not sign up? Is that what I heard?
- No, that's not what I'm saying. In a sense that's correct. Most of them that didn't sign up Α. 6 were people who just were disinterested. We've got these very, very tiny little percents. 7 In this particular area some of the large landowners were these knowledgeable people. 8 The characteristic was there in Southeast Frisco City also for this Frisco. You just can't 9 get them to get off their sailboats or their yachts or whatever they are doing and stop and 10 send the thing back. On the Southeast Frisco for instance I worked a fax--we got a 11 number--it got down so close we had do the faxes and they all kept saying we're going to 12 do it, we're going to do it, but they just never do it. That's the problem we're having 13 with those. That dilutes the percent of the Lee and the Wiggins' families. 14 Well, roughly, let say each tract--Tract I there is 100 percent of the owners. What 15 Q. percentage of that ownership, acreagewise, is Wiggins? You can just give me a ballpark 16

17 figure.

MR. BROOKER: Wiggins himself--I can tell you a little bit quicker than Gordon. I'm very familiar with the title. Mr. Wiggins is the executor of his father's estate. They own 40 acres outright in the Wiggins tract. Mr. Wiggins and his family have been in Frisco City as far as I know for a heck of a long time. They all know everybody who lives in Frisco City that is in

1	the Wiggins tract. They may only own 25 percent of the tract but they control it. The same thing
2	is true with the Lee tract. Mr. Brents Lee and his son-in-law or nephew have owned that tract for
3	a long time as well. I've met with them. I've sat in their den with the whole Lee group. There
4	are about six or seven of them. I believe they sent up a letter opposing one of our petitions in
5	which I calculated that the people that signed that had 45 percent of the royalty in the proposed
6	unit area. It's close to 50 percent of the entire royalty in the whole unit with one exception. All
7	of those people have now signed the ratification. So, that'swhat I'm saying is, I don't think
8	that some pros that came in from Jackson and bought some royalty, no Mr. Wiggins and Mr. Lee
9	are not in communication with those guys. They can do whatever they want to do. The people
10	that are out there on the ground are pretty much included within the 75 percent. We've got some
11	owners that have four or five zeros before you get to a number. That's their interest. If they are
12	in the Lee tract, that's 100 barrels a day times 30 times five zeros times their royalty number.
13	Now, you can imagine that it probably doesn't cover the cost of a stamp for them to send it back
14	and Gordon didn't give them a self stamped envelope to send it back. That's part of the problem
15	here. I don't think there is any question but that Mr. Lee and Mr. Wiggins are imminently aware
16	that there is a contention of drainage between these two tracts. That has been Mr. Lee's
17	argument since he came up here and opposed the drilling of the well. Mr. Wiggins' position is
18	that Mr. Lee's well is no good because it produces at such a high GOR. The two of them
19	basically said, let's put all the past behind us and get forward. That's what they are basically
20	doing.

1		ROBERT WOOD
2		EXAMINATION BY BOARD/STAFF
3	Questi	ons by Mr. Dampier:
4	Q.	Let me ask you my next question, whomever wants to answer it. It looks to meand I'm
5		asking these from layman's terms, everybody here knows more about oil and gas than I
6		dobut it looks to me like where the Lee well is drilled it's drilled on top of a
7		nonproductive area, right on top of the red. I'm looking at Exhibit 6. Is that correct or
8		incorrect?
9	A.	It's very close to the nonproductive area, the area with no sand. If you would flip over to
10		the next exhibit which is Exhibit No. 6A, you can see the position of the Brents Lee 12-7,
11		the producing well. That's the most right-hand position well. It's immediately adjacent
12		to the high structural area that is in red.
13	Q.	Would thatthe fact that the location is next to that nonproductive acreage, would that
14		inhibit it producing from the south end of Tract II, also from Tracts III and IV, and
15		possibly from draining over into Tract I also, due to the location?
16	A.	Since I have the microphone I'll answer that. The thing that inhibited this well from
17		producing mostly was the completion in the lobe that Mr. Wilson was asking about.
18		When we found that in doing our study we were very surprised. Cobra drilled the well
19		and Cobra did the initial completion. JN was highly surprised to see how the well had
20		been completed and produced. The I think that from my experience working at North
21		Frisco City and many of these structures it has been found that there is drainage around

1		these basement highs. This is an unusual type of a producing area that we have in
2		Monroe County. We have found that with drilling wells on the other sides of these that
3		oil is being drained, it has been drained. It is recovering hydrocarbons. Just as a
4		geologist, I wouldn't think that it would recover as well immediately across that
5		basement high, the no breach area. Just common sense says it can't. It's not like a
6		barrier, like a permeability barrier that extends all the way across the reservoir.
7	Q.	I think I understand. It's not a barrier but it is some inhibiting factor.
8	A.	Exactly.
9	Q.	To what extent we don't really know.
10	A.	That's right.
11		KEN HANBY
12	Quest	ions by Mr. Dampier:
13	Q.	What aboutlet me make sure I understand. You all want to unitize but you don't really
14		have any plans for injection right now. Is that correct?
15	A.	Yes. The plans are to unitize. That's what's being proposed. The actual physical
16		commencement of injection is not a specific time that we will do that. The ability, once
17		we form the unit, is to do these other operational decisions that we cannot do without a
18		unit, i.e., reducing significantly the production from the Brents Lee well. We cannot take
19		a well that is capable of producing in competitive operation and just shut it back or shut it
20		in. The results of shutting it in is that that lease expires. The only alternative is to drill
21		another well which in our opinion at this time between the Brents Lee and the Wiggins

well possibly would be an unnecessary well plus drilling today with the economics may not be economic over to the east. The ability to shut in the well or to reduce its production is something we can do once we have unitization which we cannot do on a competitive operation. That's the reason that unitization is in the best interest at this time now so that we can minimize any reservoir withdrawals due to high GOR's and then commence injection of water. Hopefully, the economics are going to be to the point where we will be able to drill this shortly.

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I think they are improving, hopefully they will continue to improve. Let me ask, I just 8 Q. have a couple more questions. This has to do with the formula. I think you all can tell 9 we're a little--I'm a little bothered by it, especially for Tract III and IV. One, if you just 10 look at the productive acreage, it looks to me like Tract I has about 40 percent, Tract II 11 has about--on Exhibit 6--Tract II has about 60 percent, Tracts III and IV together would 12 seem to have 80 percent if you lump that into one tract. I'm a little bit bothered about 13 Tract III and IV. If you lump them together they have about 80 percent of their tract but 14 they're getting--I see a lot of goose eggs coming up on their formula side and I'm just 15 wondering if we just increase Tract II with our 30 percent tolerance and added that--I 16 mean Tracts III and IV--into Tract II then they would get 28 percent. I'm just a little bit 17 bothered by the formula, especially Tracts III and IV, given that productive acreage down 18 there. Maybe you can explain how you came up with that formula and what else you 19 considered for them? 20

1	A.	All the type formulas that we have in Alabama are different and many of the formulas
2		have just a wellbore factor that is 50 percent of the formula where any tract that's added
3		only comes in with acre feet. This is consistent with that in that this acreage is being
4		added as part of the area.
5	Q.	Tracts III and IV been drained heretofore by either the Wiggins well or the Lee well. Is
6		that correct?
7	A.	These tracts would have been effected. That is correct. One reason that JN went down
8		and leased these tracts which they didn't have the lease on was because they realized
9		after they came in and mapped it and found this reservoir knew that we needed to account
10		for or accommodate these owners down there. They have no production so they can't be
11		part of the productivity factor.
12	Q.	But they have been drained heretofore by either Wiggins or Lee? It gets back to what the
13		Chairman was saying earlier. You don't have a study saying how much has been
14		drained. There is no way to know is what you are saying.
15	A.	With any degree of accuracy. It's possible with the production that has occurred and if
16		there has been no water movement in this area there may be very little from this part of
17		the reservoir that has to this date been actually physically drained and produced through
18		that wellbore. Part of that is geometry and part of that is where the aquiferwhere the
19		water support is coming from. Obviously the pressure has been drawing down so there
20		have been some molecules that have traveled over that line. Whether they have actually
21		physically been produced through the wellbore at this time, there is no way that
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1	Q. I guess for a factual matter, if they have been drained over the line they even went to
2	Tract I and Tract II. They are not in Tracts III and IV anymore.
3	A. If they went over the line they would not be in Tracts III and IV any more.
4	Q. Do you think the way Tracts III and IV are being treated is fair under the statute?
5	A. In my opinion, based on this procedure for establishing units and the fact that these have
6	not been in a unit, in my opinion it's fair and it's the way it's normally handled. It's very
7	consistent with the way outside acreage that has never been in a unit is handled at
8	unitizations. I think this is the same way it is handled throughout every reservoir where
9	acreage has been added to a unit. This is exactly the way it has been handled.
10	MR. DAMPIER: That's all the questions I have.
11	CHMN. MCCORQUODALE: Mr. Brooker, just for the record so that this is clear. The
12	members of the Wiggins family and the Lee family with whom you met and you've had these
13	conversations along with others from your client, can those people read?
14	MR. BROOKER: Very well. Mr. Wiggins is the President of an outfit called Tosco
15	Refining. He is a chemical engineer. He is the president of the refining arm of Tosco and used
16	to work for Exxon. I don't know what Mr. Lee's background is other than I know he raises
17	awful good hunting dogs, but they can read.
18	CHMN. MCCORQUODALE: But he can read?
19	MR. BROOKER: Yes.
20	CHMN. MCCORQUODALE: You understand my reason for asking that. Are there
21	other questions.

1		MR. ROGERS: One thing, Mr. Brooker, do you want to put the Unit Agreement in the
2	record	
3		MR. BROOKER: It's already in. I put all my petitions in.
4		MR. ROGERS: Thank you.
5		KEN HANBY
6		RE-DIRECT
7	Questi	ons by Mr. Brooker:
8	Q.	There was a question asked, Mr. Hanby, about the perforations at the bottom of the Lee
9		well. Are those still open?
10	A.	Yes, sir. A plug had been placed in the well above those perforations. They were not
11		cemented off but they are still open perforations. They are isolated from the wellbore by
12		a plug that has been set above those perforations. That plug is set at 12,360.5 feet.
13	Q.	So the water then that was coming into the bottom part of the wellbore has now been
14		isolated?
15	A	That's correct.
16	Q.	Any water that the well is now producing is coming from above that plug, that temporary
17		plug?
18	А.	That's correct. It's not all that temporary. It's not a retrievable plug. It's oneI mean,
19		it's a permanent plug. You could drill it out but it's a permanent plug.
20	Q.	Now, when you talk about the water that has come into that wellbore, is that the aquifer
21		that we're talking about that underlies this entire area?

1	A.	That would be water that has moved through that aquifer, yes, sir.
2	Q.	So in effect, what has happened is that where the oil-water contact was originally and as
3		mapped by Mr. Wood, has that moved?
4	A.	There has been movement, yes, sir.
5	Q.	So then that water level would have come up and become higher inside that wellbore?
6	A.	Yes, sir.
7	Q.	When Mr. Wood's exhibit depicts in green all the way outlet's say a large area in the
8		Lee tract as being green or as being underlain by hydrocarbons, is it possible that the
9		lower part of that area is now actually water?
10	А.	That is correct. Some of itall of it to a certain level may beit may be in parts where
11		it's kind of fingered in or coned in a little bit. It may not be uniform across there but, yes,
12		there would be less extension out in the
13	Q.	What you are using for your unitization factor is the original oil because you don't know
14		where this oil has moved necessarily within this reservoir, as your factor for unitization?
15	А.	True, precisely. You can make estimates and you could predict where it is but with a
16		degree of precision to start allocating equity on, you just simply would not have that data
17		that you could accurately do it to the point you can say I'm going to separate dollars from
18		another person based on that mapping of the water movement.
19		MR. BROOKER: That's all I have.
20		MR. DAMPIER: Mr. Chairman, I move that we take this matter under advisement.
21		MR. METCALFE: Second.

CHMN. MCCORQUODALE: All in favor say "aye".

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(All Board members voted "aye")

CHMN. MCCORQUODALE: "Ayes" have it. Thank you gentlemen. We stand adjourned.

(Whereupon, the hearing was adjourned at 1:00 p.m.)

1	REPORTER'S CERTIFICATE
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5	STATE OF ALABAMA
6	COUNTY OF TUSCALOOSA
7 8	I, Rickey Estes, Hearing Reporter in and for the State of Alabama, do hereby certify that
9	on Friday, May 21, 1999, in the Board Room of the State Oil and Gas Board Building,
10	University of Alabama Campus, Tuscaloosa, Alabama, I reported the proceedings before the
11	State Oil and Gas Board in Regular Session ; that the foregoing 87 typewritten pages contains a
12	true and accurate verbatim transcription of said proceedings to the best of my ability, skill,
13	knowledge, and belief.
14	I further certify that I am neither kin or counsel to the parties to said cause, nor in any
15	manner interested in the results thereof.
16 17 18 19 20 21	Rickey EstEs Rickey Estes Hearing Reporter State of Alabama