



## RAILROAD COMMISSION OF TEXAS HEARINGS DIVISION

**OIL AND GAS DOCKET NO. 01-0297472**

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**THE APPLICATION OF DEVON ENERGY PRODUCTION CO. L.P. TO AMEND  
FIELD RULES FOR THE EAGLEVILLE (EAGLE FORD-1) FIELD ATASCOSA,  
DIMMIT, FRIO, GONZALES, LASALLE, MCMULLEN, WILSON AND ZAVALA  
COUNTIES, TEXAS**

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**OIL AND GAS DOCKET NO. 02-0297714**

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**THE APPLICATION OF DEVON ENERGY PRODUCTION CO. L.P. TO AMEND  
FIELD RULES FOR THE EAGLEVILLE (EAGLE FORD-2) FIELD DEWITT,  
KARNES, LAVACA, LIVE OAK, AND BEE COUNTIES, TEXAS**

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**HEARD BY:** Karl Caldwell – Technical Examiner  
Marshall Enquist – Administrative Law Judge

**HEARING DATES:** November 23, 2015 & August 3, 2016  
**RECORD CLOSED:** January 25, 2017  
**CONFERENCE DATE:** February 28, 2017

**APPEARANCES:**

Brian R. Sullivan  
Sandra B. Buch  
Cary McGregor  
Michael Paluso  
Daniel Mathis  
Matt Gallant

**REPRESENTING:**

Devon Energy Production Company, L.P.

**OBSERVERS:**

Tim George  
Jamie Nielson  
Doug Dashiell  
David Simpson  
Ryan Howrish

Penn Virginia Oil & Gas  
Burlington Resources Oil & Gas Company, L.P.  
EOG Resources, Inc.  
Pioneer Natural Resources, USA, Inc.  
Talisman Energy USA, Inc.

**EXAMINERS' REPORT AND RECOMMENDATION****STATEMENT OF THE CASE**

This is the application of Devon Energy Production Company, L.P. ("Devon, or Applicant") to amend the field rules for the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields. Devon proposes the following amendments to the existing field rules:

1. The adoption of a field rule providing for permanent gas well classification for all wells with an initial Gas-Liquid Ratio (GLR) of 2,000 cubic feet per barrel or greater. The proposed field rule language is as follows:

For any well in the Eagleville (Eagle Ford-1) Field completed with a gas-oil ratio (GOR) of 2,000 cubic feet per barrel and above, the operator may elect to have such well permanently classified as a gas well without the need of further administrative review effective the date of initial completion, provided the GOR was determined by stabilized well test conducted within 180 days of well completion in accordance with the GOR determination requirements of Commission procedures as indicated on Forms G-1, G-5, or W-2 as appropriate.

2. The adoption of an administrative Rule 38 provision for wells to be drilled with between 20 and 40 acres in density, with notice to offsets within 660' feet of the bottomhole location of a vertical well or of any take point on a horizontal well.
3. Adoption of a Stacked Lateral Rule, with all take points of a stacked lateral well's drainholes within a rectangular area the width of which is 660' feet and the length of which is the distance from the two most distant take points.
4. Suspension of the allocation formula for each of the fields under 16 TAC 3.31(j).
5. While the allocation formula is suspended, an exception to the semi-annual form G-10 testing requirements of 16 TAC 3.28.
6. An amendment to the application of 16 TAC 3.32 to allow operators to request a one-time flaring exception for a period of 180 days for a fee of \$750.
7. Clarification that the density provision of the field rules applies to both oil wells and gas wells.
8. In addition, Devon requests re-classification of its wells on Attachment A and B of the Notice of Hearing as permanent gas wells from the date of first production.

In a letter dated December 12, 2016 the Technical Examiner and Administrative Law Judge ("collectively, Examiners") informed the Applicant that a stacked lateral rule for the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields (item No. 3) was adopted in Oil and

Gas Docket Nos. 01-0297222 and 02-0297221 on December 6, 2016. The Examiners also informed the Applicant that in the Examiners' opinion, there was insufficient evidence to recommend the adoption of amendment Nos. 1, 2, 4, 5, 6, and 8.

On January 25, 2017, Devon withdrew its request for a stacked lateral rule (item No. 3), and also withdrew item Nos. 2, 4, 5, and 6. Devon also informed the Examiners that it will not consider approval of a 3,000:1 GOR field rule as adverse as it pertains to item No. 1, and effectively amended its application to request the adoption of a 3,000:1 GOR for classifying wells instead of 2,000:1 as originally proposed. Devon also amended item 8 to list only those wells listed on the original Attachment A to the Notices of Hearing that meet the 3,000:1 and above criteria. Devon notes that the proposed 3,000:1 GOR field rule for classifying wells as gas wells is consistent with the field rules for the DeWitt (Eagle Ford Shale), Hawkville (Eagleford Shale), Sugarkane (Eagle Ford), and Briscoe Ranch (Eagleford) Fields. The application is unopposed and the Examiners recommend the application be approved, as amended.

### **DISCUSSION OF THE EVIDENCE**

The Eagleville (Eagle Ford-1) Field and the Eagleville (Eagle Ford-2) Field are associated fields. The Eagleville (Eagle Ford-1) Field was created for District 1 and the Eagleville (Eagle Ford-2) Field was created for District 2. At the time of the first hearing on November 23, 2015 there were 4,676 producing wells and 57 active operators in the Eagleville (Eagle Ford-1) Field and 2,727 producing wells with 28 active operators in the Eagleville (Eagle Ford-2) Field. Cumulative production from the Eagleville (Eagle Ford-1) Field through July, 2015 is reported to be 532 MMBO and 828 Bcf of gas, while, the cumulative production from the Eagleville (Eagle Ford-2) Field is reported to be 483 MMBO and 913 Bcf of gas.

Currently, the field rules for the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) fields are identical. Rule 3 of the field rules for each of the fields specifies density for oil wells, but as a matter of practice, the density rule has been applied to both oil and gas wells as reflected on the Commission on-line field rules query (Exhibit No. 39). Devon requests to clarify field rule 3 to specify that the density provision of the field rules applies to both oil and gas wells.

The oil wells in the two subject fields are primarily located in the northern areas of the fields, and the gas wells are primarily located in the southern portions of the fields. Exhibit Nos. 14 and 30 show the distribution of hydrocarbon fluids in the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields. A U.S. Energy Information Administration (EIA) map of the Eagleford Shale play also shows oil wells located in the northern area of the subject fields and gas wells located in the southern regions (Exhibit No. 13). The EIA attributes changes in hydrocarbon complexity and hydrocarbon fluid type to an increase in thermal maturity and pore pressure in a south-easterly direction across the subject fields.

The classification of a well is dependent on whether the hydrocarbons exist as a gas or liquid in-situ. In a Journal of Petroleum Technology paper, Phillip Moses concluded that "there is a fairly sharp dividing line ... C7+ of 12.5% and greater are almost always in the liquid phase. Less

than 12.5% are almost always in the gas phase in the reservoir.”<sup>1</sup> Phillip Moses’ data was published in 1986. More recently, William McCain has conducted further studies and determined that the transition between volatile oils and gas condensates is a composition of 12.9 mole % heptanes plus in the reservoir fluid. In William McCain’s 2011 publication: *Petroleum Reservoir Fluid Property Correlations*, McCain states: “Thus, if the composition of the reservoir fluid contains more than 12.9 mol % heptanes plus, the reservoir fluid is an oil. If the composition of heptanes plus in the reservoir fluid is less than 12.9 mol %, the fluid is a gas. The transition from gases to oils is very distinct; only three of the hundreds of data points do not fit this pattern.”<sup>2</sup>

Under current Commission guidelines for well classification, a well may be administratively classified as a gas well if:

1. The gas-liquid ratio is 100,000 cubic feet per barrel or more.
2. The heptanes plus (C<sub>7</sub>+) mol % of a compositional analysis is less than 11%.
3. The Commission’s engineering staff determines that a well satisfies certain criteria under an ASTM test (Form G-5).

Item No. 2 is based on a Railroad Commission Memorandum dated August 3, 2006 which proposed a new administrative procedure for gas well classification, allowing wells to be administratively classified as a gas well if the heptanes plus (C<sub>7</sub>+) mole (or “mol”) percent of a compositional analysis is less than 11% (Exhibit No. 45). The fluid sampling for the compositional analysis should be performed by a third party who certifies that the sample is representative of the reservoir fluid and has identical properties to those of a fluid taken from the subject reservoir on the same day. The memo stated that the published research of Phillip L. Moses and William D. McCain, Jr. supports this change.

As a result of the August 3, 2006 Memorandum, current Commission practice is to administratively classify a well as a gas well when analysis demonstrates the proportion of heptanes and heavier hydrocarbon molecules (i.e., “heptanes plus” or “C<sub>7</sub>+”) is less than 11 mole percent of the recombined wellstream composition. If an applicant cannot meet the established criteria for administrative classification, an applicant can request a hearing and provide additional information to show that a particular well meets the definition of “gas well” found in Statewide Rule 79. For example, similar to this case, the underlying research indicates that an initial producing gas-oil ratio (GOR) of more than 3,000 to 3,200 standard cubic feet (scf) per barrel may also be indicative of a retrograde gas condensate reservoir. In other cases in which the C<sub>7</sub>+ and initial producing GOR data demonstrate the conditions in which the fluid exists as a retrograde gas condensate in the reservoir, the Commission has adopted field rules for gas well classification that allow an operator to seek administrative gas well classification. More specifically, a well may be administratively classified as a gas well if the well is completed in a field with field rules that provide for gas well classification and the well satisfies the field rule

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<sup>1</sup> Moses, Phillip. L. *Engineering Applications of Phase Behavior of Crude Oil and Condensate Systems*. July 1986. Journal of Petroleum Technology. Pg 715-723

<sup>2</sup> McCain, William, D. Jr., Spivey, John P., and Lenn, Christopher P. Petroleum Reservoir Fluid Property Correlations, 2011.

requirement specific to that field. Numerous fields have adopted gas well classification language based on initial producing GOR. (Table 1).

Table 1: Administrative Permanent Gas Well Classification Based on a 3,000:1 GOR

Field	O&G Docket No.	Date
Briscoe Ranch (Eagleford) Field	01-0270024	05/24/2011
Sugarkane (Eagle Ford) Field	02-0272551	01/10/2012
Hawkville (Eagleford) Field	02-0272550	01/10/2012
DeWitt (Eagle Ford) Field	02-0272549	01/10/2012
Ford, West (Wolfcamp) Field	08-0283648	10/22/2013
Derby (Bone Spring) Field	08-0282091	08/06/2013
Sand Bar (Bone Spring) Field	08-0275393	06/12/2012
Newark, East (Barnett Shale) Field	09-0277581	12/11/2012
Lipscomb (Cleveland) Field	10-0298030	06/21/2016
Lipscomb (S.E. Cleveland) Field	10-0298029	06/21/2016

Currently in the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields, if a well does not meet the administrative criteria for gas well classification, an operator would be required to request a hearing to present evidence to show that the well is a gas well. Devon proposes adopting a field rule that all wells completed with a gas-oil ratio of 3,000 scf/bbl and above be permanently classified as gas wells without the need of further administrative review, effective the date of initial completion. This proposed field rule would save operators in the field the expense of conducting compositional fluid analysis testing.

Devon's engineering witness Cary McGregor, performed a study on well data filed with the Commission by operators. This data included Form G-5 and Form W-2 GOR data, as well as C7+ and PVT test results (Exhibit No. 17). Table 2 is an excerpt of Exhibit 17 which only includes wells listed in the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields. The Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Field C7+ data generally agrees with the work of Moses and McCain. For the well data listed in Table 2 for wells where dew points only were observed-indicating a gas well, the maximum C<sub>7+</sub> is 13.30%, with a corresponding GOR of 2,953 scf/STB (Forrest Wheeler "B" No. 9H, API No. 42-311-35539).

The underlying data to support the proposed field rule of a well producing at a 3,000:1 GOR or above at initial completion as a criterion for classifying wells as gas wells is consistent with the data presented in previous hearings where this field rule has been adopted. These hearings include the DeWitt (Eagle Ford Shale), Hawkville (Eagleford Shale), Sugarkane (Eagle Ford), and Briscoe Ranch (Eagleford) Fields. In addition, Exhibit No. 16 shows that the either the Eagleville (Eagle Ford-1) Field and/or the Eagleville (Eagle Ford-2) Field adjoin the DeWitt (Eagle Ford Shale), Hawkville (Eagleford Shale), Sugarkane (Eagle Ford), and Briscoe Ranch (Eagleford) Fields.

Devon also requests to reclassify wells that meet the proposed well classification field rule in the subject fields. Devon submitted a list of 146 wells in the Eagleville (Eagle Ford-2) Field that meet the originally-proposed a 2,000:1 GOR or above criteria (Revised Exhibit No. 31, attached). Of these 146 wells, a total of 74 wells meet the since-amended field rule of classifying wells as gas wells if completed with a GOR of 3,000:1 or above within 180 days of initial completion (Attachment 1). All but one of these 74 wells are in DeWitt County (Exhibit No. 30 and Revised Exhibit No. 31).

Table 2: An Excerpt of Exhibit 17 Showing Wells in the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields Only.

PUBLIC PVT DATA FTI-PS INVESTIGATION												
Form G-5/W2 PVT/Recombination Gas Analysis												
Map & Tab No	API	LEASE NAME	FIELD (RESERVOIR)	COUNTY	Lease First Prod. Date	Test Date	Oil Gravity (API)	GLR (SCF/BBL)	Sample Date	Recombined GLR (scf/stb)	Wellstream C7+ (mol%)	PVT Determination
4	42-123-32971	ZGABAY NO. A8	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Jan-14	02/12/14	48.9	1,085	09/10/14	2,332	22.60	BUBBLE POINT
5	42-123-33031	A.J. BAKER A NO. 4	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Jun-13	04/24/14	51.0	1,431	08/27/14	2,475	21.54	BUBBLE POINT
1	42-123-32319	OLIVER B NO. 1	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Oct-10	10/14/10	49.0	1,780	10/15/10	1,666	18.63	BUBBLE POINT
2a	42-123-32325	HYATT A NO. 1	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Oct-10	10/26/10	49.5	2,052	10/15/10	1,849	16.94	BUBBLE POINT
2b	42-123-32325	HYATT A NO. 1	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Oct-10	10/26/10	49.5	2,052	10/15/10	2,624	13.50	DEW POINT
9a	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Feb-11	02/22/11	51.0	2,007	04/12/11	2,583	14.14	BUBBLE POINT
9b	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Feb-11	02/22/11	51.0	2,007	07/11/11	2,449	13.33	DEW POINT
9c	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Feb-11	02/22/11	51.0	2,007	07/11/11	2,868	13.16	BUBBLE POINT
9d	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Feb-11	11/17/13	55.2	3,386	06/05/13	3,219	12.68	DEW POINT
15	42-311-35695	DILWORTH NO. 12H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	May-14	05/27/14	54.2	2,051	11/18/14	2,929	11.88	DEW POINT
16	42-311-35539	FORREST WHEELER 'B' NO. 9H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jun-14	07/03/14	52.0	2,518	07/30/14	2,952	13.30	DEW POINT
21	42-311-35538	FORREST WHEELER 'B' NO. 8H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jun-14	07/03/14	52.5	2,592	07/30/14	3,111	11.90	DEW POINT
20	42-311-35645	DILWORTH NO. 35H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Oct-14	10/30/14	54.4	2,657	11/10/14	3,048	12.34	DEW POINT
25	42-311-35646	DILWORTH NO. 36H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Oct-14	10/29/14	53.8	2,733	11/10/14	3,151	12.12	DEW POINT
59	42-123-32336	MUIR B NO. 1H	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Dec-10	07/12/11	52.9	2,760	04/14/12	3,125	12.04	DEW POINT
32	42-311-35644	DILWORTH NO. 34H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Oct-14	10/09/14	54.4	2,863	11/10/14	3,356	11.48	DEW POINT
29	42-311-35631	DILWORTH NO. 33H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jul-14	07/14/14	53.6	2,969	07/23/14	3,254	12.28	DEW POINT
23	42-311-35630	DILWORTH NO. 31H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jul-14	07/14/14	53.2	2,970	07/23/14	3,116	13.14	DEW POINT
24	42-311-35543	FORREST WHEELER 'B' NO. 14H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jun-14	07/03/14	54.3	3,045	07/31/14	3,119	11.66	DEW POINT
34	42-311-35542	FORREST WHEELER 'B' NO. 13H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Jun-14	07/03/14	54.5	3,220	07/31/14	3,418	11.14	DEW POINT
17	42-297-35517	JERRY HOUSE UNIT B NO. 4H	EAGLEVILLE (EAGLE FORD-2)	LIVE OAK	May-14	11/25/14	54.2	3,314	12/15/14	2,947	12.13	DEW POINT
22	42-311-35601	GLADYS WHEELER A NO. 8H	EAGLEVILLE (EAGLE FORD-1)	MCMULLEN	Mar-14	04/08/14	53.7	3,530	05/02/14	3,112	12.13	DEW POINT
45	42-123-33068	WAGNER A NO. 2	EAGLEVILLE (EAGLE FORD-2)	DE WITT	Feb-14	02/16/14	56.3	3,778	08/28/14	4,384	11.30	DEW POINT

## FINDINGS OF FACT

1. Notice of the hearing was provided to all operators in the field at least ten (10) days' prior to the date of the hearing. The amended application is unprotested.
2. The Eagleville (Eagle Ford-1) Field was created for Railroad Commission District 1 and the Eagleville (Eagle Ford-2) Field was created for Railroad Commission District 2.
3. Oil wells in the two subject fields are primarily located in the northern areas of the fields, and the gas wells are primarily located in the southern portions of the fields.

4. Currently, the field rules for the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) fields are identical.
5. On January 25, 2017, Devon withdrew item Nos. 2, 3, 4, 5, and 6 listed in the Notice of Hearing. Devon also stated that it will not consider approval of a 3,000:1 GOR field rule as adverse as it pertains to item No. 1, and effectively amended its application to propose the adoption of a 3,000:1 GOR for classifying wells instead of 2,000:1 as originally proposed. Devon also amended item No. 8 in correspondence with the item No. 1 amendment.
6. The following fields have adopted Administrative Permanent Gas Well Classification Based on a 3,000:1 GOR.
  - a. Briscoe Ranch (Eagleford) Field: O&G Docket No. 01-0270024
  - b. Sugarkane (Eagle Ford) Field: O&G Docket No. 02-0272551
  - c. Hawkville (Eagleford) Field: O&G Docket No. 02-0272550
  - d. DeWitt (Eagle Ford) Field: O&G Docket No. 02-0272549
  - e. Ford, West (Wolfcamp) Field: O&G Docket No. 08-0283648
  - f. Derby (Bone Spring) Field: O&G Docket No. 08-0282091
  - g. Sand Bar (Bone Spring) Field: O&G Docket No. 08-0275393
  - h. Newark, East (Barnett Shale) Field: O&G Docket No. 09-0277581
  - i. Lipscomb (Cleveland) Field: O&G Docket No. 10-0298030
  - j. Lipscomb (S.E. Cleveland) Field: O&G Docket No. 10-0298029
7. The underlying data to support the proposed field rule of a well producing at a 3,000:1 GOR or above at initial completion as a criterion for classifying wells as gas wells is consistent with the data presented in previous hearings where this field rule has been adopted, including the DeWitt (Eagle Ford Shale), Hawkville (Eagleford Shale), Sugarkane (Eagle Ford), and Briscoe Ranch (Eagleford) Fields.
8. The Eagleville (Eagle Ford-1) Field and/or the Eagleville (Eagle Ford-2) Field adjoin each of the DeWitt (Eagle Ford Shale), Hawkville (Eagleford Shale), Sugarkane (Eagle Ford), and Briscoe Ranch (Eagleford) Fields.

### **CONCLUSIONS OF LAW**

1. Proper notice was issued as required by all applicable statutes and regulatory codes.
2. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. TEX. NAT. RES. CODE § 81.051.

3. Amending the field rules for the Eagleville (Eagle Ford-1) and Eagleville (Eagle Ford-2) Fields will reduce the administrative burden on the operators in the fields and provide clarity to the density rule as written in the previous version of the field rules.

### **EXAMINERS' RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the Examiners recommend that the Commission amend the field rules, adopting a 3,000:1 and greater initial completion GOR field rule for gas well classification, to reclassify the list of Devon wells that meet this rule as gas wells (Attachment I), and to clarify that the density rule applies to both oil and gas wells in the field.

Respectfully submitted,



Karl Caldwell  
Technical Examiner



Marshall Enquist  
Administrative Law Judge



## Attachment I

Well Count	API No.	County	Lease Name	Well No.
1	12333012	DEWITT	OEHLKE A	2H
2	12332866	DEWITT	D. WARZECHA A	2H
3	12333144	DEWITT	DLUGOSCH A	8H
4	12332868	DEWITT	D. WARZECHA A	3H
5	12333088	DEWITT	OEHLKE A	6H
6	12333093	DEWITT	DLUGOSCH A	2H
7	12333308	DEWITT	J. HERMANN C	3H
8	12333089	DEWITT	OEHLKE A	7H
9	12332911	DEWITT	D. WARZECHA A	7H
10	12332910	DEWITT	D. WARZECHA A	6H
11	12333309	DEWITT	J. HERMANN C	2H
12	12332909	DEWITT	D. WARZECHA A	4H
13	12332904	DEWITT	OEHLKE A	5H
14	12332902	DEWITT	OEHLKE A	3H
15	12333303	DEWITT	STEELE PARTNERS B	3H
16	12333071	DEWITT	NATHO B	3H
17	12333299	DEWITT	STEELE PARTNERS B	2H
18	12333074	DEWITT	NATHO B	6H
19	12332903	DEWITT	OEHLKE A	4H
20	28533788	LAVACA	SHELLY UNIT	1H
21	12333072	DEWITT	NATHO B	4H
22	12333066	DEWITT	NATHO B	8H
23	12333073	DEWITT	NATHO B	5H
24	12333062	DEWITT	HAMILTON A	7H
25	12333063	DEWITT	HAMILTON A	6H
26	12333091	DEWITT	BLACKWELL A	4H
27	12332897	DEWITT	HAMILTON A	2H
28	12333092	DEWITT	BLACKWELL A	5H
29	12333090	DEWITT	BLACKWELL A	3H
30	12332896	DEWITT	HAMILTON A	5H
31	12332380	DEWITT	WARWAS A	1H
32	12332765	DEWITT	JUDD-TURNER A	3H
33	12333065	DEWITT	NATHO B	7H
34	12333214	DEWITT	FISHER C	8H
35	12333101	DEWITT	FISHER B	6H
36	12333070	DEWITT	BLACKWELL A	2H
37	12332727	DEWITT	JUDD-TURNER A	2H

38	12333639	DEWITT	M. CUSACK B	5H
39	12333104	DEWITT	FISHER C	7H
40	12332898	DEWITT	HAMILTON A	3H
41	12332698	DEWITT	H. MUELLER 18A	1H
42	12332907	DEWITT	BLACKWELL A	8H
43	12333017	DEWITT	KICKENDAHL UNIT I	5H
44	12332899	DEWITT	KICKENDAHL UNIT I	2H
45	12332900	DEWITT	KICKENDAHL UNIT I	3H
46	12333015	DEWITT	KICKENDAHL UNIT I	6H
47	12333640	DEWITT	M. CUSACK B	6H
48	12332905	DEWITT	BLACKWELL A	6H
49	12332985	DEWITT	FISHER C	3H
50	12332906	DEWITT	BLACKWELL A	7H
51	12332986	DEWITT	FISHER C	4H
52	12332988	DEWITT	FISHER C	2H
53	12333102	DEWITT	FISHER B	7H
54	12332999	DEWITT	FISHER B	3H
55	12333269	DEWITT	IBROM A	6H
56	12332801	DEWITT	PEEBLES A	2H
57	12333170	DEWITT	MUSICK A	7H
58	12332799	DEWITT	WILLIAMS A	3H
59	12333068	DEWITT	WAGNER A	2H
60	12333567	DEWITT	LP BUTLER B	5H
61	12333164	DEWITT	H. MUELLER 18A	5H
62	12333267	DEWITT	IBROM A	5H
63	12333059	DEWITT	P. FRISBIE B	2H
64	12333168	DEWITT	MUSICK A	5H
65	12332992	DEWITT	FISHER B	2H
66	12333266	DEWITT	FISHER B	5H
67	12333060	DEWITT	P. FRISBIE B	3H
68	12333564	DEWITT	LP BUTLER B	2H
69	12333061	DEWITT	P. FRISBIE B	4H
70	12333069	DEWITT	WAGNER B	3H
71	12333285	DEWITT	SEIFERT B	8H
72	12333161	DEWITT	MUSICK A	3H
73	12332415	DEWITT	GWOSDZ A	1H
74	12332879	DEWITT	MUIR D	7H



Exhibit No.: **39**  
 Operator: Devon Energy Production Co.  
 Docket No.: 01-0297472 & 02-0297714  
 & 02-0297779  
 Date: November 2, 2015

## Field Rules Display

[Field Query](#) [Previous Query](#) [Results](#)

## Field Rules for Field: EAGLEVILLE (EAGLE FORD-1)

Field Number: 27135700 District Name: 01

## Oil Field Rules:

County Regular: N Salt Dome: N Field Location: LAND Don't Permit: N

Schedule Remarks: SWR 10 DATA SHEET AND FEES ARE STILL REQUIRED.

Comments: CORRELATIVE INTERVAL FROM 10,294' - 10,580'

Rule Type	Depth	Lease Spacing	Well Spacing	Acres per Unit	Tolerance Acres	Diagonal Code	Diagonal Max Length
Special Rules	All Depths	330	0	80.0	40.0	Corner to Corner	0
Optional Rules	All Depths	330	0	40.0	0.0	Corner to Corner	99999

## Gas Field Rules:

County Regular: N Salt Dome: N Field Location: LAND Don't Permit: N

Schedule Remarks: PLEASE REFER TO HEARING EXAMINER FOR QUESTIONS ON DOCKET.

Comments: CORRELATIVE INTERVAL IS 10,294' - 10,580

Rule Type	Depth	Lease Spacing	Well Spacing	Acres per Unit	Tolerance Acres	Diagonal Code	Diagonal Max Length
Special Rules	All Depths	330	0	80.0	40.0		0
Optional Rules	All Depths	330	0	40.0	0.0	Corner to Corner	99999

**Special Horizontal Field Rules:** For informational purposes only. The Final Order controls all field rules.

[Illustration](#) [Screen Help](#)

**Correlative Interval:** From 10294 to 10580 feet

**Established by API Number:**  
25531608

## Dual Lease Line Take Point Spacing

**First/Last Take Points (Heel and Toe) to Lease Line:**  
100 feet

**Off-Lease Penetration Point:**  
Yes

**Perpendicular Spacing from All Take Points to Lease Line:** 330 feet

**Between-Well Spacing****Horizontal to Vertical:** 0 feet**Horizontal to Horizontal:** 0 feet**Overlap Distance:** N/A**Subsurface Tolerance Box:** 33 feet**Non-Perforation Zone (NPZ):**  
Yes**Stacked Lateral Rules:** No (If yes, see Final Order for details)**Special Rule 38 (Well Density) Provision****Upper:** N/A**Notification Radius:** N/A**Lower:** N/A**Comments for the Special Field Rules****Comments:** N/A**History: Final Orders that contain special horizontal field rules language**

Docket Number	Final Order Effective Date	Final Order Document
01-0282089	08/06/2013	<a href="#">Click Here</a>

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## Field Rules Display

[Field Query](#) [Previous Query](#) [Results](#)

## Field Rules for Field: EAGLEVILLE (EAGLE FORD-2)

Field Number: 27135750 District Name: 02

## Oil Field Rules:

County Regular: N Salt Dome: N Field Location: LAND Don't Permit: N

Schedule Remarks: SPECIAL HORIZ. RULES --SEE DOCKET FOR DETAILS

Comments: NO BETWEEN WELL SPACING, NO DIAGONAL, SPECIAL HORIZ. RULES

Rule Type	Depth	Lease Spacing	Well Spacing	Acres per Unit	Tolerance Acres	Diagonal Code	Diagonal Max Length
Special Rules	All Depths	330	0	80.0	40.0	Corner to Corner	99999
Optional Rules	All Depths	330	0	40.0	0.0	Corner to Corner	99999

## Gas Field Rules:

County Regular: N Salt Dome: N Field Location: LAND Don't Permit: N

Schedule Remarks: IS A HYDROGEN SULFIDE FIELD REGULATED BY SWR 36.

Comments: NO BETWEEN WELL SPACING REQUIRED.

Rule Type	Depth	Lease Spacing	Well Spacing	Acres per Unit	Tolerance Acres	Diagonal Code	Diagonal Max Length
Special Rules	All Depths	330	0	80.0	40.0	Corner to Corner	99999
Optional Rules	All Depths	330	0	40.0	0.0	Corner to Corner	99999

Special Horizontal Field Rules: For informational purposes only. The Final Order controls all field rules.

[Illustration](#) [Screen Help](#)

Correlative Interval: From 10294 to 10580 feet

Established by API Number:  
25531608

## Dual Lease Line Take Point Spacing

First/Last Take Points (Heel and Toe) to Lease Line:  
100 feetOff-Lease Penetration Point:  
YesPerpendicular Spacing from All Take Points to Lease  
Line: 330 feet

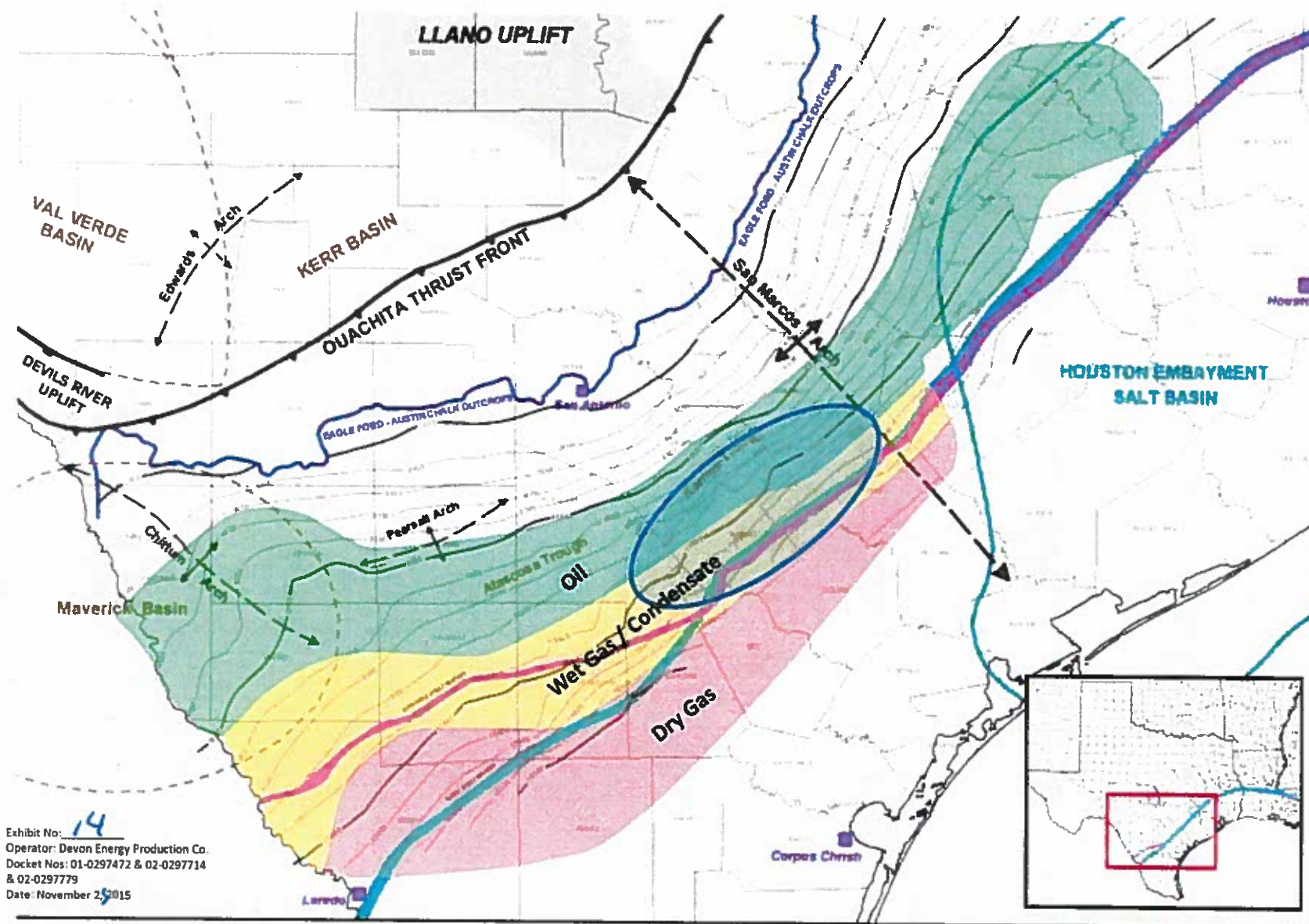
**Between-Well Spacing****Horizontal to Vertical:** N/A**Horizontal to Horizontal:** N/A**Overlap Distance:** N/A**Subsurface Tolerance Box:** 33 feet**Non-Perforation Zone (NPZ):**  
Yes**Stacked Lateral Rules:** No (If yes, see Final Order for details)**Special Rule 38 (Well Density) Provision****Upper:** N/A**Notification Radius:** N/A**Lower:** N/A**Comments for the Special Field Rules****Comments:** N/A**History: Final Orders that contain special horizontal field rules language**

Docket Number	Final Order Effective Date	Final Order Document
02-0282092	08/06/2013	<a href="#">Click Here</a>

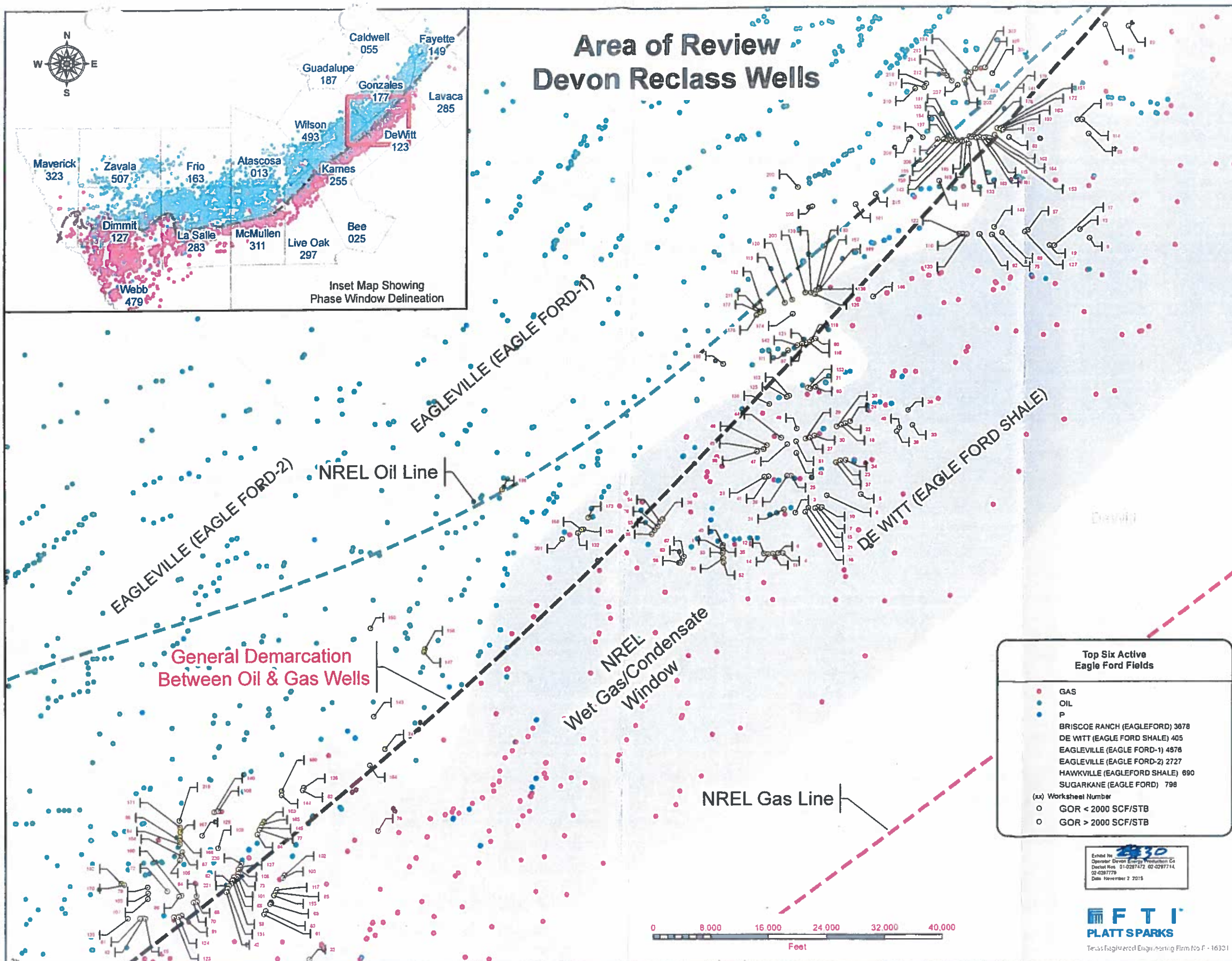
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# Hydrocarbon Fluid Distribution



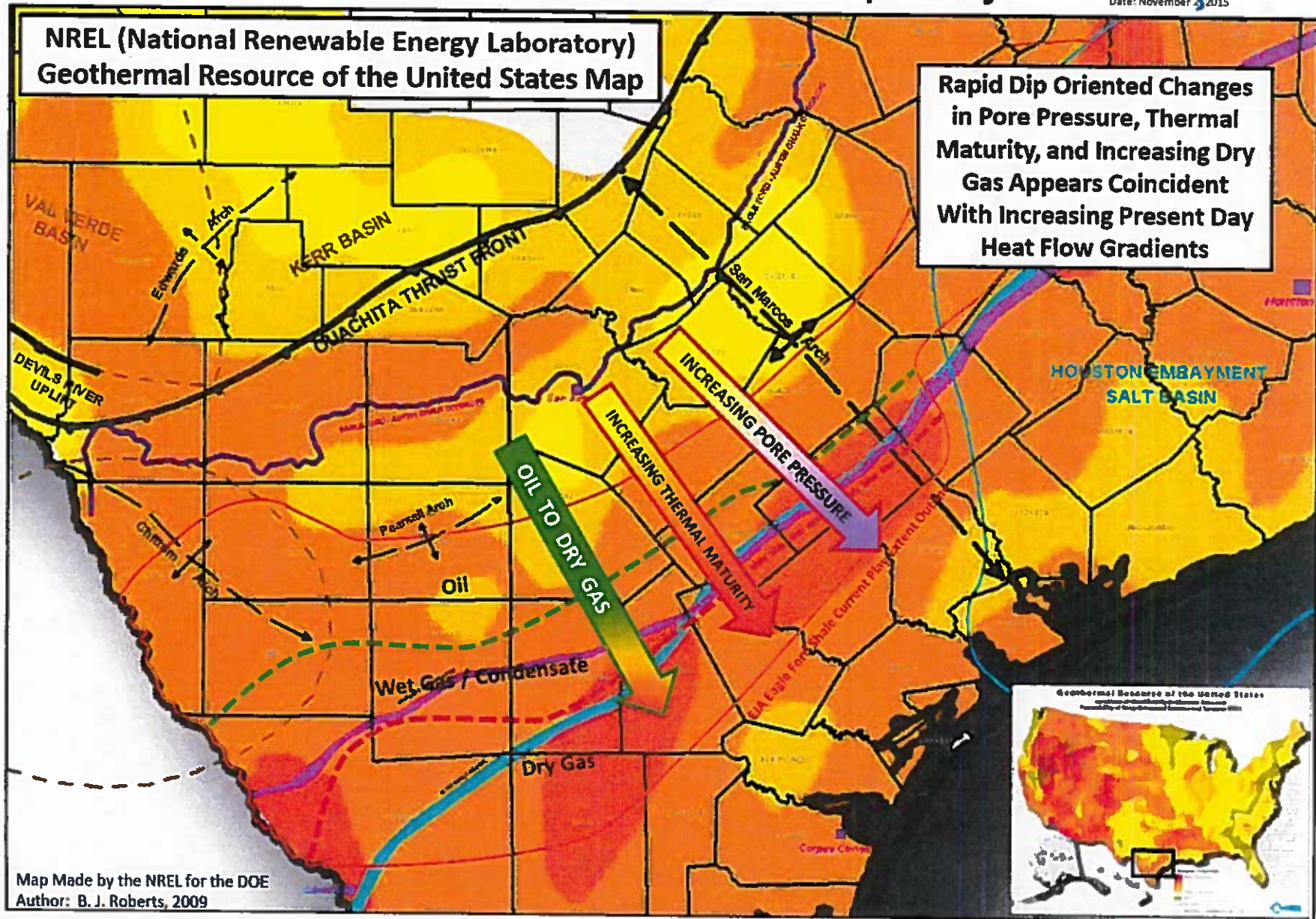






# Causes for Changes in Pore Pressure And Hydrocarbon Complexity

Exhibit No: 13  
Operator: Devon Energy Production Co.  
Docket Nos: 01-0297472 & 02-0297714  
& 02-0297779  
Date: November 3, 2015



# RAILROAD COMMISSION OF TEXAS

ELIZABETH A. JONES, CHAIRMAN  
MICHAEL L. WILLIAMS, COMMISSIONER  
VICTOR G. CARRILLO, COMMISSIONER

INTERNAL  
OIL AND GAS DIVISION  
RICHARD A. VARELA, DIRECTOR

## MEMORANDUM

**TO:** Chris Hosek, Chief of Staff  
Office of Chairman Elizabeth A. Jones

Carol Treadway, Chief of Staff  
Office of Commissioner Michael L. Williams

Kay Molina, Chief of Staff  
Office of Commissioner Victor G. Carrillo

**FROM:** Richard A. Varela  
Director, Oil and Gas Division *RAV*

**DATE:** August 3, 2006

August 3, 2006 (Supersedes Tab Previously Approved on March 13, 2006)		
APPROVED	DENIED	ABSTAIN
<i>OK</i>		

**SUBJECT:** Change in administrative determination policy for gas well classification.

We are seeking your approval to change long-established RRC administrative procedures used to determine gas well classification by adding another determination option based on heptanes plus mole percent composition.

Statewide Rule 79 defines a Gas Well as any well:

- (A) which produces natural gas not associated or blended with crude petroleum oil at the time of production;
- (B) which produces more than 100,000 cubic feet of natural gas to each barrel of crude petroleum oil from the same producing horizon; or
- (C) which produces natural gas from a formation or producing horizon productive of gas only encountered in a wellbore through which crude petroleum oil also is produced through the inside of another string of casing or tubing. A well which produces hydrocarbon liquids, a part of which is formed by a condensation from a gas phase and a part of which is crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil per 100,000 cubic feet of natural gas; and that the term "crude petroleum oil" shall not be construed to mean any liquid hydrocarbon mixture or portion thereof which is not in the liquid phase in the reservoir, removed from the reservoir in such liquid phase, and obtained at the surface as such.

Statewide Rule 79 defines an Oil well as any well which produces one barrel or more crude petroleum oil to each 100,000 cubic feet of natural gas.

Ex. 45



Under current administrative procedures, staff classifies a well as a "gas well" if the well meets certain criteria using one of the determination options listed below.

- 1) The Gas-Oil Ratio (GOR) reported on completion forms exceeds 100,000 cubic feet (cf) of natural gas to each barrel of oil at standard pressure and temperature conditions as defined in Statewide Rule 79 (note: when computing the GOR, the crude petroleum oil may be oil or condensate);
- 2) If the GOR is less than 100,000 cf/bbl at standard pressure and temperature conditions, an American Society for Testing and Materials (ASTM) Distillation Test must be conducted (Typical cost <\$200) and is submitted on Form G-5. The results of this test can indicate the well is a gas well if:
  - a) the GOR is greater than 12,500 cf/bbl,
  - b) the API gravity of the liquid exceeds 50°,
  - c) the liquid color is not consistent with that of crude oil petroleum,
  - d) the initial boiling point test is less than 120°F,
  - e) at 80% recovery the boiling point does not exceed 520°F,
  - f) the end point does not exceed 720°F with at least 95% recovery,
  - g) the residue is less than 5% with no evidence of cracking.
- 3) If the Gas-Oil Ratio (GOR) reported on completion forms exceeds 100,000 cubic feet (cf) of natural gas to each barrel of oil at reservoir conditions and if the ASTM test is inconclusive, a pressure, volume, temperature (PVT) test can be run in a laboratory and submitted to prove a well is a gas well. This test simulates the phase characteristics of a hydrocarbon sample at reservoir conditions. A well is classified as a gas well if the GOR exceeds 100,000 cf/bbl or it is above the dew point at existing reservoir conditions. This test may require a well be shut in to establish the current bottom hole pressure (BHP). (Typical cost <\$3,000).

Under current administrative procedures, if a well does not meet the specified criteria listed above, an operator may request a hearing to present additional evidence that supports gas well classification and obtain a well classification through Commission order.

The proposed administrative procedures for gas well classification would still allow staff to utilize all the options listed above but would add one additional option. A well would be administratively classified as a gas well if the heptanes plus (C7+) mole percent of a compositional analysis is less than 11%. This change is supported by research published by Philip L. Moses in the *Journal of Petroleum Technology* July 1986 *Engineering Applications of Phase Behavior of Crude Oil and Condensate Systems* and William D. McCain, Jr. in the *Properties of Petroleum Fluids Second Edition* © 1990.

Fluid sampling for the ASTM distillation, PVT analysis, or compositional analysis should be performed by a third party who certifies that the sample is representative of the reservoir fluid and has identical properties to those of a fluid taken from the subject reservoir on the same day.

This administrative procedure change would not require rulemaking and is consistent with other gas well determinations approved by the Commission through the hearing process that were based on similar findings of fact.

cc: Ron Kitchens

PUBLIC PVT DATA  
FTI-PS INVESTIGATION

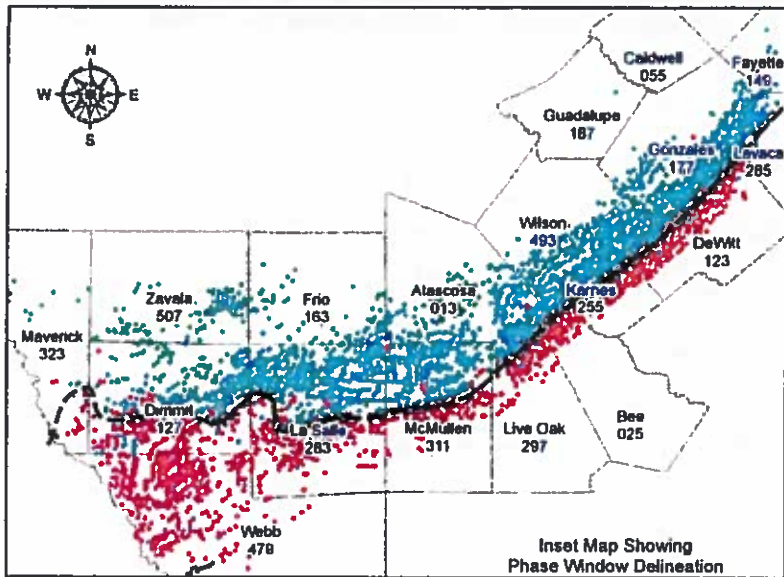
Exhibit No.: Revised 17  
Operator: Devon Energy Production Co.  
Docket No.: 01-0297472 & 02-0297714  
& 02-0297779  
Date: November 2, 2015

							Form G-5/W2				PVT/Recombination Gas Analysis									
Map & Tab							Lease First			Oil	Separator			Wellstream	Wellstream	Separator	Separator			
Count	No	API	LEASE NAME	FIELD (RESERVOIR)	OPERATOR	INITIAL OPERATOR	County	Prod. Date	Test Date	Gravity (API)	GLR (SCF/BBL)	Operating Pressure	Sample Date	Recombined Separator GLR (scf/sep bbl)	Recombined GLR (scf/stb)	C1 mol%	C7+ (mol%)	Pressure (psi)	Temperature (deg F)	PVT Determination
1	4	42-123-32971	ZGABAY NO. A8	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Jan-14	02/12/14	48.9	1,085		09/10/14	1,064	2,332	49.48	22.60	795	126	BUBBLE POINT
2	5	42-123-33031	A.J. BAKER A NO. 4	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Jun-13	04/24/14	51.0	1,431		08/27/14	1,175	2,475	51.11	21.54	912	151	BUBBLE POINT
3	1	42-123-32319	OLIVER B NO. 1	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Oct-10	10/14/10	49.0	1,780	798	10/15/10	1,344	1,666	53.61	18.63	780	137	BUBBLE POINT
4	16a	42-123-32365	SCHENDEL A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Dec-10	12/08/10	52.5	1,936	684	07/11/11	2,069	2,449	60.54	14.36	997	119	BUBBLE POINT / DP
5	2a	42-123-32325	HYATT A NO. 1	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Oct-10	10/26/10	49.5	2,052	719	10/15/10	1,483	1,849	55.34	16.94	750	112	BUBBLE POINT / DP
6	3a	42-123-32306	OLIVER A NO. 1	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Jul-10	07/17/10	51.2	2,485 (1)	817	07/17/10	1,801	2,311	58.89	14.33	780	110	BUBBLE POINT / DP
7	9a	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION CO, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Feb-11	02/22/11	51.0	2,007	1,003	04/12/11	2,077	2,583	60.83	14.14	714	140	BUBBLE POINT / DP
8	9c	42-123-32314	KRAUSE GAS UNIT C NO. 1H	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION CO, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Feb-11	02/22/11	51.0	2,007	1,003	07/11/11	2,493	2,868	61.23	13.16	643	114	BUBBLE POINT / DP
Note: Additional 26 Private Data Bubble Point Wells presented graphically																				
9	16b	42-123-32365	SCHENDEL A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Dec-10	12/08/10	52.5	1,936	684	02/29/12	2,355	2,941	61.35	12.59	609	120	DEW POINT / BP
10	60	42-123-32352	MUIR E NO. 1H	DE WITT (EAGLE FORD SHALE)	GEOSOUTHERN ENERGY CORPORATION	PETROHAWK OPERATING COMPANY	DE WITT	Jan-11	02/16/11	50.0	1,952	1,117	12/08/11	2,128	2,751	61.03	12.94	980	127	DEW POINT
11	37	42-255-31714	SPEAR REYNOLDS A NO. 1	SUGARKANE (EAGLEFORD)	CONOCOPHILLIPS	BURLINGTON RESOURCES O & G CO LP	Karnes	Nov-10	12/01/10	53.0	1,956	995	02/24/11	2,134	3,570	60.20	12.46	956	166	DEW POINT
12	6	42-255-31724	DAVIS UNIT NO. 1	SUGARKANE (EAGLEFORD)	BURLINGTON	BURLINGTON RESOURCES O & G CO LP	Karnes	Jan-11	01/26/11	52.0	2,045		01/27/11	1,810	2,293	59.99	12.60	890	140	DEW POINT
13	15	42-311-35695	DILWORTH NO. 12H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	BHP BILLITON PE	MCMULLEN	May-14	05/27/14	54.2	2,051	724	11/18/14	2,409	2,929	58.66	11.88	513	56	DEW POINT
14	2b	42-123-32325	HYATT A NO. 1	EAGLEVILLE(EAGLE FORD-2)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Oct-10	10/26/10	49.5	2,052	719	10/15/10	2,099	2,624	60.23	13.50	750	112	DEW POINT / BP
15	30	42-123-32771	KRAUSE B NO. 2H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Apr-13	04/15/13	51.9	2,119	772	05/13/13	2,313	3,269	62.72	12.24	819	115	DEW POINT
16	41	42-123-32231	HILMER KOOPMANN A 274 NO. 1	DE WITT (EAGLE FORD SHALE)	BURLINGTON RESOURCES O & G CO LP	BURLINGTON RESOURCES O & G CO LP	DE WITT	Aug-10	08/08/10	54.6	2,182	846	09/05/10	2,182	3,944	61.97	12.54	745	160	DEW POINT
17	28	42-123-32407	IMMENHAUSER A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	May-11	06/06/11	52.7	2,244	651	04/14/12	2,450	3,206	62.80	11.87	850	138	DEW POINT
18	19	42-123-32822	BIG OAK B NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Dec-12	01/09/13	52.9	2,263	800	04/11/13	2,213	2,954	62.10	11.86	967	85	DEW POINT
19	8a	42-123-32304	KRAUSE B NO. 1	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	May-10	06/05/10	52.6	2,327	840	07/07/10	2,062	2553	58.50	14.51	800	120	DEW POINT
20	8b	42-123-32304	KRAUSE B NO. 1	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	May-10	06/05/10	52.6	2,327	840	08/05/10	1,819	2365	58.17	14.44	880	124	DEW POINT
21	11	42-123-32309	MUIR A NO. 1	DE WITT(EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Oct-10	11/03/10	51.0	2,391		12/10/10	2,151	2,772	60.95	12.91	1,070	129	DEW POINT
22	31	42-297-34879	LIVINGSTONE GAS UNIT NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	Aug-10	08/21/10	55.5	2,416	1,225	08/24/10	2,574	3,355	62.22	11.00	980	104	DEW POINT
23	12	42-123-32415	GWOSDZ A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Jun-11	07/05/11	53.2	2,450	1,008	04/14/12	2,356	2,889	60.99	13.07	635	118	DEW POINT
24	61	42-297-34863	F. MALEK UNIT D NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	May-10	05/29/10	53.3	2,509	925	06/04/10	-	-	63.15	11.00	870	102	DEW POINT
25	18	42-311-35539	FORREST WHEELER 'B' NO. 9H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	PETROHAWK OPERATING COMPANY	MCMULLEN	Jun-14	07/03/14	52.0	2,518	766	07/30/14	2,466	2,952	60.18	13.30	665	117	DEW POINT
26	21	42-311-35538	FORREST WHEELER 'B' NO. 8H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	PETROHAWK OPERATING COMPANY	MCMULLEN	Jun-14	07/03/14	52.5	2,592	766	07/30/14	2,599	3,111	60.96	11.90	665	113	DEW POINT
27	3b	42-123-32306	OLIVER A NO. 1	DE WITT(EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Jul-10	07/22/10	51.2	2,598 (2)	817	08/05/10	1,922	2,504	58.94	14.07	890	127	DEW POINT / BP
28	58	42-123-32252	MARALDO A403 NO. 1	DE WITT (EAGLE FORD SHALE)	BURLINGTON RESOURCES O & G CO LP	BURLINGTON RESOURCES O & G CO LP	DE WITT	Jun-10	06/09/10	49.2	2,632	778	08/12/10	-	-	59.97	13.60	802	137	DEW POINT
29	13	42-255-31703	GROSS NO. 1	SUGARKANE (EAGLEFORD)	BURLINGTON	BURLINGTON RESOURCES O & G CO LP	Karnes	Dec-10	12/19/10	53.0	2,756	960	12/19/10	2,230	2,907	61.99	11.85	940	140	DEW POINT
30	20	42-311-35645	DILWORTH NO. 35H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	BHP BILLITON PE	MCMULLEN	Oct-14	10/30/14	54.4	2,657	576	11/10/14	2,533	3,048	60.15	12.34	547	99	DEW POINT
31	26	42-123-32316	MIGURA 1 UNIT NO. 2	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Aug-10	09/06/10	53.7	2,678	481	12/10/10	2,518	3,187	61.30	12.49	534	89	DEW POINT
32	63	42-297-34990	SAN CHRISTOVAL RANCH UNIT 'A' NO. 1H	SUGARKANE (EAGLE FORD)	MARATHON OIL EF LLC	PALOMA RESOURCES, LLC	LIVE OAK	Sep-11	10/06/11	53.0	2,705	985	10/02/11	2,037	2,621	57.49	14.07	1,007	164	DEW POINT
33	40a	42-123-32338	RAYES A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Jan-11	01/23/11	56.5	2,727	704	07/08/11	-	3,882	67.83	8.81	957	111	DEW POINT
34	40b	42-123-32338	RAYES A NO. 1H	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION CO, L.P.	PETROHAWK OPERATING COMPANY	DE WITT	Jan-11	01/23/11	56.5	2,727	704	07/08/11	3,153	4,024	65.63	10.30	957	111	DEW POINT
35	25	42-311-35646	DILWORTH NO. 36H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	BHP BILLITON PE	MCMULLEN	Oct-14	10/29/14	53.8	2,733	597	11/10/14	2,663	3,151	60.52	12.12	545	103	DEW POINT
36	59	42-123-32336	MUIR B NO. 1H NO																	

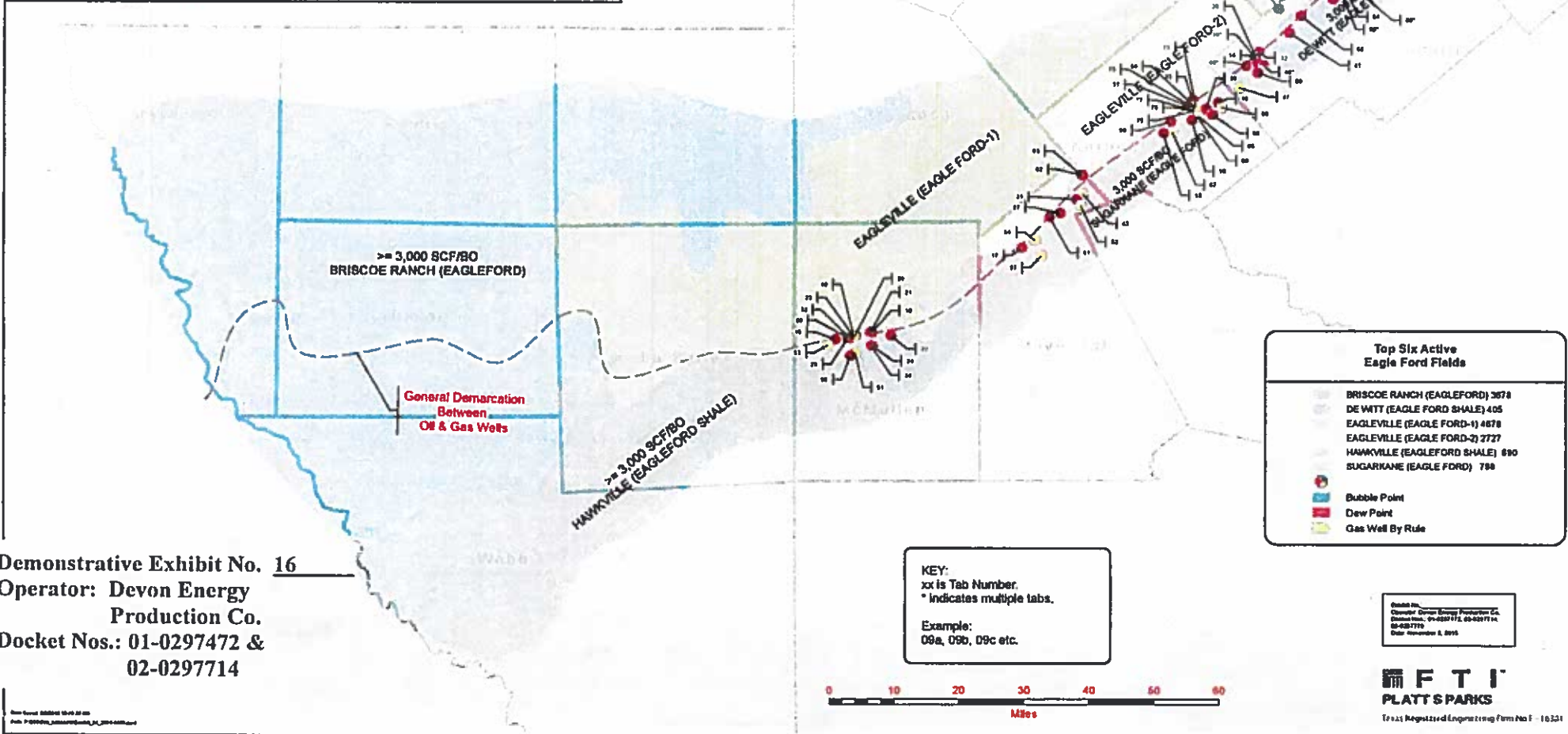


PUBLIC PVT DATA  
FTI-PS INVESTIGATION

Count	Map & Tab No	API	LEASE NAME	FIELD (RESERVOIR)	OPERATOR	INITIAL OPERATOR	COUNTY	Lease First Prod. Date	Form G-5/W2			PVT/Recombination Gas Analysis							PVT Determination		
									Test Date	Oil Gravity (API)	GLR (SCF/BBL)	Separator Operating Pressure	Sample Date	Recombined Separator GLR (scf/sep bbl)	Recombined GLR (scf/stb)	Wellstream C1 mol%	Wellstream C7+ (mol%)	Separator Pressure (psi)		Separator Temperature (deg F)	
RECOMBINATION GAS ANALYSIS																					
63	44	42-123-32311	HAMILTON TRUST A-405 NO. 1	DE WITT (EAGLE FORD SHALE)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	DE WITT	Aug-10	08/08/10	51.1	2,264	1,195	10/23/10	3,478	4,241	67.17	8.84	655	139	-	
64	65	42-255-32618	CHOATE NO. 1 4H	SUGARKANE (EAGLEFORD)	PIONEER	PIONEER NATURAL RES. USA, INC.	Karnes	Mar-13	03/07/13	57.0	2,381	753	03/01/14	2,832	3,806	64.98	9.38	729	76	-	
65	68	42-255-31871	RIDLEY 01 NO. 01H	SUGARKANE (EAGLE FORD)	PIONEER	PIONEER NATURAL RES. USA, INC.	Karnes	Jul-11	08/17/11	54.0	3,032	925	07/07/11	-	-	58.58	8.42	-	-	-	
66	43	42-297-34919	GONZALES UNIT NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	Dec-10	12/23/10	54.2	3,275	1,045	12/29/10	3,102	4,193	65.11	9.58	970	111	-	
67	67	42-255-31756	MIXON UNIT A NO. 1	SUGARKANE (EAGLEFORD)	BURLINGTON	BURLINGTON RESOURCES O & G CO LP	Karnes	Apr-11	04/03/11	52.8	3,812	995	04/27/11	2,801	4,762	63.77	10.00	968	118	-	
68	53	42-311-34302	DONNELL A NO. 6H	HAWKVILLE (EAGLEFORD SHALE)	BHP BILLITON PET(TXLA OP) CO	PETROHAWK OPERATING COMPANY	MCMULLEN	Mar-11	03/11/11	52.6	4,640	1,150	07/08/11	4,869	6,781	67.62	6.09	665	100	-	
69	66	42-255-31677	YANTA A-288 NO. 2	EAGLEFORD	CONOCOPHILLIPS	BURLINGTON RESOURCES O & G CO LP	Karnes	Nov-10	11/10/10	56.5	5,332	975	11/11/10	4,693	5,447	67.69	7.35	520	119	-	
70	49	42-311-34277	DILWORTH NO. 1H	EAGLEVILLE (EAGLE FORD-1)	BHP BILLITON PET(TXLA OP) CO	PETROHAWK OPERATING COMPANY	MCMULLEN	Nov-10	12/22/10	53.0	5,375	1,110	12/03/10	3,879	4,952	64.15	9.23	1,120	156	-	
71	47	42-123-32302	BUTLER A-304 NO. 2	DE WITT (EAGLE FORD SHALE)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	DE WITT	Jun-10	06/19/10	57.0	5,565	1,035	08/02/10	-	4,639	66.25	9.00	890	112	-	
72	51	42-311-34340	DONNELL B NO. 7H	HAWKVILLE (EAGLEFORD SHALE)	BHP BILLITON PET(TXLA OP) CO	PETROHAWK OPERATING COMPANY	MCMULLEN	Apr-11	05/15/11	54.8	5,735	1,263	07/08/11	4,637	5,920	65.74	8.56	670	115	-	
73	52	42-297-34878	KENNEDY NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	Dec-10	12/23/10	57.5	6,051	940	12/21/10	4,695	6,143	67.32	6.68	840	140	-	
74	48b	42-123-32202	MIGURA NO. 1	DE WITT (EAGLE FORD SHALE)	DEVON ENERGY PRODUCTION, L.P.	GEOSOUTHERN ENERGY CORPORATION	DE WITT	Apr-09	10/28/09	56.8	4,672	400	10/28/09	4,082	4,667	68.46	6.71	210	86	-	
75	54	42-297-34877	DOBIE RANCH NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	Aug-10	08/24/10	54.5	6,774	640	09/15/10	5,671	7,388	69.89	6.46	647	140	-	
76	57	42-297-34921	F. MALEK UNIT L NO. 1	SUGARKANE (EAGLE FORD)	BURLINGTON RESOURCES O & G LP	BURLINGTON RESOURCES O & G CO LP	LIVE OAK	Apr-11	04/13/11	58.2	9,455	1,093	04/13/11	6,322	10,323	71.85	5.49	1,050	133	-	
									AVERAGE:		53.6	3,217	848		2,886	3,820	62.07	11.69	784	121	
									MEDIAN:		53.3	2,745	840		2,466	3,206	61.27	12.13	780	119	



## FTI - PS PVT Study Wells Geographic Area



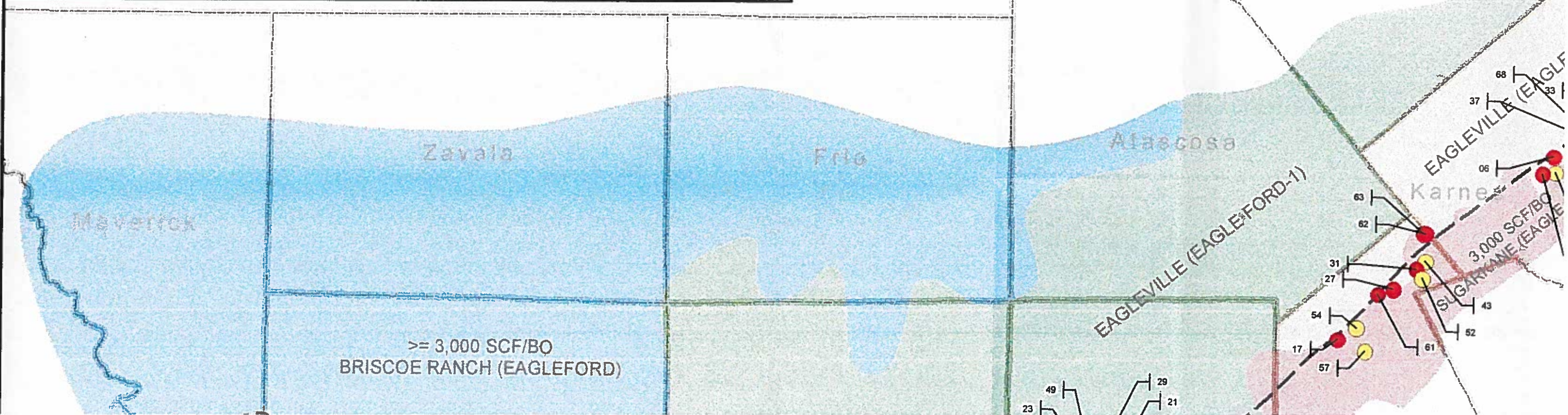
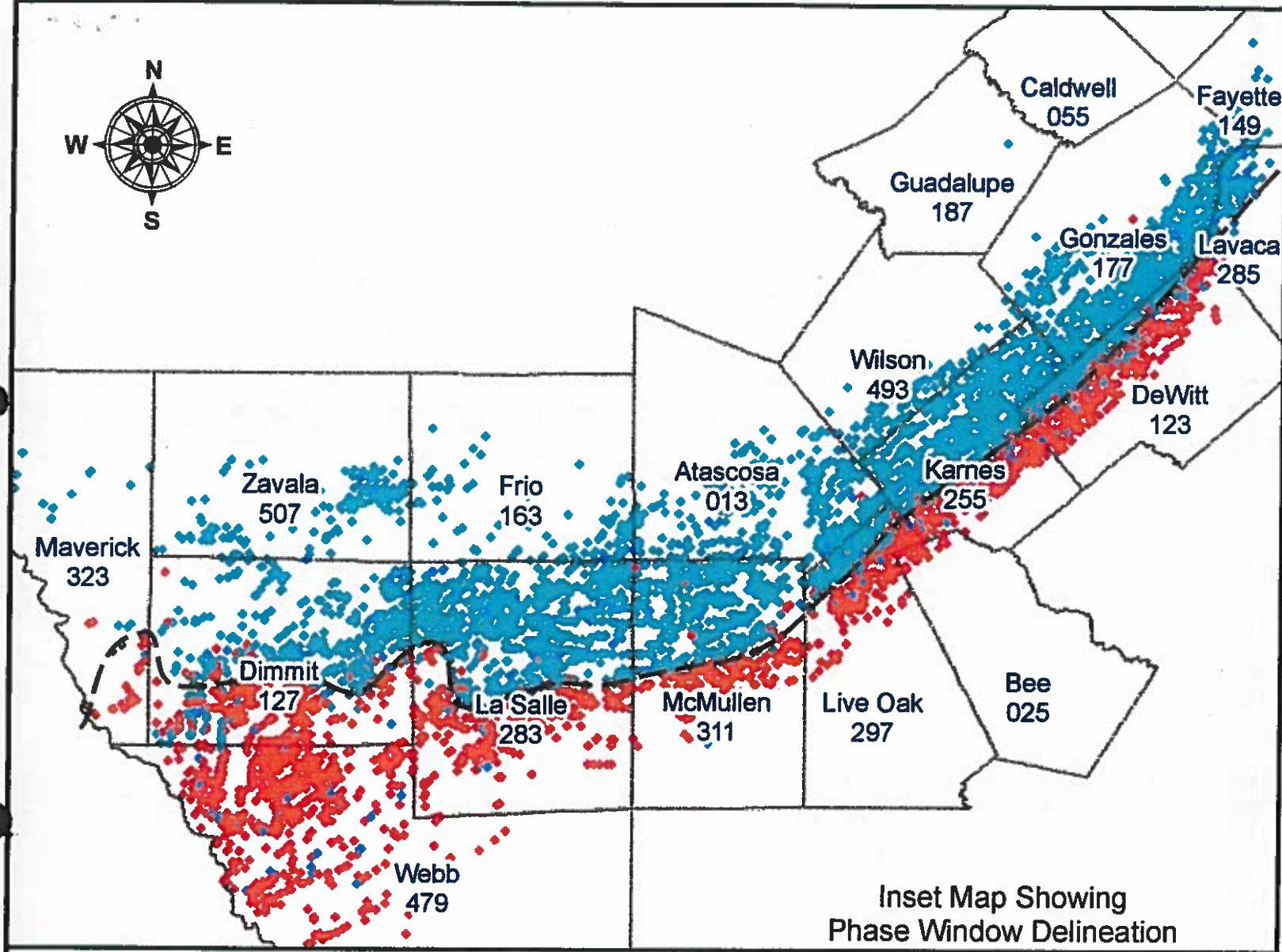
Demonstrative Exhibit No. 16  
Operator: Devon Energy  
Production Co.  
Docket Nos.: 01-0297472 &  
02-0297714



# FTI - PS

## PVT Study Wells

### Geographic Area

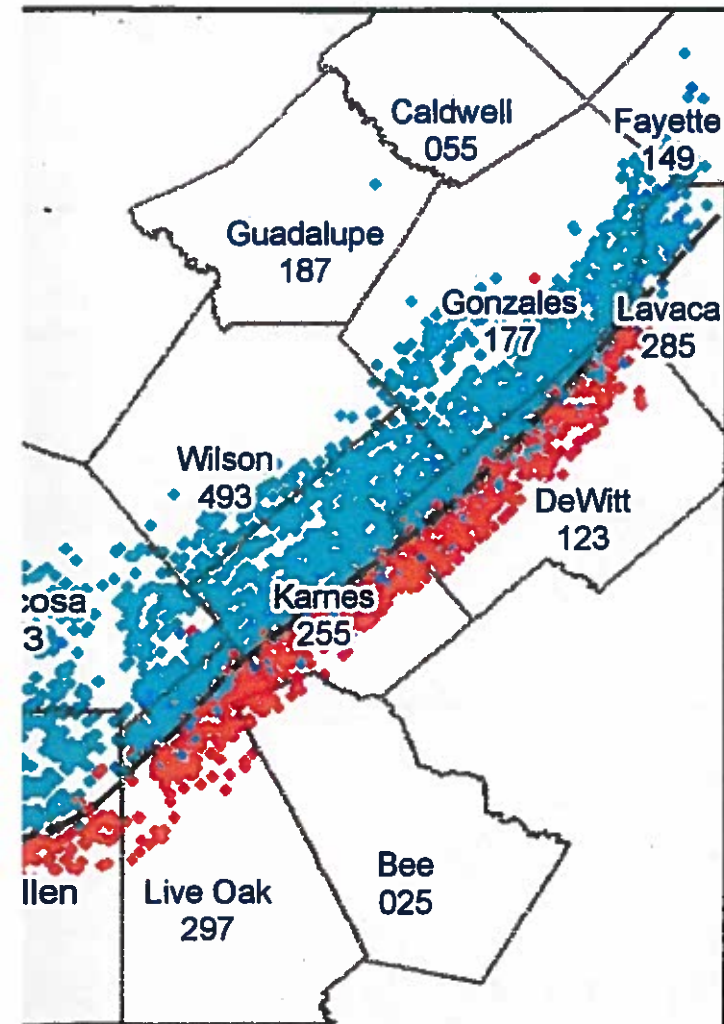




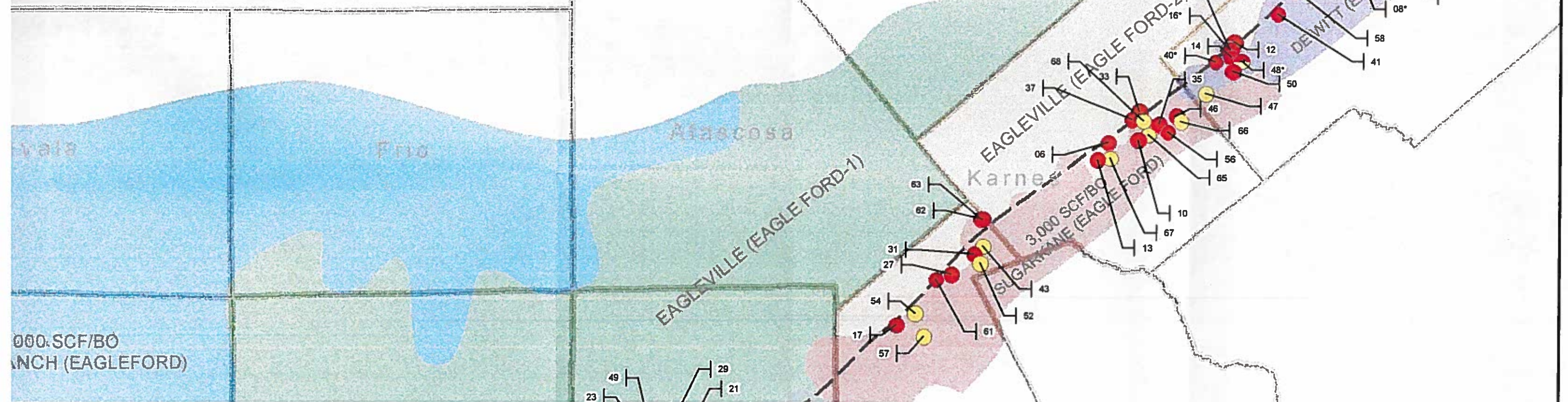
# FTI - PS

## PVT Study Wells

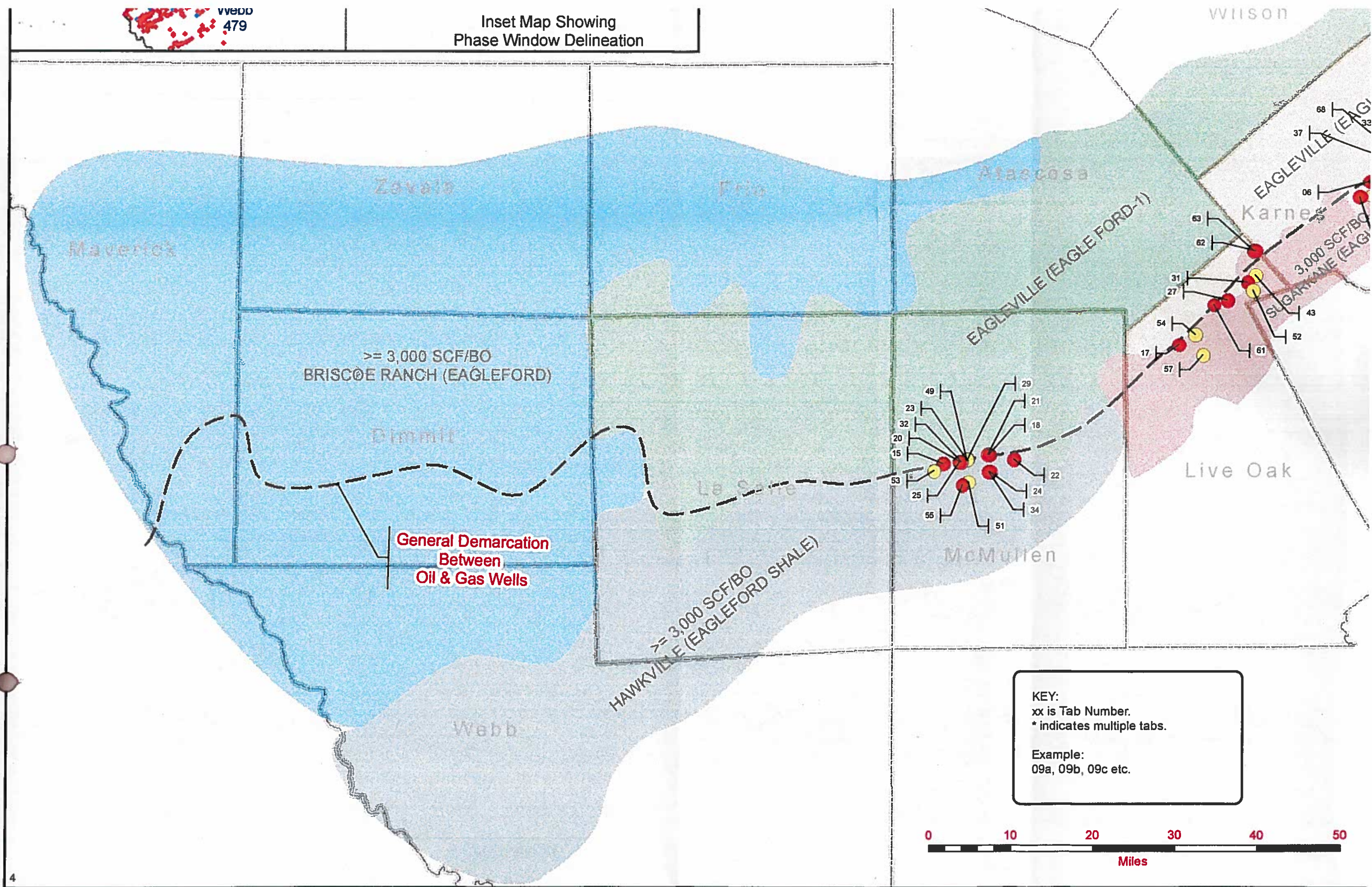
### Geographic Area



Inset Map Showing  
Phase Window Delineation

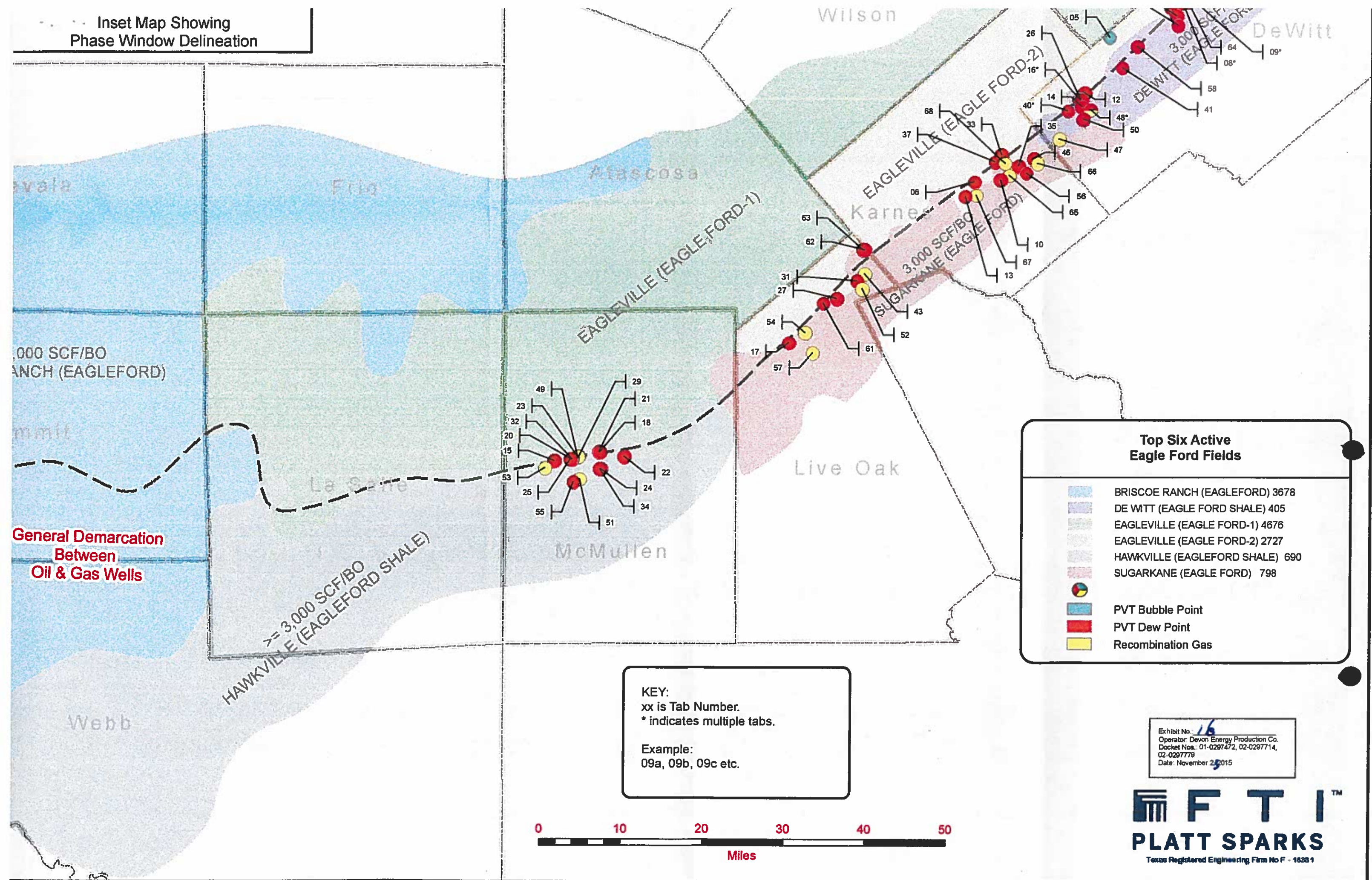








Inset Map Showing  
Phase Window Delineation





# Devon Well Reclassification List

						Initial Test G-5/W-2					Flowing Tubing Pressure	API Gravity
Well Count	Map No.	API No.	Original Operator	Lease Name	Well No.	Date	Gas	Oil	GOR			
1	3	12333012	PETROHAWK OPERATING COMPANY	OEHKE A	2H	9/17/2013	7,116	408	17,441	6,759	61.4	
2	4	12332866	PETROHAWK OPERATING COMPANY	D. WARZECHA A	2H	8/13/2013	4,639	341	13,604	7,715	61.2	
3	5	12333144	PETROHAWK OPERATING COMPANY	DLUGOSCH A	8H	6/7/2014	3,486	263	13,254	6,223	63.7	
4	6	12332868	PETROHAWK OPERATING COMPANY	D. WARZECHA A	3H	8/13/2013	4,064	341	11,917	7,515	61.3	
5	7	12333088	PETROHAWK OPERATING COMPANY	OEHKE A	6H	7/16/2014	3,675	313	11,741	7,178	61.4	
6	8	12333093	PETROHAWK OPERATING COMPANY	DLUGOSCH A	2H	7/16/2014	4,066	367	11,069	7,428	62.4	
7	9	12333308	GEOSOUTHERN ENERGY CORPORATION	J. HERMANN C	3H	10/15/2014	4,880	443	11,015	5,648	57.5	
8	10	12333089	PETROHAWK OPERATING COMPANY	OEHKE A	7H	7/16/2014	3,721	352	10,571	7,274	62.5	
9	11	12332911	PETROHAWK OPERATING COMPANY	D. WARZECHA A	7H	8/27/2013	4,116	408	10,088	7,382	63.7	
10	12	12332910	PETROHAWK OPERATING COMPANY	D. WARZECHA A	6H	8/27/2013	4,078	408	9,995	7,389	60.8	
11	13	12333309	GEOSOUTHERN ENERGY CORPORATION	J. HERMANN G	2H	10/15/2014	4,780	522	9,157	7,215	58.0	
12	14	12332909	PETROHAWK OPERATING COMPANY	D. WARZECHA A	4H	8/27/2013	3,336	384	8,687	7,397	60.5	
13	15	12332904	PETROHAWK OPERATING COMPANY	OEHKE A	5H	9/15/2013	3,557	432	8,233	7,590	63.6	
14	16	12332902	PETROHAWK OPERATING COMPANY	OEHKE A	3H	9/16/2013	3,146	384	8,192	7,305	63.8	
15	17	12333303	GEOSOUTHERN ENERGY CORPORATION	STEELE PARTNERS B	3H	4/26/2014	3,514	451	7,793	6,225	57.5	
16	18	12333071	PETROHAWK OPERATING COMPANY	NATHO B	3H	6/6/2014	3,821	492	7,766	7,158	58.0	
17	19	12333299	GEOSOUTHERN ENERGY CORPORATION	STEELE PARTNERS B	2H	4/25/2014	3,121	426	7,326	6,030	59.1	
18	20	12333074	PETROHAWK OPERATING COMPANY	NATHO B	6H	6/6/2014	3,540	489	7,243	6,848	57.7	
19	21	12332903	PETROHAWK OPERATING COMPANY	OEHKE A	4H	9/15/2013	3,204	456	7,026	7,714	64.9	
20	-	28533788	DEVON ENERGY PRODUCTION CO	SHELLY UNIT	1H	9/10/2014	1,149	165	6,964	1,500	57.5	
21	22	12333072	PETROHAWK OPERATING COMPANY	NATHO B	4H	6/7/2014	3,452	497	6,945	7,419	60.1	
22	23	12333066	PETROHAWK OPERATING COMPANY	NATHO B	8H	3/28/2014	3,586	519	6,909	7,615	58.7	
23	24	12333073	PETROHAWK OPERATING COMPANY	NATHO B	5H	6/7/2014	3,522	510	6,909	6,390	60.3	
24	25	12333062	PETROHAWK OPERATING COMPANY	HAMILTON A	7H	9/4/2013	3,337	504	6,621	7,505	60.6	
25	26	12333063	PETROHAWK OPERATING COMPANY	HAMILTON A	6H	9/4/2013	3,495	528	6,619	7,915	60.2	
26	27	12333091	PETROHAWK OPERATING COMPANY	BLACKWELL A	4H	7/16/2014	3,123	475	6,571	7,050	59.4	
27	28	12332897	PETROHAWK OPERATING COMPANY	HAMILTON A	2H	8/28/2013	3,530	552	6,394	7,797	58.0	
28	29	12333092	PETROHAWK OPERATING COMPANY	BLACKWELL A	5H	7/16/2014	2,964	466	6,360	6,970	60.1	
29	30	12333090	PETROHAWK OPERATING COMPANY	BLACKWELL A	3H	7/13/2014	2,918	462	6,316	6,814	58.2	
30	31	12332896	PETROHAWK OPERATING COMPANY	HAMILTON A	5H	12/26/2013	3,479	552	6,302	6,799	63.5	
31	32	12332380	PETROHAWK OPERATING COMPANY	WARWAS A	1H	5/21/2011	1,732	287	6,034	7,215	60.0	
32	33	12332765	PETROHAWK OPERATING COMPANY	JUDD-TURNER A	3H	8/29/2012	2,920	490	5,959	7,740	59.6	
33	34	12333065	PETROHAWK OPERATING COMPANY	NATHO B	7H	3/28/2014	2,787	475	5,867	7,434	59.8	
34	35	12333214	PETROHAWK OPERATING COMPANY	FISHER C	8H	4/27/2014	3,498	611	5,725	7,490	57.9	
35	36	12333101	PETROHAWK OPERATING COMPANY	FISHER B	6H	4/23/2014	3,625	635	5,708	7,836	57.8	
36	37	12333070	PETROHAWK OPERATING COMPANY	BLACKWELL A	2H	2/23/2014	2,938	520	5,650	6,853	57.8	
37	38	12332727	PETROHAWK OPERATING COMPANY	JUDD-TURNER A	2H	8/27/2012	2,760	490	5,632	7,440	59.2	
38	39	12333639	BHP BILLITON PET(TXLA)OP	M. CUSACK B	5H	2/18/2015	4,896	886	5,528	5,100	40.0	
39	40	12333104	PETROHAWK OPERATING COMPANY	FISHER C	7H	4/27/2014	3,652	667	5,475	7,365	58.3	
40	41	12332898	PETROHAWK OPERATING COMPANY	HAMILTON A	3H	8/28/2013	3,278	600	5,463	7,374	59.0	
41	42	12332698	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	1H	7/26/2012	1,519	288	5,274	7,515	50.2	
42	43	12332907	PETROHAWK OPERATING COMPANY	BLACKWELL A	8H	10/3/2013	2,760	528	5,227	7,369	60.3	
43	44	12333017	PETROHAWK OPERATING COMPANY	KICKENDAHL UNIT 1	5H	9/19/2013	2,694	528	5,102	7,023	58.9	
44	45	12332899	PETROHAWK OPERATING COMPANY	KICKENDAHL UNIT 1	2H	10/17/2013	2,829	557	5,078	7,015	57.6	
45	46	12332900	PETROHAWK OPERATING COMPANY	KICKENDAHL UNIT 1	3H	10/17/2013	2,828	557	5,077	7,215	58.1	
46	47	12333015	PETROHAWK OPERATING COMPANY	KICKENDAHL UNIT 1	6H	9/19/2013	2,887	576	5,012	7,578	58.4	
47	48	12333640	BHP BILLITON PET(TXLA)OP	M. CUSACK B	6H	2/10/2015	4,095	834	4,910	6,300	40.0	
48	49	12332905	PETROHAWK OPERATING COMPANY	BLACKWELL A	6H	10/3/2013	2,803	576	4,866	7,458	59.1	
49	50	12332985	PETROHAWK OPERATING COMPANY	FISHER C	3H	4/26/2014	3,645	766	4,756	7,279	59.1	
50	51	12332906	PETROHAWK OPERATING COMPANY	BLACKWELL A	7H	10/3/2013	2,706	576	4,697	7,463	69.2	
51	52	12332986	PETROHAWK OPERATING COMPANY	FISHER C	4H	4/24/2014	3,309	712	4,645	6,876	59.7	
52	53	12332988	PETROHAWK OPERATING COMPANY	FISHER C	2H	4/26/2014	3,434	780	4,402	7,340	57.7	
53	54	12333102	PETROHAWK OPERATING COMPANY	FISHER B	7H	4/21/2014	3,045	737	4,131	7,543	56.3	
54	55	12332999	PETROHAWK OPERATING COMPANY	FISHER B	3H	4/26/2014	2,905	721	4,029	7,109	55.3	
55	56	12333266	BHP BILLITON PET(TXLA)OP	IBROM A	6H	4/17/2014	2,445	624	3,918	6,369	55.3	
56	57	12332801	PETROHAWK OPERATING COMPANY	PEEBLES A	2H	2/21/2013	2,517	648	3,884	6,315	54.2	
57	58	12333170	PETROHAWK OPERATING COMPANY	MUSICK A	7H	6/9/2014	1,830	472	3,877	6,000	54.0	
58	59	12332799	PETROHAWK OPERATING COMPANY	WILLIAMS A	3H	10/23/2012	2,471	649	3,807	6,315	54.9	
59	60	12333068	PETROHAWK OPERATING COMPANY	WAGNER A	2H	2/16/2014	2,539	672	3,778	6,413	56.3	
60	61	12333567	BHP BILLITON PET(TXLA)OP	LP BUTLER B	5H	12/24/2014	4,901	1,297	3,778	6,050	40.0	
61	62	12333164	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	5H	6/1/2014	1,703	462	3,686	6,950	54.4	

Exhibit No.: Revised 31  
Operator: Devon Energy Production Co.  
Docket No.: 01-0297472 & 02-0297714 & 02-0297779  
Date: November 2, 2015

**Devon Well Reclassification List**

Well Count	Map No.	API No.	Original Operator	Lease Name	Well No.	Date	Initial Test G-5/W-2				Flowing Tubing Pressure	API Gravity
							Gas	Oil	GOR			
62	63	12333267	BHP BILLITON PET (TXLA OP)	IBROM A	5H	4/17/2014	2,964	816	3,632	7,180	55.3	
63	64	12333059	PETROHAWK OPERATING COMPANY	P. FRISBIE B	2H	9/24/2013	2,202	614	3,586	6,565	53.8	
64	65	12333168	PETROHAWK OPERATING COMPANY	MUSICK A	5H	6/8/2014	1,893	536	3,531	6,375	54.0	
65	66	12332992	PETROHAWK OPERATING COMPANY	FISHER B	2H	4/25/2014	2,529	724	3,493	6,251	55.8	
66	67	12333266	BHP BILLITON PET (TXLA OP)	FISHER B	5H	4/17/2014	2,824	816	3,460	7,044	55.6	
67	68	12333060	PETROHAWK OPERATING COMPANY	P. FRISBIE B	3H	9/24/2013	2,161	633	3,413	6,805	53.6	
68	69	12333564	BHP BILLITON PET (TXLA OP)	LP BUTLER B	2H	1/3/2015	3,335	980	3,403	5,100	40.0	
69	70	12333061	PETROHAWK OPERATING COMPANY	P. FRISBIE B	4H	9/24/2013	2,023	595	3,400	6,606	52.8	
70	71	12333069	PETROHAWK OPERATING COMPANY	WAGNER B	3H	2/16/2014	2,529	744	3,399	6,564	55.4	
71	72	12333285	BHP BILLITON PET (TXLA OP)	SEIFERT B	8H	5/19/2014	1,857	560	3,316	4,500	53.0	
72	73	12333161	PETROHAWK OPERATING COMPANY	MUSICK A	3H	6/10/2014	1,739	528	3,293	5,950	54.0	
73	74	12332415	PETROHAWK OPERATING COMPANY	GWOSDZ A	1H	11/18/2013	434	140	3,100	1,025	53.2	
74	75	12332879	PETROHAWK OPERATING COMPANY	MUIR D	7H	7/9/2013	2,236	744	3,005	6,266	53.1	
75	76	12333002	PETROHAWK OPERATING COMPANY	FISHER B	4H	4/26/2014	2,939	980	2,998	7,382	55.2	
76	77	12332713	PETROHAWK OPERATING COMPANY	VASBINDER A	2H	5/21/2012	2,655	888	2,989	8,165	52.2	
77	78	12332819	PETROHAWK OPERATING COMPANY	LANIK A	2H	7/4/2013	2,222	744	2,986	7,140	49.7	
78	79	12333265	BHP BILLITON PET (TXLA OP)	SEIFERT B	5H	5/15/2014	1,776	602	2,950	5,646	51.9	
79	80	12333566	BHP BILLITON PET (TXLA OP)	LP BUTLER B	4H	1/7/2015	4,906	1,678	2,923	5,000	40.0	
80	81	12333200	PETROHAWK OPERATING COMPANY	SEIFERT C	3H	5/18/2014	1,783	612	2,913	6,200	51.0	
81	82	12333201	PETROHAWK OPERATING COMPANY	SEIFERT C	4H	5/2/2014	1,908	655	2,912	6,600	51.0	
82	83	12332919	PETROHAWK OPERATING COMPANY	LANIK B	3H	7/4/2013	2,008	744	2,898	7,815	51.2	
83	84	12333169	PETROHAWK OPERATING COMPANY	MUSICK A	6H	6/3/2014	1,834	637	2,879	6,150	54.0	
84	85	12333512	BHP BILLITON PET (TXLA OP)	LP BUTLER B	7H	1/25/2015	3,521	1,227	2,869	5,000	56.0	
85	86	12333283	BHP BILLITON PET (TXLA OP)	SEIFERT A	2H	7/5/2014	1,492	534	2,794	6,000	52.8	
86	87	12333159	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	4H	5/29/2014	1,488	550	2,705	6,725	54.4	
87	88	12332373	PETROHAWK OPERATING COMPANY	MUIR F	1H	4/14/2011	2,579	960	2,686	5,115	50.5	
88	89	12332883	PETROHAWK OPERATING COMPANY	MUIR B	3H	9/30/2013	1,924	720	2,672	6,165	52.4	
89	90	12332346	PETROHAWK OPERATING COMPANY	ARNDT A	1H	4/23/2011	2,526	946	2,670	7,540	53.0	
90	91	12332526	PETROHAWK OPERATING COMPANY	SEIFERT B	1H	11/28/2011	2,814	1,058	2,664	7,415	53.0	
91	92	12332793	PETROHAWK OPERATING COMPANY	MUIR D	2H	6/2/2013	1,534	576	2,663	6,390	55.2	
92	93	12332827	PETROHAWK OPERATING COMPANY	KRAUSE B	5H	4/24/2013	1,103	416	2,651	6,857	53.6	
93	94	12332549	PETROHAWK OPERATING COMPANY	VASBINDER A	1H	5/31/2012	2,034	768	2,648	7,415	-	
94	95	12333202	PETROHAWK OPERATING COMPANY	SEIFERT C	5H	5/7/2014	1,820	689	2,641	6,300	51.0	
95	96	12332426	PETROHAWK OPERATING COMPANY	WARREN A	1H	9/13/2011	2,722	1,032	2,637	6,815	53.0	
96	-	28533758	DEVON ENERGY PRODUCTION CO	RONYN UNIT	1H	5/22/2014	2,602	988	2,634	4,573	53.0	
97	97	12332531	PETROHAWK OPERATING COMPANY	ARNDT A	2H	12/5/2011	1,770	672	2,633	856	54.8	
98	98	12333167	PETROHAWK OPERATING COMPANY	MUSICK A	4H	6/10/2014	1,278	488	2,618	5,925	54.0	
99	99	12332837	PETROHAWK OPERATING COMPANY	BIG OAK G	1H	1/5/2013	2,259	864	2,614	6,065	52.7	
100	100	12332871	PETROHAWK OPERATING COMPANY	E BUTLER A	3H	2/1/2013	2,065	792	2,607	6,815	54.8	
101	101	12332787	PETROHAWK OPERATING COMPANY	MUSICK A	1H	12/16/2012	2,183	840	2,598	7,815	54.8	
102	102	12332800	PETROHAWK OPERATING COMPANY	E BUTLER A	2H	1/23/2013	2,281	888	2,568	7,340	54.1	
103	103	25533302	BHP BILLITON PET (TXLA OP)	SEIFERT B	6H	5/15/2014	1,619	710	2,561	5,961	52.7	
104	104	12333158	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	3H	5/30/2014	1,200	471	2,547	6,600	54.0	
105	105	12333157	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	2H	5/30/2014	1,003	395	2,539	6,350	54.0	
106	106	12333525	BHP BILLITON PET (TXLA OP)	CIACCIO A	3H	1/25/2015	2,584	1,024	2,523	6,255	40.0	
107	107	25533303	BHP BILLITON PET (TXLA OP)	SEIFERT B	7H	5/15/2014	2,005	797	2,515	6,071	52.7	
108	108	12333010	PETROHAWK OPERATING COMPANY	W. BUTLER A	10H	1/16/2014	2,042	814	2,508	6,755	49.8	
109	109	12333179	PETROHAWK OPERATING COMPANY	W. BUTLER A	4H	12/24/2013	2,245	896	2,505	8,076	49.1	
110	110	12333351	BHP BILLITON PET (TXLA OP)	MUIR D	6H	12/5/2014	3,101	1,271	2,439	5,838	54.2	
111	111	12332407	PETROHAWK OPERATING COMPANY	IMMENHAUSER A	1H	11/6/2013	1,009	415	2,431	1,850	56.1	
112	112	12333444	BHP BILLITON PET (TXLA OP)	IMMENHAUSER A	5H	1/7/2015	5,214	2,145	2,430	5,263	52.3	
113	113	12332618	PETROHAWK OPERATING COMPANY	J-HERMANN F	2H	3/18/2012	1,223	504	2,426	5,915	51.9	
114	114	12332598	PETROHAWK OPERATING COMPANY	J-HERMANN F	1H	3/18/2012	1,220	504	2,420	5,695	53.6	
115	115	12332309	GEOSOUTHERN ENERGY CORPORATION	MUIR A	1H	11/3/2010	2,886	1,207	2,391	6,195	51.0	
116	116	12332756	PETROHAWK OPERATING COMPANY	ARNDT A	4H	3/17/2013	1,951	816	2,390	6,315	54.7	
117	117	12333514	BHP BILLITON PET (TXLA OP)	LP BUTLER B	8H	3/14/2015	2,784	1,174	2,371	3,000	56.0	
118	118	12332757	PETROHAWK OPERATING COMPANY	ARNDT A	5H	3/14/2013	1,933	816	2,368	6,315	54.7	
119	119	12332545	PETROHAWK OPERATING COMPANY	HYATT A	4H	2/6/2012	1,144	483	2,368	6,534	54.0	
120	120	12332466	PETROHAWK OPERATING COMPANY	HYATT A	2H	2/6/2012	1,143	483	2,366	6,521	54.0	
121	121	12332755	PETROHAWK OPERATING COMPANY	ARNDT A	3H	3/15/2013	1,873	792	2,364	5,840	54.7	
122	122	12333352	BHP BILLITON PET (TXLA OP)	MUIR D	8H	12/5/2014	3,002	1,272	2,360	5,724	52.7	

**Devon Well Reclassification List**

Well Count	Map No.	API No.	Original Operator	Lease Name	Well No.	Date	Initial Test G-5/W-2				
							Gas	Oil	GOR	Flowing Tubing Pressure	API Gravity
123	123	12333235	BHP BILLITON PET(TXLA OP)	SEIFERT B	4H	3/21/2014	2,355	1,004	2,345	7,409	54.0
124	124	12333234	BHP BILLITON PET(TXLA OP)	SEIFERT B	3H	3/21/2014	2,350	1,009	2,329	7,355	54.0
125	125	12333443	BHP BILLITON PET(TXLA OP)	IMMENHAUSER A	4H	1/3/2015	3,708	1,594	2,326	4,298	52.5
126	126	12332826	PETROHAWK OPERATING COMPANY	KRAUSE B	4H	4/16/2013	2,025	888	2,280	8,215	52.0
127	127	12332956	PETROHAWK OPERATING COMPANY	MUIR C	4H	9/13/2013	1,965	864	2,274	6,415	55.6
128	128	12332916	PETROHAWK OPERATING COMPANY	LANIK B	2H	6/27/2013	2,076	920	2,256	7,515	52.2
129	129	12333178	PETROHAWK OPERATING COMPANY	W. BUTLER A	2H	12/24/2013	1,794	796	2,253	7,419	52.9
130	130	12333349	BHP BILLITON PET(TXLA OP)	MUIR D	5H	12/5/2014	2,841	1,279	2,221	5,373	49.3
131	131	12333166	PETROHAWK OPERATING COMPANY	H. MUELLER 18A	7H	5/25/2014	1,290	584	2,208	6,975	54.4
132	132	12333028	PETROHAWK OPERATING COMPANY	SANDY A	3H	3/5/2014	1,869	850	2,198	5,739	51.0
133	133	12332885	PETROHAWK OPERATING COMPANY	MUIR E	7H	8/15/2013	1,621	744	2,178	5,153	54.1
134	134	12332824	PETROHAWK OPERATING COMPANY	BIG OAK A	2H	1/9/2013	1,662	777	2,138	5,540	52.6
135	135	12333236	BHP BILLITON PET(TXLA OP)	SEIFERT C	6H	10/18/2014	703	329	2,136	1,700	51.0
136	136	12332829	PETROHAWK OPERATING COMPANY	KRAUSE B	6H	4/23/2013	1,082	509	2,125	6,829	53.2
137	137	12333008	PETROHAWK OPERATING COMPANY	W. BUTLER A	8H	1/16/2014	2,231	1,050	2,124	6,766	48.6
138	138	12332472	PETROHAWK OPERATING COMPANY	CANTU A	1H	10/31/2011	2,166	1,020	2,123	7,602	52.0
139	139	12332825	PETROHAWK OPERATING COMPANY	KRAUSE B	3H	4/15/2013	1,799	848	2,121	7,290	52.0
140	140	12333526	BHP BILLITON PET(TXLA OP)	CIACCIO A	2H	1/24/2015	2,419	1,140	2,121	6,900	40.0
141	141	12332881	PETROHAWK OPERATING COMPANY	MUIR A	2H	10/3/2013	1,637	792	2,066	5,915	51.5
142	142	12333556	BHP BILLITON PET(TXLA OP)	ARNDT A	6H	10/27/2014	2,415	1,175	2,05	4,881	53.2
143	143	12332449	PETROHAWK OPERATING COMPANY	RAYES B	1H	12/5/2011	1,527	744	2,053	7,015	52.0
144	144	12332873	PETROHAWK OPERATING COMPANY	NELSON A	3H	5/6/2013	2,011	984	2,043	7,415	52.4
145	145	12333507	BHP BILLITON PET(TXLA OP)	VASBINDER A	3H	11/23/2014	2,283	1,126	2,027	6,500	53.0
146	146	12332314	GEOSOUTHERN ENERGY CORPORATION	KRAUSE C	1H	2/22/2011	2,238	1,115	2,007	7,215	51.0
147	147	12332878	PETROHAWK OPERATING COMPANY	SONNY SEIFERT A	11H	7/31/2013	1,555	787	1,975	5,415	49.7
148	148	12332884	PETROHAWK OPERATING COMPANY	MUIR B	2H	10/13/2013	1,894	960	1,972	5,765	52.4
149	149	12332352	PETROHAWK OPERATING COMPANY	MUIR E	1H	2/16/2011	2,932	1,502	1,952	5,919	50.0
150	150	12332876	PETROHAWK OPERATING COMPANY	SONNY SEIFERT A	10H	7/31/2013	1,521	787	1,932	5,965	49.8
151	151	12333080	PETROHAWK OPERATING COMPANY	STULGIS A	7H	1/14/2014	1,361	729	1,866	4,784	48.1
152	152	12333482	BHP BILLITON PET(TXLA OP)	IMMENHAUSER A	12H	12/27/2014	1,830	982	1,862	4,650	50.9
153	153	12333078	PETROHAWK OPERATING COMPANY	STULGIS A	5H	1/13/2014	1,396	750	1,862	5,130	50.2
154	154	12332796	PETROHAWK OPERATING COMPANY	MUIR E	3H	4/25/2013	1,534	828	1,852	6,353	51.6
155	155	12333511	BHP BILLITON PET(TXLA OP)	LP BUTLER B	6H	2/28/2015	2,247	1,215	1,849	3,600	56.0
156	156	12332891	PETROHAWK OPERATING COMPANY	SONNY SEIFERT A	7H	7/26/2013	1,524	826	1,845	6,015	49.4
157	157	12333403	GEOSOUTHERN ENERGY CORPORATION	BISHOP A	14H	11/19/2014	1,695	928	1,826	4,970	50.6
158	158	12332565	PETROHAWK OPERATING COMPANY	SANDY A	1H	2/7/2012	1,735	956	1,814	6,641	51.2
159	159	12332794	PETROHAWK OPERATING COMPANY	MUIR E	2H	6/3/2013	1,188	655	1,813	5,984	51.5
160	160	12332327	PETROHAWK OPERATING COMPANY	SEIFERT A	1H	7/12/2011	1,560	870	1,793	5,178	52.4
161	161	12332319	GEOSOUTHERN ENERGY CORPORATION	OLIVER B	1H	10/14/2010	2,283	1,282	1,781	6,245	49.0
162	162	12333087	PETROHAWK OPERATING COMPANY	STULGIS A	10H	1/14/2014	1,331	748	1,778	4,742	50.2
163	163	12333086	PETROHAWK OPERATING COMPANY	STULGIS A	8H	1/14/2014	1,298	731	1,773	4,774	48.7
164	164	12332411	PETROHAWK OPERATING COMPANY	SCHENDEL B	1H	7/20/2011	1,722	1,013	1,699	7,142	50.5
165	165	12333508	BHP BILLITON PET(TXLA OP)	VASBINDER A	4H	11/22/2014	2,165	1,274	1,699	7,000	55.0
166	166	12333011	PETROHAWK OPERATING COMPANY	W. BUTLER A	11H	1/16/2014	2,078	1,223	1,699	6,622	47.5
167	167	12333009	PETROHAWK OPERATING COMPANY	W. BUTLER A	9H	1/16/2014	1,781	1,054	1,689	6,650	47.1
168	168	12333029	PETROHAWK OPERATING COMPANY	SANDY A	2H	3/5/2014	1,653	985	1,678	6,055	51.0
169	169	12333509	BHP BILLITON PET(TXLA OP)	VASBINDER A	5H	11/22/2014	2,470	1,493	1,654	7,400	40.0
170	170	12333240	BHP BILLITON PET(TXLA OP)	SEIFERT C	7H	1/30/2014	1,227	742	1,652	5,501	50.0
171	171	12333007	PETROHAWK OPERATING COMPANY	W. BUTLER A	7H	1/16/2014	1,776	1,082	1,641	6,514	47.6
172	172	12332958	PETROHAWK OPERATING COMPANY	MUIR A	7H	9/18/2013	1,999	1,224	1,633	6,615	50.9
173	173	12333018	PETROHAWK OPERATING COMPANY	SANDY A	8H	10/27/2013	1,761	1,080	1,630	6,315	51.5
174	174	12332542	PETROHAWK OPERATING COMPANY	HYATT A	3H	2/6/2012	904	564	1,602	6,509	52.2
175	175	12333120	PETROHAWK OPERATING COMPANY	MUIR F-MUIR A SA UNIT	1H	9/14/2013	1,798	1,128	1,593	6,215	51.0
176	176	12332760	PETROHAWK OPERATING COMPANY	CANTU B	4H	10/25/2012	1,695	1,069	1,585	6,315	49.2
177	177	12332759	PETROHAWK OPERATING COMPANY	CANTU B	3H	10/25/2012	1,386	874	1,585	5,765	-
178	178	12333021	PETROHAWK OPERATING COMPANY	ELDER B	10H	12/24/2013	1,370	864	1,585	5,378	50.6
179	-	28533670	SABINE OIL & GAS LLC	OLSOVSKY UNIT	1H	3/13/2013	410	260	1,577	-	49.0
180	179	12333020	PETROHAWK OPERATING COMPANY	ELDER B	6H	12/24/2013	1,354	864	1,567	5,363	51.7
181	180	12332926	PETROHAWK OPERATING COMPANY	NELSON A	4H	4/23/2013	933	600	1,555	7,465	52.4
182	181	12333022	PETROHAWK OPERATING COMPANY	ELDER B	11H	12/26/2013	1,325	864	1,533	5,409	51.4
183	182	12332627	PETROHAWK OPERATING COMPANY	CANTU B	2H	3/28/2012	1,163	768	1,514	6,615	50.8



**Devon Well Reclassification List**

Well Count	Map No.	API No.	Original Operator	Lease Name	Well No.	Initial Test G-5/W-2						Flowing Tubing Pressure	API Gravity
						Date	Gas	Oil	GOR				
184	183	12332880	PETROHAWK OPERATING COMPANY	MUIR A	3H	10/13/2013	1,665	1,104	1,508			5,215	51.1
185	184	12333079	PETROHAWK OPERATING COMPANY	STULGIS A	6H	1/14/2014	1,134	752	1,507			5,270	51.0
186	185	12332982	PETROHAWK OPERATING COMPANY	ELDER B	8H	1/11/2014	1,394	960	1,452			5,456	49.6
187	186	12333031	PETROHAWK OPERATING COMPANY	A.J. BAKER A	4H	4/24/2014	1,218	851	1,431			4,975	51.0
188	187	12332360	PETROHAWK OPERATING COMPANY	HANSEN B	1H	5/27/2011	1,473	1,030	1,430			5,873	48.0
189	188	12332983	PETROHAWK OPERATING COMPANY	ELDER B	9H	1/11/2014	1,373	960	1,430			5,500	49.7
190	189	12332828	PETROHAWK OPERATING COMPANY	KRAUSE B	7H	4/24/2013	2,237	624	1,396			6,895	54.3
191	190	12333132	PETROHAWK OPERATING COMPANY	HEIBEL A	2H	12/4/2013	1,444	1,049	1,376			5,120	49.3
192	191	12332981	PETROHAWK OPERATING COMPANY	ELDER B	7H	1/8/2014	1,318	960	1,372			5,879	48.8
193	192	12333241	BHP BILLITON PET(TXLA OP)	SEIFERT C	8H	1/30/2014	1,339	981	1,364			5,412	50.7
194	193	12333075	PETROHAWK OPERATING COMPANY	STULGIS A	2H	1/13/2014	1,000	742	1,347			4,470	48.9
195	194	12333076	PETROHAWK OPERATING COMPANY	STULGIS A	3H	1/13/2014	993	750	1,324			4,199	48.5
196	195	12332446	PETROHAWK OPERATING COMPANY	WARREN B	1H	9/9/2011	1,542	1,183	1,303			6,735	51.0
197	-	28533618	GEOSOUTHERN ENERGY CORPORATION	CAROL UNIT	1	6/5/2012	945	725	1,303			5,315	48.4
198	196	12333026	PETROHAWK OPERATING COMPANY	CARSON A	2H	2/17/2014	1,280	984	1,300			5,410	54.9
199	197	12333036	PETROHAWK OPERATING COMPANY	CARSON A	6H	2/17/2014	1,222	943	1,295			5,251	50.7
200	198	12333040	PETROHAWK OPERATING COMPANY	CARSON A	10H	2/19/2014	1,138	888	1,281			5,000	49.1
201	199	12333077	PETROHAWK OPERATING COMPANY	STULGIS A	4H	1/13/2014	929	732	1,269			3,874	49.1
202	200	12332749	GEOSOUTHERN ENERGY CORPORATION	BISHOP A	2H	11/18/2012	1,394	1,128	1,235			6,277	51.0
203	201	12333342	BHP BILLITON PET(TXLA OP)	G. BAKER A	5H	10/31/2014	2,018	1,686	1,196			5,712	50.8
204	202	12333085	GEOSOUTHERN ENERGY CORPORATION	BROWN A UNIT	5H	5/4/2014	1,080	912	1,184			5,310	45.8
205	203	12333084	PETROHAWK OPERATING COMPANY	STULGIS A	9H	1/15/2014	889	755	1,177			3,753	51.4
206	204	12333135	PETROHAWK OPERATING COMPANY	HEIBEL A	8H	12/4/2013	1,239	1,060	1,168			5,173	49.1
207	205	17732848	GEOSOUTHERN ENERGY CORPORATION	BROWN A UNIT	2H	6/13/2014	972	833	1,166			4,468	46.9
208	206	12333035	PETROHAWK OPERATING COMPANY	CARSON A	5H	2/18/2014	1,107	960	1,153			5,000	49.7
209	207	12333019	PETROHAWK OPERATING COMPANY	ELDER B	5H	12/24/2013	951	864	1,100			5,363	50.2
210	208	12333023	PETROHAWK OPERATING COMPANY	ELDER B	12H	12/23/2013	865	792	1,092			4,090	46.7
211	209	17732681	PETROHAWK OPERATING COMPANY	ZGABAY A	2H	5/28/2013	782	720	1,086			5,125	48.6
212	210	12332971	PETROHAWK OPERATING COMPANY	ZGABAY A	8H	2/12/2014	1,068	984	1,085			5,140	48.9
213	211	12332405	PETROHAWK OPERATING COMPANY	WEIKEL A	1H	7/9/2011	1,192	1,103	1,080			5,290	47.0
214	212	12332984	PETROHAWK OPERATING COMPANY	ELDER B	3H	1/11/2014	978	960	1,018			4,799	60.0
215	213	12332968	PETROHAWK OPERATING COMPANY	ELDER B	4H	1/11/2014	978	960	1,018			4,340	48.3
216	214	12332969	PETROHAWK OPERATING COMPANY	ELDER B	2H	1/8/2014	958	960	997			4,533	48.2
217	215	12332326	PETROHAWK OPERATING COMPANY	CLARK A	1H	3/28/2011	777	787	987			6,065	48.0
218	216	12333038	PETROHAWK OPERATING COMPANY	CARSON A	8H	2/14/2014	980	1,032	949			5,066	51.7
219	217	12333037	PETROHAWK OPERATING COMPANY	CARSON A	7H	2/18/2014	954	1,104	864			5,026	47.7
220	218	17732684	PETROHAWK OPERATING COMPANY	ZGABAY A	6H	5/28/2013	538	768	700			5,875	49.5