

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. BOOTES 15 FED COM 2H
2. Name of Operator DEVON ENERGY PRODUCTION CO LP Contact: ERIN L WORKMAN Email: ERIN.WORKMAN@DVN.COM		9. API Well No. 30-015-40408-00-X1
3a. Address 333 WEST SHERIDAN AVE OKLAHOMA CITY, OK 73102	3b. Phone No. (include area code) Ph: 405-552-7970	10. Field and Pool, or Exploratory WILLIAMS SINK
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 15 T19S R31E NWNE 50FNL 1650FEL		11. County or Parish, and State EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

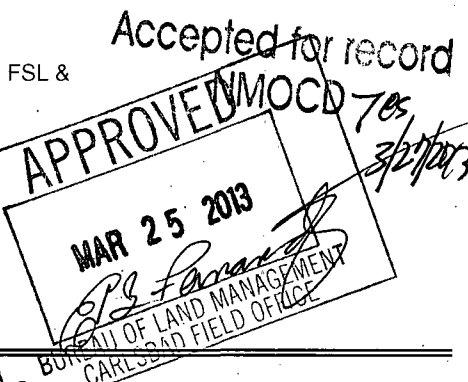
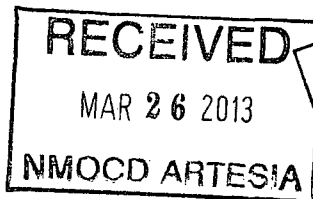
Devon Energy Production Company, LP respectfully requests approval for the following:

After running a gyro on the Acme 15 Fed Com 1, Devon requests a change in the BHL from 340 FSL & 1900 FEL to 340 FSL & 1650 FEL on the Bootes 15 Fed Com 2H.

Attached: Directional & Drilling Plan, New C-102

Thank you!

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**



14. I hereby certify that the foregoing is true and correct. Electronic Submission #201075 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION CO LP, sent to the Carlsbad Committed to AFMSS for processing by KURT SIMMONS on 03/11/2013 (13KMS5402SE)	
Name (Printed/Typed) ERIN L WORKMAN	Title REGULATORY COMPLIANCE ASSOC.
Signature (Electronic Submission)	Date 03/08/2013

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By EDWARD FERNANDEZ	Title PETROLEUM ENGINEER	Date 03/25/2013
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Carlsbad

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87503
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

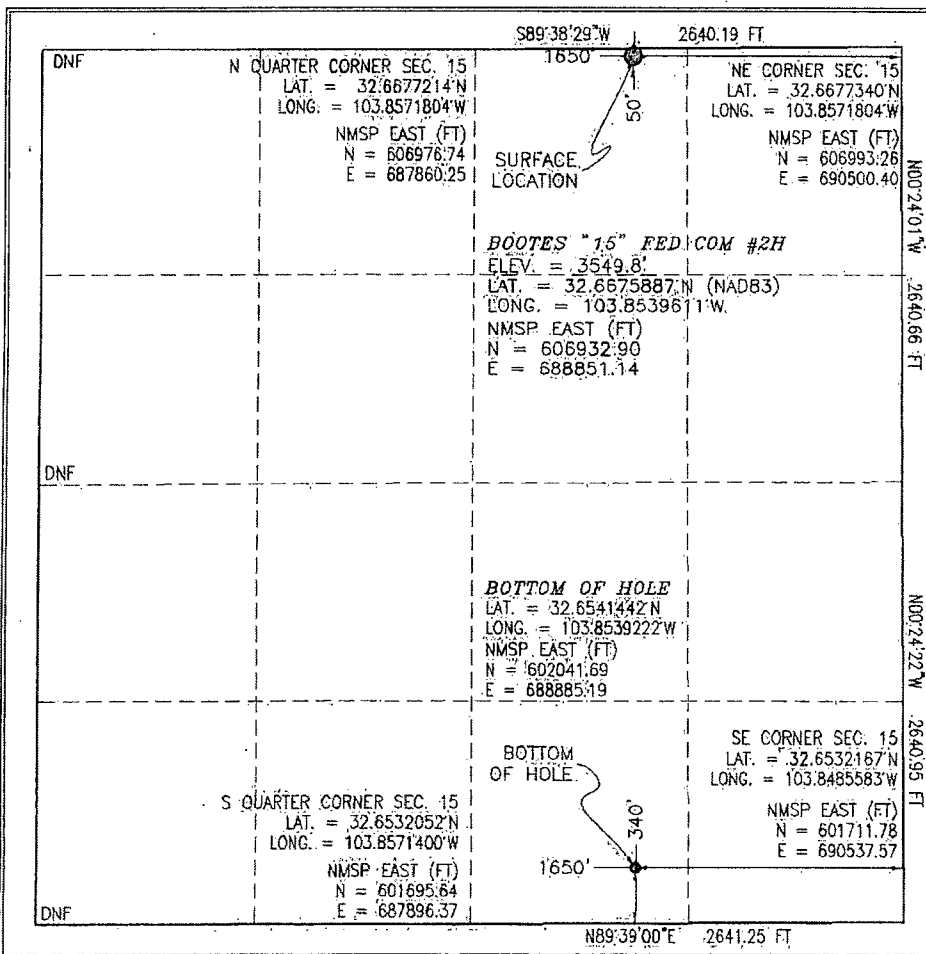
Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

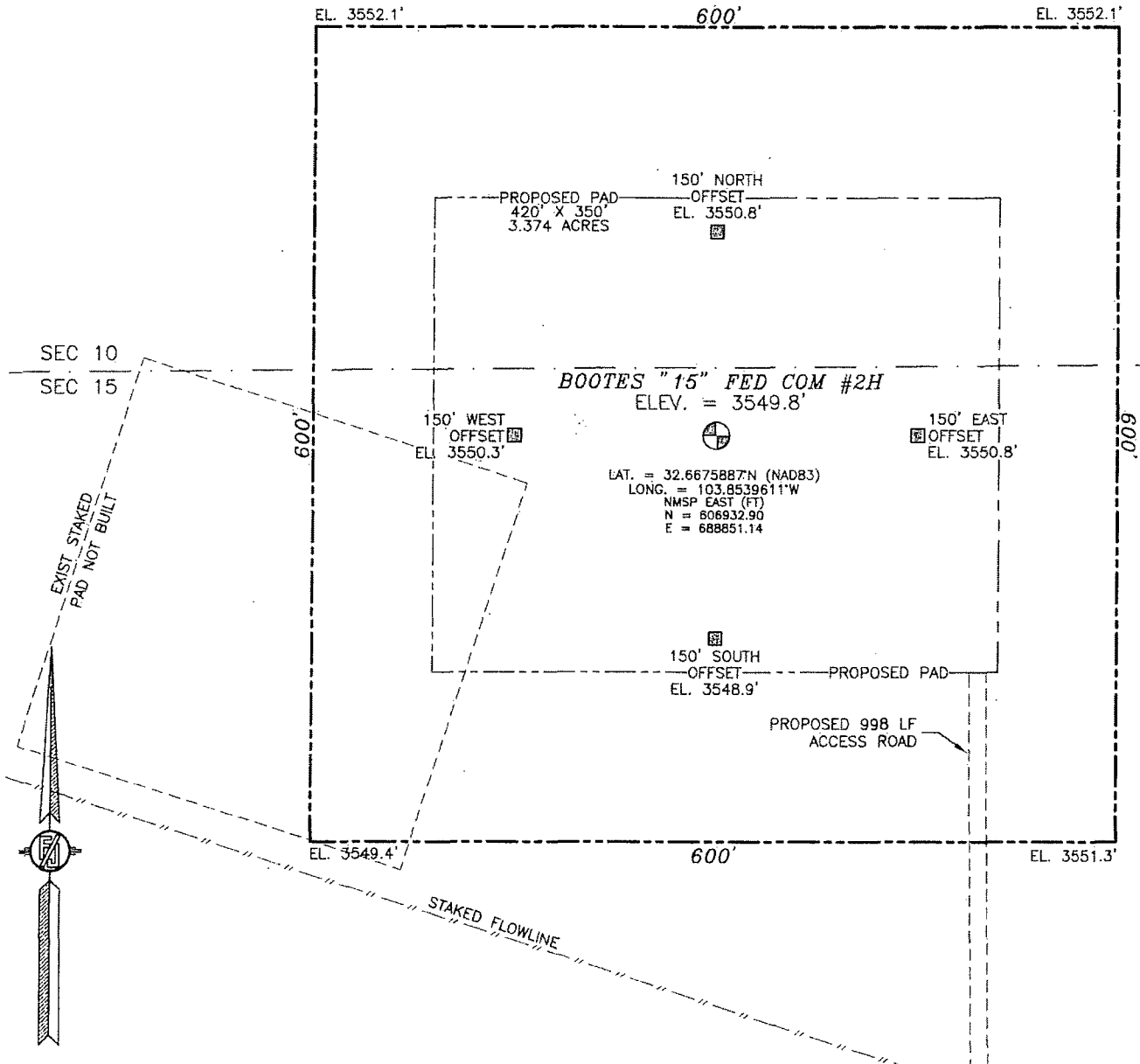
WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number		² Pool Code		³ Pool Name			
⁴ Property Code		⁵ Property Name BOOTES 15 FED COM			⁶ Well Number 2H		
⁷ GRID No. 6137		⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.			⁹ Elevation 3549.8		
¹⁰ Surface Location							
UL or lot no. B	Section 15	Township 19 S	Range 31 E	Lot Idn 50	Feet from the North/South line NORTH 1650	East/West line EAST	County EDDY
¹¹ Bottom Hole Location If Different From Surface							
UL or lot no. O	Section 15	Township 19 S	Range 31 E	Lot Idn 340	Feet from the North/South line SOUTH 1650	East/West line EAST	County EDDY
¹² Dedicated Acres		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.	

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

		17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature _____ Date _____ Printed Name _____ E-mail Address _____ 18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 2013 Date of Survey Signature of Licensed Professional Surveyor _____ Certificate Number _____ EDDY COUNTY, NEW MEXICO SURVEY NO. 852A
--	--	--

SECTION 15, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



012 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CR 222 (SHUGART) AND CR 248 LUSK
PLANT ROAD GO SE ALONG CR 248 0.25 MILES SITE IS 1000 FT
LEFT (NORTH)

DEVON ENERGY PRODUCTION COMPANY, L.P.

BOOTES "15" FED COM #2H

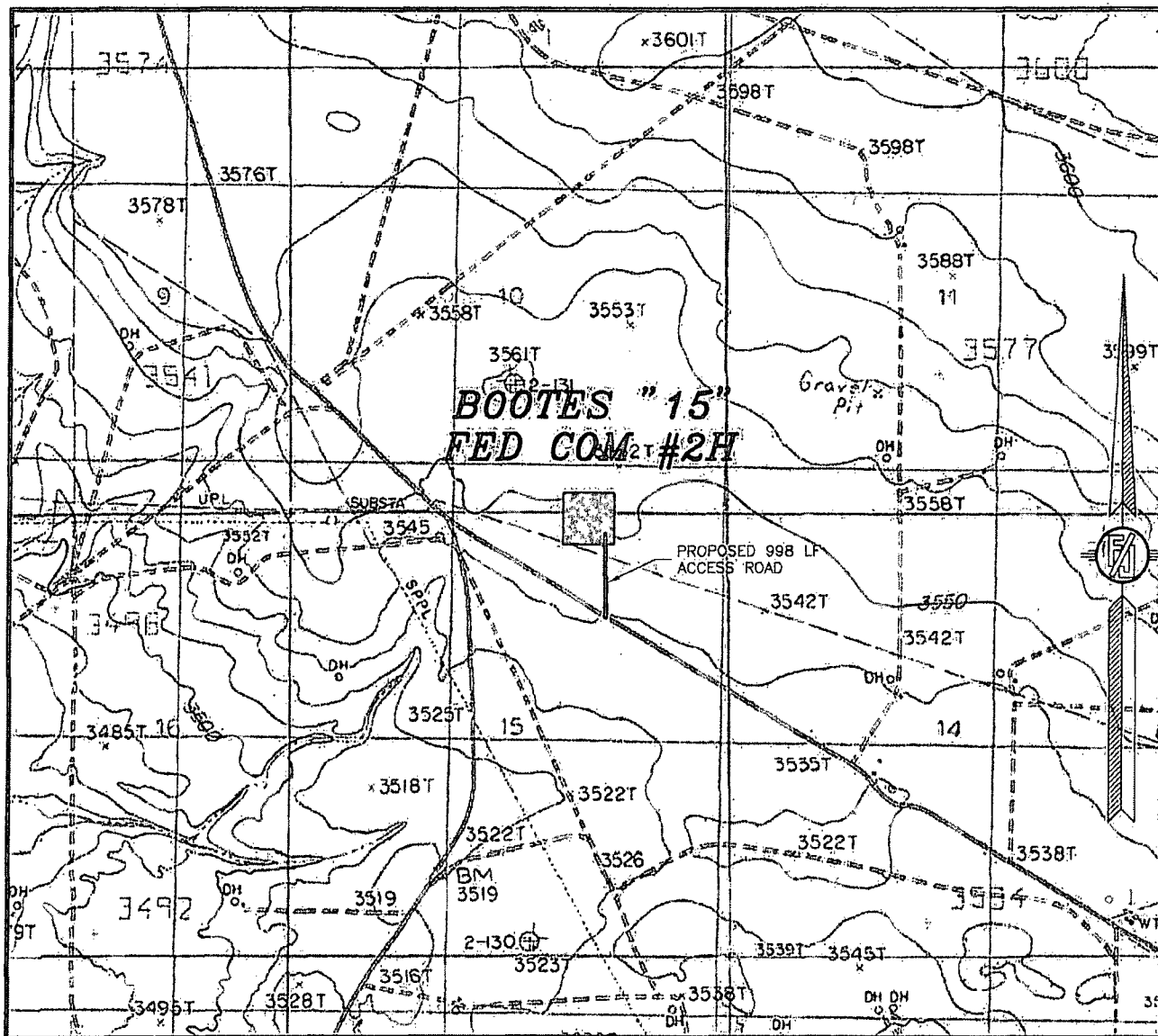
LOCATED 50 FT. FROM THE NORTH LINE,
AND 1650 FT. FROM THE EAST LINE OF
SECTION 15, TOWNSHIP 19 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 7, 2013

SURVEY NO. 852A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 15, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
GREENWOOD LAKE, NM

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

BOOTES "15" FED COM #2H

LOCATED 50 FT. FROM THE NORTH LINE
AND 1650 FT. FROM THE EAST LINE OF
SECTION 15, TOWNSHIP 19 SOUTH,
RANGE 31 EAST, N.M.P.M.

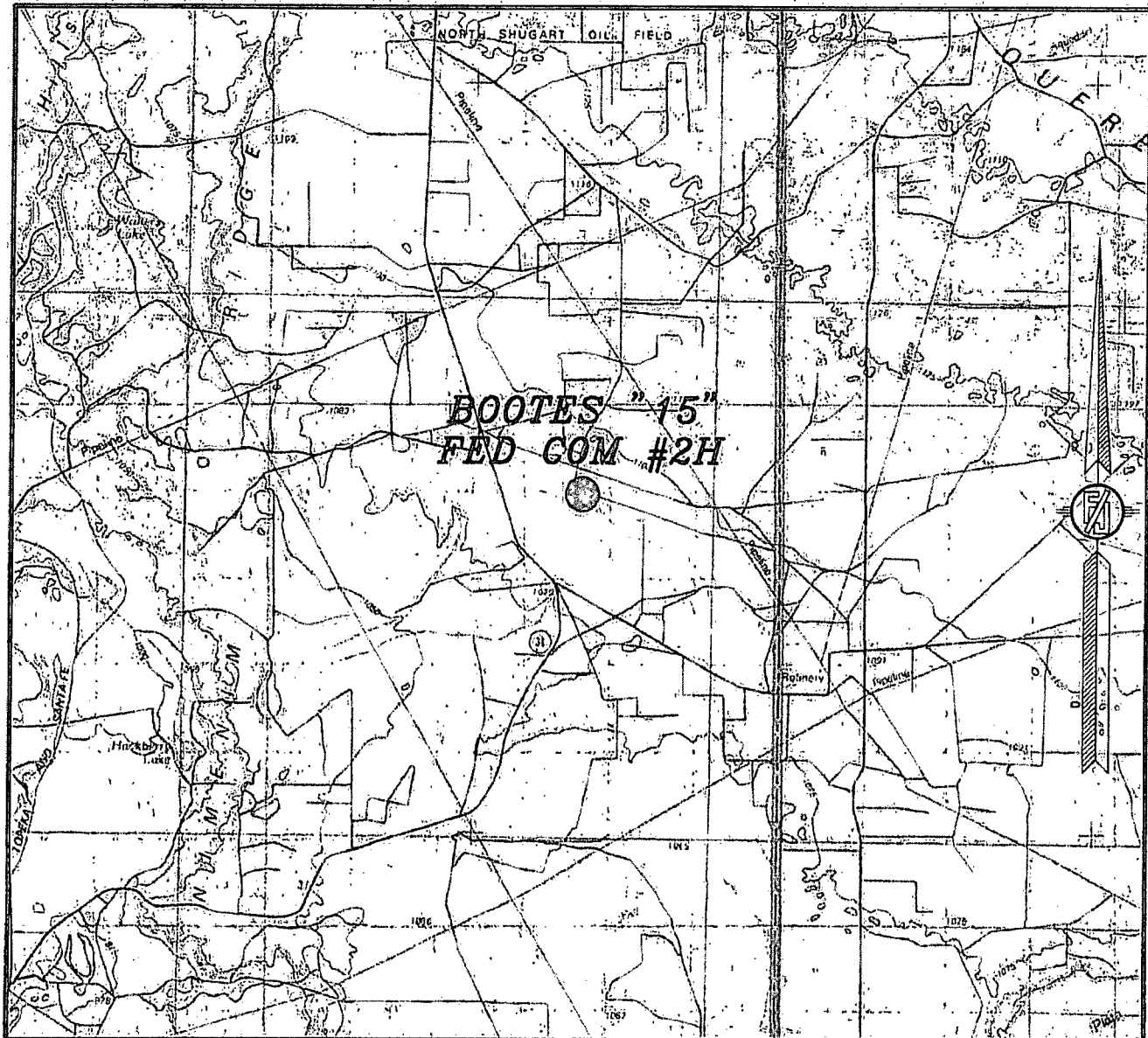
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 7, 2013

SURVEY NO. 852A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SECTION 15, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

BOOTES "15" FED COM #2H

LOCATED 50 FT. FROM THE NORTH LINE
AND 1650 FT. FROM THE EAST LINE OF
SECTION 15, TOWNSHIP 19 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 7, 2013

SURVEY NO. 852A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

BOOTES 15 FED 2H – APD DRILLING PLAN**Sec 15-19S-31E****3-6-12 KKS****Revised****3-6-13 SKS****SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Casing Program

See COA

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u> ⁶⁶⁰	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
26"	0 – 660	20"	0 – 750 ⁶⁶⁰	94#	BTC	J/K-55
17-1/2"	660 – 2,600	13-3/8"	0 – 2,600	61#	BTC	J/K-55
12-1/4"	2,600 – 4,500	9-5/8"	0 – 4,600 ⁴⁵⁰⁰	36#	LTC	HCK-55
8-3/4" ⁴⁵⁰⁰	4,600 – 8,500	5-1/2"	0 – 8,500	17#	LTC	HCP-110
8-3/4"	8,500 – 13,824	5-1/2"	8,500 – 13,824	17#	BTC	HCP-110

Max TVD: 9,180 ft in the lateral hole section

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
20" 94# J/K-55 BTC	1.48	6.01	18.42
13-3/8" 61# J/K-55 BTC	2.29	1.14	6.07
9-5/8" 36# HCK-55 LTC	1.22	1.88	2.95
5-1/2" 17# HCP-110 LTC	2.16	2.67	1.89
5-1/2" 17# HCP-110 BTC	2.00	2.48	4.92

While running the intermediate casing, the casing will never be completely evacuated. There is no potential for the intermediate casing to be used as a production string.

Mud Program:

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0 – 660	8.4 – 9.0	30 – 34	N/C	FW
660 – 2,600	9.8 – 10.0	28 – 32	N/C	Brine
2,600 – 4,600 ⁴⁵⁰⁰	8.4 – 9.0	28 – 30	N/C	FW
4,500 – 13,824	8.6 – 9.0	28 – 32	N/C-12	FW

Pressure Control Equipment:

The BOP system used to drill the **17-1/2"** hole will consist of a **20" 2M Annular preventer**. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a **2M system** prior to drilling out the casing shoe.

The BOP system used to drill the **12-1/4"** and **8-3/4"** holes will consist of a **13-5/8" 3M Double Ram and Annular preventer**. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a **3M system** prior to drilling out the casing shoe.

The pipe rams will be operated and checked as per Onshore Order No 2. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at **3,000 psi WP**.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

**
See
COA*

Cementing Program (volumes based on at least 25% excess):

20" Surface

Lead: 915 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.4% Fresh Water, 13.5 ppg,

Yield: 1.75 cf/sk

Tail: 350 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water, 14.8 ppg

Yield: 1.35 cf/sk

13-3/8" Intermediate

Lead: 1620 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 1% bwoc Sodium Metasilicate + 3 lbs/sack LCM-1 + 89.7% Fresh Water, 12.6 ppg,

Yield: 1.70 cf/sk

Tail: 500 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.3% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.5% Fresh Water, 13.8 ppg

Yield: 1.38 cf/sk

9-5/8" Intermediate

1st Stage

Lead: 420 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 1% bwoc Sodium Metasilicate + 89.7% Fresh Water, 12.6 ppg

Yield: 1.73 cf/sk

Tail: 300 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.5% Fresh Water, 13.8 ppg

Yield: 1.38 cf/sk.

DV tool and ECP at 2,710-ft (approx 120-ft above the reef top)

2nd Stage *

Lead: 600 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 1% bwoc Sodium Metasilicate + 89.7% Fresh Water, 12.6 ppg

Yield: 1.66 cf/sk

Tail: 100 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.5% Fresh Water, 13.8 ppg

Yield: 1.38 cf/sk.

see
COA

5-1/2" Production

Lead: 690 sacks (35:65) Poz (Fly Ash):Class H Cement + 3% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.7% bwoc FL-52 + 6% bwoc Bentonite + 0.2% bwoc R-3 + 0.3% bwoc ASA-301 + 105.5% Fresh Water, 12.5 ppg

Yield: 2.01 cf/sk

Tail: 1340 sacks (50:50) Poz (Fly Ash):Class H Cement + 0.5% bwoc FL-25 + 0.5% bwoc FL-52 + 0.25% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 57.2% Fresh Water, 14.2 ppg

Yield: 1.28 cf/sk

DV tool and ECP at 5,500-ft

Lead: 300 sacks Class C Cement + 1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 3% bwoc Sodium Metasilicate + 0.3% bwoc FL-52 + 157% Fresh Water, 11.4 ppg

Yield: 2.88 cf/sk

Tail: 150 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack cello Flake + 4% bwoc MPA-5 + 0.5% bwoc BA-10A + 65.1% Fresh Water, 13.8 ppg

Yield: 1.37 cf/sk

TOC for All Strings:

Surface:	0 ft
Intermediate 1:	0 ft
Intermediate 2:	0 ft
Production:	2,500 ft (approx 200 ft above reef top)

ACTUAL CEMENT VOLUMES WILL BE ADJUSTED BASED ON FLUID CALIPER AND CALIPER LOG DATA.



Weatherford®

Drilling Services

Proposal



devon

BOOTES 15 FED COM 2H

EDDY COUNTY, NM

WELL FILE: PLAN 2

MARCH 5, 2013

Weatherford International, Ltd.

P.O. Box 61028

Midland, TX 79711 USA

+1.432.561.8892 Main

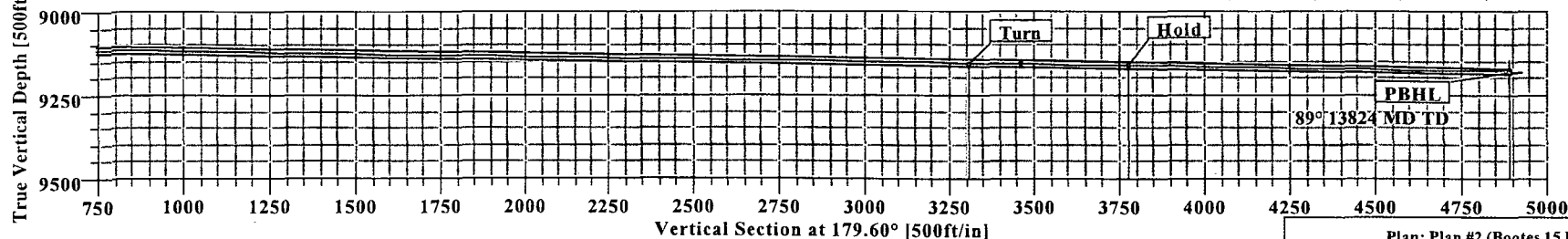
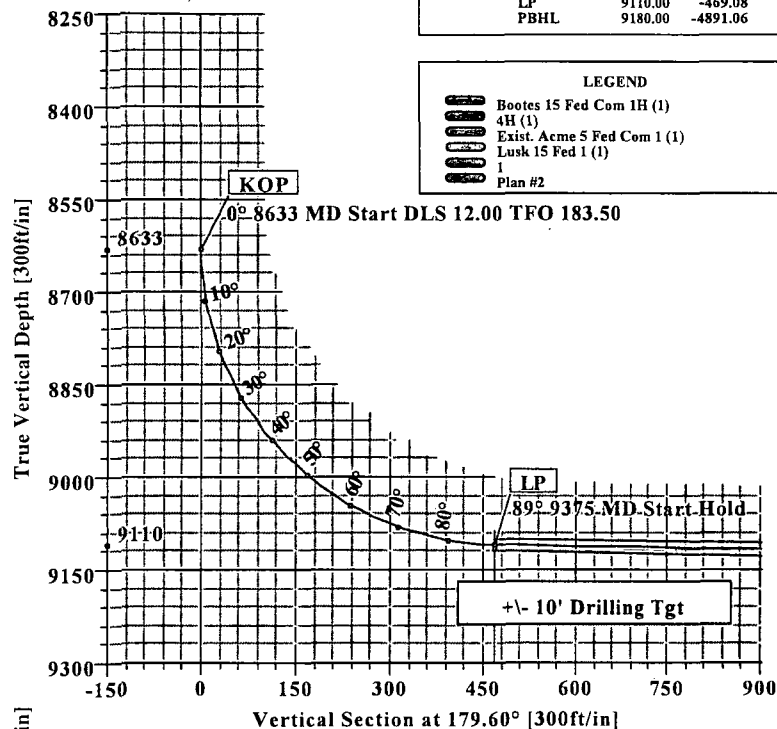
+1.432.561.8895 Fax

www.weatherford.com



Bootes 15 Fed Com 2H Eddy Co., New Mexico

KB ELEV: 3570
GL ELEV: 3550



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8632.60	0.00	0.00	8632.60	0.00	0.00	0.00	0.00	0.00	
3	9375.09	89.10	183.50	9110.01	-469.08	-28.69	12.00	183.50	468.86	
4	12220.83	89.10	183.50	9154.78	-3309.16	-202.40	0.00	0.00	3307.67	
5	12688.88	89.10	169.46	9162.18	-3775.10	-173.72	3.00	-90.10	3773.79	
6	13824.15	89.10	169.46	9180.00	-4891.06	33.98	0.00	0.00	4891.18	PBHL

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Bootes 15 Fed Com 2H	0.00	0.00	606932.90	688851.14	32°40'03.307N	103°51'14.276W	N/A

TARGET DETAILS

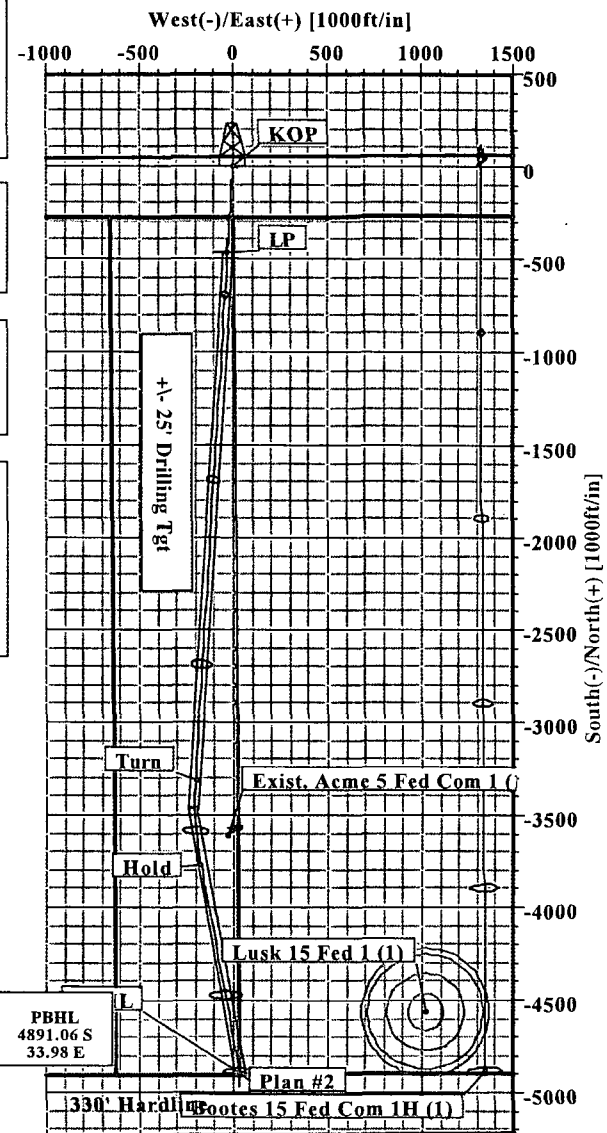
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
LP	9110.00	-469.08	-28.69	606463.82	688822.45	Rectangle (2880x50)
PBHL	9180.00	-4891.06	33.98	602041.84	688885.12	Point

LEGEND

- Bootes 15 Fed Com 1H (1)
- 4H (1)
- Exist. Acme 5 Fed Com 1 (1)
- Lusk 15 Fed 1 (1)
- 1
- Plan #2

SITE DETAILS

Bootes 15 Fed Com 2H
Site Centre Northing: 606932.90
Easting: 688851.14
Ground Level: 3550.00
Positional Uncertainty: 0.00
Convergence: 0.26



Plan: Plan #2 (Bootes 15 Fed Com 2H/1)

Created By: Russell W. Joyner

Date: 3/5/2013



Weatherford Wft Plan Report X Y's.



Weatherford

Company: Devon Energy	Date: 3/5/2013	Time: 15:18:57	Page: 1
Field: Eddy Co. NM (NAD 83)	Co-ordinate(NE) Reference: Well: Bootes 15 Fed Com 2H	Grid North	
Site: Bootes 15 Fed Com 2H	Vertical (TVD) Reference: SITE 3570.0		
Well: Bootes 15 Fed Com 2H	Section (VS) Reference: Well (0.00N;0.00E;179.60Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #2	Date Composed: 3/4/2013
Principal: Yes	Version: 1
	Tied-to: From Surface

Site: Bootes 15 Fed Com 2H	
Site Position:	Northing: 606932.90 ft
From: Map	Easting: 688851.14 ft
Position Uncertainty: 0.00 ft	Latitude: 32 40 3.307 N
Ground Level: 3550.00 ft	Longitude: 103 51 14.276 W
	North Reference: Grid
	Grid Convergence: 0.26 deg

Well: Bootes 15 Fed Com 2H				Slot Name:			
Well Position:	+N/-S	0.00 ft	Northing:	606932.90 ft	Latitude:	32 40	3.307 N
	+E/-W	0.00 ft	Easting :	688851.14 ft	Longitude:	103 51	14.276 W
Position Uncertainty:	0.00 ft						

Wellpath: 1		Drilled From:	Surface
		Tie-on Depth:	0.00 ft
Current Datum:	SITE	Above System Datum:	Mean Sea Level
Magnetic Data:	4/15/2013	Declination:	7.53 deg
Field Strength:	48694 nT	Mag Dip Angle:	60.50 deg
Vertical Section:	Depth From (TVD)	+N/-S	Direction
	ft	ft	deg
	0.00	0.00	0.00
			179.60

Plan Section Information

MD	Incl	Azim	TVD	N/S	E/W	D/S	Build	Turn	TFO	Target
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8632.60	0.00	0.00	8632.60	0.00	0.00	0.00	0.00	0.00	0.00	
9375.09	89.10	183.50	9110.01	-469.08	-28.69	12.00	12.00	0.00	183.50	
12220.83	89.10	183.50	9154.78	-3309.16	-202.40	0.00	0.00	0.00	0.00	
12688.88	89.10	169.46	9162.18	-3775.10	-173.72	3.00	0.00	-3.00	-90.10	
13824.15	89.10	169.46	9180.00	-4891.06	33.98	0.00	0.00	0.00	0.00	PBHL

Survey

MD	Incl	Azim	TVD	N/S	E/W	VS	D/S	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	ft	
8600.00	0.00	0.00	8600.00	0.00	0.00	0.00	0.00	606932.90	688851.14	
8632.60	0.00	0.00	8632.60	0.00	0.00	0.00	0.00	606932.90	688851.14	KOP
8650.00	2.09	183.50	8650.00	-0.32	-0.02	0.32	12.00	606932.58	688851.12	
8675.00	5.09	183.50	8674.94	-1.88	-0.11	1.88	12.00	606931.02	688851.03	
8700.00	8.09	183.50	8699.78	-4.74	-0.29	4.74	12.00	606928.16	688850.85	
8725.00	11.09	183.50	8724.42	-8.90	-0.54	8.89	12.00	606924.00	688850.60	
8750.00	14.09	183.50	8748.82	-14.33	-0.88	14.33	12.00	606918.57	688850.26	
8775.00	17.09	183.50	8772.90	-21.04	-1.29	21.03	12.00	606911.86	688849.85	
8800.00	20.09	183.50	8796.59	-28.99	-1.77	28.98	12.00	606903.91	688849.37	
8825.00	23.09	183.50	8819.84	-38.17	-2.33	38.15	12.00	606894.73	688848.81	
8850.00	26.09	183.50	8842.57	-48.55	-2.97	48.53	12.00	606884.35	688848.17	
8875.00	29.09	183.50	8864.72	-60.11	-3.68	60.08	12.00	606872.79	688847.46	
8900.00	32.09	183.50	8886.24	-72.80	-4.45	72.77	12.00	606860.10	688846.69	
8925.00	35.09	183.50	8907.06	-86.61	-5.30	86.57	12.00	606846.29	688845.84	
8950.00	38.09	183.50	8927.13	-101.48	-6.21	101.43	12.00	606831.42	688844.93	
8975.00	41.09	183.50	8946.40	-117.38	-7.18	117.33	12.00	606815.52	688843.96	
9000.00	44.09	183.50	8964.80	-134.26	-8.21	134.20	12.00	606798.64	688842.93	
9025.00	47.09	183.50	8982.30	-152.09	-9.30	152.02	12.00	606780.81	688841.84	
9050.00	50.09	183.50	8998.83	-170.80	-10.45	170.72	12.00	606762.10	688840.69	
9075.00	53.09	183.50	9014.36	-190.35	-11.64	190.26	12.00	606742.55	688839.50	
9100.00	56.09	183.50	9028.85	-210.68	-12.89	210.59	12.00	606722.22	688838.25	



Weatherford Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy	Date: 3/5/2013	Time: 15:18:57	Page: 12
Field: Eddy Co. NM (NAD 83)	Co-ordinate(NE) Reference: Well: Bootes 15 Fed Com 2H	Grid North	
Site: Bootes 15 Fed Com 2H	Vertical (TVD) Reference: SITE 3570.0		
Well: Bootes 15 Fed Com 2H	Section (VS) Reference: Well: (0.00N:0.00E:179.60Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DES deg/100ft	MapN ft	MapE ft	Comment
9125.00	59.09	183.50	9042.24	-231.75	-14.17	231.64	12.00	606701.15	688836.97	
9150.00	62.09	183.50	9054.52	-253.48	-15.50	253.37	12.00	606679.42	688835.64	
9175.00	65.09	183.50	9065.64	-275.83	-16.87	275.70	12.00	606657.07	688834.27	
9200.00	68.09	183.50	9075.57	-298.73	-18.27	298.59	12.00	606634.17	688832.87	
9225.00	71.09	183.50	9084.29	-322.11	-19.70	321.96	12.00	606610.79	688831.44	
9250.00	74.09	183.50	9091.77	-345.92	-21.16	345.76	12.00	606586.98	688829.98	
9275.00	77.09	183.50	9097.99	-370.08	-22.64	369.91	12.00	606562.82	688828.50	
9300.00	80.09	183.50	9102.94	-394.54	-24.13	394.36	12.00	606538.36	688827.01	
9325.00	83.09	183.50	9106.59	-419.22	-25.64	419.03	12.00	606513.68	688825.50	
9350.00	86.09	183.50	9108.95	-444.06	-27.16	443.86	12.00	606488.84	688823.98	
9375.09	89.10	183.50	9110.01	-469.08	-28.69	468.86	12.00	606463.82	688822.45	LP
9400.00	89.10	183.50	9110.40	-493.94	-30.21	493.72	0.00	606438.96	688820.93	
9500.00	89.10	183.50	9111.97	-593.74	-36.31	593.47	0.00	606339.16	688814.83	
9600.00	89.10	183.50	9113.54	-693.54	-42.42	693.23	0.00	606239.36	688808.72	
9700.00	89.10	183.50	9115.12	-793.34	-48.52	792.98	0.00	606139.56	688802.62	
9800.00	89.10	183.50	9116.69	-893.14	-54.63	892.74	0.00	606039.76	688796.51	
9900.00	89.10	183.50	9118.27	-992.94	-60.73	992.50	0.00	605939.96	688790.41	
10000.00	89.10	183.50	9119.84	-1092.75	-66.84	1092.25	0.00	605840.15	688784.30	
10100.00	89.10	183.50	9121.41	-1192.55	-72.94	1192.01	0.00	605740.35	688778.20	
10200.00	89.10	183.50	9122.99	-1292.35	-79.04	1291.76	0.00	605640.55	688772.10	
10300.00	89.10	183.50	9124.56	-1392.15	-85.15	1391.52	0.00	605540.75	688765.99	
10400.00	89.10	183.50	9126.13	-1491.95	-91.25	1491.28	0.00	605440.95	688759.89	
10500.00	89.10	183.50	9127.71	-1591.75	-97.36	1591.03	0.00	605341.15	688753.78	
10600.00	89.10	183.50	9129.28	-1691.55	-103.46	1690.79	0.00	605241.35	688747.68	
10700.00	89.10	183.50	9130.85	-1791.35	-109.56	1790.55	0.00	605141.55	688741.58	
10800.00	89.10	183.50	9132.43	-1891.15	-115.67	1890.30	0.00	605041.75	688735.47	
10900.00	89.10	183.50	9134.00	-1990.96	-121.77	1990.06	0.00	604941.94	688729.37	
11000.00	89.10	183.50	9135.57	-2090.76	-127.88	2089.81	0.00	604842.14	688723.26	
11100.00	89.10	183.50	9137.15	-2190.56	-133.98	2189.57	0.00	604742.34	688717.16	
11200.00	89.10	183.50	9138.72	-2290.36	-140.08	2289.33	0.00	604642.54	688711.06	
11300.00	89.10	183.50	9140.29	-2390.16	-146.19	2389.08	0.00	604542.74	688704.95	
11400.00	89.10	183.50	9141.87	-2489.96	-152.29	2488.84	0.00	604442.94	688698.85	
11500.00	89.10	183.50	9143.44	-2589.76	-158.40	2588.59	0.00	604343.14	688692.74	
11600.00	89.10	183.50	9145.02	-2689.56	-164.50	2688.35	0.00	604243.34	688686.64	
11700.00	89.10	183.50	9146.59	-2789.36	-170.60	2788.11	0.00	604143.54	688680.54	
11800.00	89.10	183.50	9148.16	-2889.17	-176.71	2887.86	0.00	604043.73	688674.43	
11900.00	89.10	183.50	9149.74	-2988.97	-182.81	2987.62	0.00	603943.93	688668.33	
12000.00	89.10	183.50	9151.31	-3088.77	-188.92	3087.37	0.00	603844.13	688662.22	
12100.00	89.10	183.50	9152.88	-3188.57	-195.02	3187.13	0.00	603744.33	688656.12	
12200.00	89.10	183.50	9154.46	-3288.37	-201.13	3286.89	0.00	603644.53	688650.01	
12220.83	89.10	183.50	9154.78	-3309.16	-202.40	3307.67	0.00	603623.74	688648.74	Turn
12300.00	89.09	181.12	9156.03	-3388.25	-205.59	3386.73	3.00	603544.65	688645.55	
12400.00	89.09	178.12	9157.61	-3488.22	-204.93	3486.71	3.00	603444.68	688646.21	
12500.00	89.09	175.12	9159.20	-3588.03	-199.05	3586.55	3.00	603344.87	688652.09	
12600.00	89.10	172.12	9160.78	-3687.38	-187.94	3685.98	3.00	603245.52	688663.20	
12688.88	89.10	169.46	9162.18	-3775.10	-173.72	3773.79	3.00	603157.80	688677.42	Hold
12700.00	89.10	169.46	9162.35	-3786.03	-171.69	3784.74	0.00	603146.87	688679.45	
12800.00	89.10	169.46	9163.92	-3884.33	-153.39	3883.16	0.00	603048.57	688697.75	
12900.00	89.10	169.46	9165.49	-3982.63	-135.10	3981.59	0.00	602950.27	688716.04	
13000.00	89.10	169.46	9167.06	-4080.93	-116.80	4080.01	0.00	602851.97	688734.34	
13100.00	89.10	169.46	9168.63	-4179.23	-98.51	4178.44	0.00	602753.67	688752.63	
13200.00	89.10	169.46	9170.20	-4277.53	-80.21	4276.86	0.00	602655.37	688770.93	
13300.00	89.10	169.46	9171.77	-4375.83	-61.91	4375.29	0.00	602557.07	688789.23	

Company: Devon Energy
 Field: Eddy Co. NM (NAD 83)
 Site: Bootes 15 Fed Com 2H
 Well: Bootes 15 Fed Com 2H
 Wellpath: 1

Date: 3/5/2013
 Co-ordinate (NE) Reference: Well: Bootes 15 Fed Com 2H Grid North
 Vertical (TVD) Reference: SITE 3570.0
 Section (VS) Reference: Well (0.00N 0.00E 179.60Azi)
 Survey Calculation Method: Minimum Curvature
 Db: Sybase

Time: 15:18:57 Page: 1/3

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comments
13400.00	89.10	169.46	9173.34	-4474.13	-43.62	4473.71	0.00	602458.77	688807.52	
13500.00	89.10	169.46	9174.91	-4572.43	-25.32	4572.14	0.00	602360.47	688825.82	
13600.00	89.10	169.46	9176.48	-4670.73	-7.03	4670.56	0.00	602262.17	688844.11	
13700.00	89.10	169.46	9178.05	-4769.03	11.27	4768.99	0.00	602163.87	688862.41	
13800.00	89.10	169.46	9179.62	-4867.33	29.56	4867.41	0.00	602065.57	688880.70	
13824.15	89.10	169.46	9180.00	-4891.06	33.98	4891.18	0.00	602041.84	688885.12	PBHL

Targets

Name	Description	Dip	Dir	TVD ft	+N/S ft	+E/W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec	Longitude Deg Min Sec
LP	-Rectangle (3000x50)	0.90		183.50	9110.00	-469.08	-28.69	606463.82	688822.45	32 39 58.667 N 103 51 14.636 W
PBHL	-Rectangle (1450x50)	0.90		170.00	9180.00	-4891.06	33.98	602041.84	688885.12	32 39 14.909 N 103 51 14.137 W

Casing Points

MD ft	TVD ft	Diameter	Hole Size	Name

Annotation

MD ft	TVD ft	
8632.60	8632.60	KOP
9375.09	9110.01	LP
12220.83	9154.78	Turn
12688.88	9162.18	Hold
13824.14	9180.00	PBHL



Weatherford Anticollision Report



Company:	Devon Energy	Date:	3/5/2013	Time:	15:09:48	Page:	1
Field:	Eddy Co. NM (NAD 83)						
Reference Site:	Bootes 15 Fed Com 2H	Co-ordinate (NE) Reference:	Well: Bootes 15 Fed Com 2H	Grid North:			
Reference Well:	Bootes 15 Fed Com 2H	Vertical (TVD) Reference:	SITE 3570.0				
Reference Wellpath:						Db:	Sybase

NO GLOBAL SCAN: Using user defined selection & scan criteria
Interpolation Method MD + Stations Interval: 100.00 ft
Depth Range: 0.00 to 13803.01 ft
Maximum Radius 40000.00 ft

Reference: Plan: Plan #2
Error Model: ISCWSA Ellipse
Scan Method: Closest Approach 3D
Error Surface: Ellipse

Plan: Plan #2

Date Composed: 3/4/2013

Principal: Yes

Version: 1

Tied-to: From Surface

Summary

Site	Offset Wellpath	Reference	Offset	Ctr-Ctr Edge	Separation	Warning
	Well	Wellpath	MD	MD	Distance Distance Factor	
Exist. Acme 5 Fed Co	Exist. Acme 5 Fed Co 1 V0		12500.00	9136.85	171.26 87.38 2.04	

Site: Exist. Acme 5 Fed Com 1

Well: Exist. Acme 5 Fed Com 1

Wellpath: 1 V0

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis		Offset Location		Ctr-Ctr Edge		Separation		Warning
MD	TVD	MD	TVD	Ref	Offset	TEO:HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
0.00	0.00	0.00	0.00	0.00	0.00	179.62	-3583.57	23.71	3583.74			No Data
100.00	100.00	77.46	77.46	0.09	0.09	179.62	-3583.54	23.61	3583.62	3583.45	20450.29	
200.00	200.00	175.21	175.21	0.31	0.31	179.63	-3583.49	23.19	3583.57	3582.95	5752.37	
300.00	300.00	280.56	280.55	0.54	0.59	179.64	-3583.45	22.26	3583.52	3582.40	3182.12	
400.00	400.00	365.78	365.77	0.76	0.81	179.66	-3583.44	21.01	3583.51	3581.94	2277.56	
500.00	500.00	455.38	455.35	0.99	1.04	179.69	-3583.87	19.55	3583.97	3581.94	1765.34	
600.00	600.00	553.19	553.15	1.21	1.29	179.71	-3584.45	17.86	3584.56	3582.05	1429.47	
700.00	700.00	654.34	654.29	1.44	1.56	179.74	-3585.07	16.43	3585.17	3582.18	1197.42	
800.00	800.00	755.39	755.33	1.66	1.82	179.76	-3585.63	15.23	3585.72	3582.24	1030.37	
900.00	900.00	857.40	857.33	1.89	2.08	179.77	-3586.18	14.30	3586.26	3582.29	903.86	
1000.00	1000.00	962.00	961.93	2.11	2.35	179.78	-3586.64	13.58	3586.69	3582.23	803.91	
1100.00	1100.00	1064.83	1064.75	2.34	2.60	179.79	-3586.96	13.16	3587.00	3582.06	725.92	
1200.00	1200.00	1163.74	1163.67	2.56	2.83	179.79	-3587.25	13.01	3587.29	3581.90	665.76	
1300.00	1300.00	1261.20	1261.12	2.79	3.03	179.79	-3587.59	12.94	3587.64	3581.83	617.00	
1400.00	1400.00	1362.55	1362.47	3.01	3.22	179.79	-3587.99	12.91	3588.03	3581.80	576.10	
1500.00	1500.00	1476.45	1476.38	3.24	3.34	179.79	-3588.21	13.27	3588.24	3581.66	545.35	
1600.00	1600.00	1592.02	1591.93	3.46	3.38	179.77	-3587.90	14.48	3587.97	3581.13	524.63	
1700.00	1700.00	1702.52	1702.41	3.69	3.41	179.74	-3587.21	16.17	3587.35	3580.25	505.36	
1800.00	1800.00	1806.30	1806.18	3.91	3.47	179.71	-3586.34	17.94	3586.52	3579.14	486.18	
1900.00	1900.00	1900.61	1900.47	4.14	3.53	179.69	-3585.59	19.54	3585.73	3578.06	467.62	
2000.00	2000.00	1993.88	1993.73	4.36	3.62	179.66	-3585.00	21.17	3585.11	3577.14	449.38	
2100.00	2100.00	2097.09	2096.92	4.59	3.73	179.63	-3584.42	23.15	3584.56	3576.24	431.12	
2200.00	2200.00	2208.05	2207.85	4.81	3.87	179.60	-3583.54	25.29	3583.78	3575.10	413.12	
2300.00	2300.00	2303.34	2303.13	5.03	3.99	179.57	-3582.72	26.73	3582.93	3573.90	396.94	
2400.00	2400.00	2401.06	2400.84	5.26	4.13	179.56	-3581.97	27.78	3582.17	3572.78	381.43	
2500.00	2500.00	2492.93	2492.71	5.48	4.28	179.54	-3581.41	28.60	3581.57	3571.81	366.99	
2600.00	2600.00	2602.95	2602.72	5.71	4.46	179.53	-3580.72	29.48	3580.95	3570.78	352.29	
2700.00	2700.00	2702.06	2701.82	5.93	4.62	179.52	-3579.96	30.08	3580.18	3569.63	339.07	
2800.00	2800.00	2800.45	2800.21	6.16	4.80	179.51	-3579.24	30.63	3579.46	3568.50	326.61	
2900.00	2900.00	2906.35	2906.10	6.38	5.00	179.50	-3578.40	31.33	3578.67	3567.29	314.39	
3000.00	3000.00	3011.51	3011.25	6.61	5.20	179.49	-3577.40	32.13	3577.73	3565.92	302.89	
3100.00	3100.00	3114.32	3114.06	6.83	5.41	179.47	-3576.28	32.81	3576.64	3564.40	292.18	
3200.00	3200.00	3202.54	3202.28	7.06	5.59	179.47	-3575.46	33.18	3575.72	3563.08	282.80	
3300.00	3300.00	3308.42	3308.15	7.28	5.80	179.46	-3574.56	33.51	3574.87	3561.79	273.17	
3400.00	3400.00	3410.59	3410.31	7.51	6.02	179.46	-3573.57	33.74	3573.91	3560.38	264.26	
3500.00	3500.00	3507.73	3507.45	7.73	6.22	179.46	-3572.66	33.91	3572.96	3559.01	256.05	



Weatherford Anticollision Report



Weatherford®

Company: Devon Energy Date: 3/5/2013 Time: 15:09:48 Page: 12
Field: Eddy Co. NM (NAD:83)
Reference Site: Booles 15 Fed Com 2H Co-ordinate (NE) Reference: Well: Booles 15 Fed Com 2H Grid North
Reference Well: Booles 15 Fed Com 2H Vertical (TVD) Reference: SITE 3570.0
Reference Wellpath: Db: Sybase

Site: Exist. Acme 5 Fed Com 1

Well: Exist. Acme 5 Fed Com 1

Wellpath: 1 V0

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis		Offset Location		Ctr-Ctr Edge		Separation		Warning
MD	TVD	MD	TVD	Ref	Offset	TFO HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft		ft	deg	ft	ft	ft	ft		
3600.00	3600.00	3609.97	3609.68	7.96	6.44	179.45	-3571.71	34.08	3572.04	3557.64	248.08	
3700.00	3700.00	3728.29	3727.99	8.18	6.70	179.45	-3570.25	34.07	3570.81	3555.93	240.01	
3800.00	3800.00	3841.54	3841.23	8.41	6.94	179.46	-3568.34	33.90	3569.12	3553.77	232.57	
3900.00	3900.00	3948.33	3948.00	8.63	7.17	179.46	-3566.24	33.66	3567.15	3551.34	225.70	
4000.00	4000.00	4051.08	4050.72	8.86	7.40	179.46	-3564.09	33.44	3565.05	3548.80	219.28	
4100.00	4100.00	4147.15	4146.78	9.08	7.62	179.46	-3562.07	33.36	3562.95	3546.25	213.34	
4200.00	4200.00	4233.46	4233.07	9.31	7.82	179.46	-3560.46	33.32	3561.09	3543.96	207.97	
4300.00	4300.00	4316.91	4316.51	9.53	8.01	179.47	-3559.33	33.21	3559.73	3542.19	202.96	
4400.00	4400.00	4414.86	4414.45	9.75	8.23	179.47	-3558.18	33.06	3558.55	3540.57	197.83	
4500.00	4500.00	4497.67	4497.26	9.98	8.42	179.47	-3557.47	32.81	3557.69	3539.29	193.39	
4600.00	4600.00	4601.12	4600.71	10.20	8.64	179.48	-3556.78	32.40	3557.02	3538.17	188.75	
4700.00	4700.00	4690.24	4689.82	10.43	8.82	179.49	-3556.27	31.94	3556.45	3537.20	184.74	
4800.00	4800.00	4784.70	4784.29	10.65	9.00	179.50	-3555.97	31.26	3556.12	3536.47	181.00	
4900.00	4900.00	4884.61	4884.19	10.88	9.17	179.51	-3555.73	30.33	3555.87	3535.82	177.39	
5000.00	5000.00	4989.97	4989.54	11.10	9.36	179.53	-3555.40	29.12	3555.54	3535.09	173.79	
5100.00	5100.00	5076.87	5076.44	11.33	9.51	179.55	-3555.18	28.10	3555.29	3534.46	170.65	
5200.00	5200.00	5160.02	5159.58	11.55	9.63	179.56	-3555.35	27.16	3555.48	3534.30	167.85	
5300.00	5300.00	5248.57	5248.12	11.78	9.75	179.58	-3555.92	26.24	3556.12	3534.60	165.21	
5400.00	5400.00	5345.77	5345.32	12.00	9.87	179.59	-3556.72	25.35	3556.94	3535.07	162.63	
5500.00	5500.00	5447.99	5447.52	12.23	10.01	179.61	-3557.56	24.16	3557.75	3535.52	160.02	
5600.00	5600.00	5551.93	5551.46	12.45	10.16	179.63	-3558.32	22.86	3558.47	3535.86	157.40	
5700.00	5700.00	5654.95	5654.46	12.68	10.31	179.65	-3558.96	21.72	3559.08	3536.09	154.81	
5800.00	5800.00	5752.24	5751.74	12.90	10.46	179.67	-3559.53	20.77	3559.67	3536.31	152.36	
5900.00	5900.00	5846.81	5846.32	13.13	10.61	179.68	-3560.23	19.89	3560.41	3536.67	150.03	
6000.00	6000.00	5948.04	5947.53	13.35	10.77	179.70	-3561.08	18.77	3561.24	3537.12	147.67	
6100.00	6100.00	6050.95	6050.43	13.58	10.94	179.72	-3561.81	17.51	3561.93	3537.42	145.31	
6200.00	6200.00	6151.69	6151.16	13.80	11.12	179.74	-3562.51	16.10	3562.63	3537.72	142.99	
6300.00	6300.00	6257.85	6257.30	14.03	11.31	179.77	-3563.16	14.46	3563.23	3537.90	140.65	
6400.00	6400.00	6364.99	6364.43	14.25	11.52	179.79	-3563.58	12.80	3563.62	3537.85	138.30	
6500.00	6500.00	6464.39	6463.81	14.47	11.72	179.82	-3563.86	11.23	3563.89	3537.70	136.08	
6600.00	6600.00	6563.29	6562.71	14.70	11.92	179.85	-3564.20	9.61	3564.24	3537.62	133.92	
6700.00	6700.00	6657.95	6657.36	14.92	12.10	179.87	-3564.57	8.28	3564.63	3537.60	131.88	
6800.00	6800.00	6755.54	6754.93	15.15	12.30	179.89	-3565.13	6.92	3565.20	3537.75	129.89	
6900.00	6900.00	6861.71	6861.09	15.37	12.51	179.91	-3565.66	5.32	3565.69	3537.81	127.86	
7000.00	7000.00	6969.74	6969.11	15.60	12.74	179.94	-3565.96	3.57	3565.97	3537.63	125.82	
7100.00	7100.00	7075.46	7074.81	15.82	12.98	179.97	-3566.05	1.87	3566.05	3537.25	123.83	
7200.00	7200.00	7174.84	7174.18	16.05	13.20	180.00	-3566.04	0.29	3566.04	3536.80	121.94	
7300.00	7300.00	7269.43	7268.76	16.27	13.41	180.02	-3566.12	-1.00	3566.13	3536.45	120.16	
7400.00	7400.00	7359.78	7359.10	16.50	13.60	180.03	-3566.39	-1.97	3566.43	3536.33	118.50	
7500.00	7500.00	7443.07	7442.39	16.72	13.77	180.05	-3566.92	-2.91	3567.07	3536.58	116.99	
7600.00	7600.00	7525.97	7525.27	16.95	13.93	180.07	-3567.92	-4.19	3568.27	3537.39	115.55	
7700.00	7700.00	7619.99	7619.27	17.17	14.12	180.09	-3569.31	-5.75	3569.75	3538.46	114.09	
7800.00	7800.00	7713.39	7712.65	17.40	14.30	180.12	-3570.83	-7.27	3571.38	3539.69	112.69	
7900.00	7900.00	7799.36	7798.58	17.62	14.46	180.14	-3572.50	-8.71	3573.33	3541.25	111.39	
8000.00	8000.00	7884.13	7883.32	17.85	14.62	180.16	-3574.49	-10.06	3575.68	3543.22	110.16	
8100.00	8100.00	7963.91	7963.06	18.07	14.76	180.18	-3576.74	-11.22	3578.51	3545.68	109.02	
8200.00	8200.00	8055.91	8055.00	18.30	14.93	180.20	-3579.80	-12.64	3581.84	3548.62	107.84	
8300.00	8300.00	8167.92	8166.93	18.52	15.13	180.23	-3583.41	-14.63	3585.07	3551.42	106.54	
8400.00	8400.00	8281.36	8280.30	18.75	15.36	180.27	-3586.59	-16.88	3587.88	3553.78	105.23	
8500.00	8500.00	8382.46	8381.36	18.97	15.55	180.30	-3589.21	-18.70	3590.48	3555.96	104.01	
8600.00	8600.00	8476.21	8475.06	19.20	15.74	180.32	-3591.71	-20.18	3593.16	3558.23	102.88	



Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis		Offset Location		Cir-Cir Edge		Separation		
MD	IVD	MD	IVD	Ref	Offset	IFO:HS	North	East	Distance	Distance	Factor	Warning
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
8632.60	8632.60	8510.45	8509.28	19.27	15.80	180.33	-3592.67	-20.72	3594.07	3559.00	102.49	
8650.00	8650.00	8536.75	8535.57	19.30	15.86	356.84	-3593.35	-21.16	3594.21	3559.06	102.26	
8675.00	8674.94	8574.50	8573.30	19.34	15.93	356.84	-3594.22	-21.81	3593.22	3558.00	102.01	
8700.00	8699.78	8609.14	8607.94	19.38	16.01	356.83	-3594.90	-22.44	3590.85	3555.59	101.84	
8725.00	8724.42	8637.38	8636.16	19.42	16.07	356.81	-3595.41	-22.94	3587.14	3551.89	101.77	
8750.00	8748.82	8665.34	8664.12	19.46	16.13	356.78	-3595.89	-23.39	3582.12	3546.92	101.77	
8775.00	8772.90	8692.96	8691.73	19.50	16.18	356.73	-3596.33	-23.80	3575.80	3540.69	101.83	
8800.00	8796.59	8717.13	8715.90	19.54	16.24	356.68	-3596.70	-24.13	3568.22	3533.23	101.98	
8825.00	8819.84	8739.84	8738.60	19.58	16.28	356.61	-3597.06	-24.44	3559.40	3524.57	102.19	
8850.00	8842.57	8762.07	8760.82	19.62	16.33	356.52	-3597.41	-24.73	3549.38	3514.74	102.46	
8875.00	8864.72	8783.77	8782.51	19.66	16.37	356.42	-3597.76	-25.01	3538.18	3503.75	102.79	
8900.00	8886.24	8804.57	8803.31	19.70	16.42	356.31	-3598.09	-25.27	3525.83	3491.65	103.17	
8925.00	8907.06	8823.78	8822.52	19.75	16.46	356.17	-3598.41	-25.50	3512.37	3478.47	103.62	
8950.00	8927.13	8842.33	8841.07	19.80	16.49	356.02	-3598.73	-25.70	3497.84	3464.24	104.11	
8975.00	8946.40	8860.18	8858.91	19.86	16.53	355.83	-3599.05	-25.88	3482.28	3449.00	104.63	
9000.00	8964.80	8877.27	8876.00	19.91	16.56	355.62	-3599.36	-26.04	3465.73	3432.78	105.19	
9025.00	8982.30	8893.56	8892.28	19.98	16.60	355.37	-3599.66	-26.18	3448.23	3415.62	105.77	
9050.00	8998.83	8909.21	8907.94	20.05	16.63	355.08	-3599.96	-26.31	3429.83	3397.58	106.36	
9075.00	9014.36	8924.12	8922.84	20.12	16.66	354.73	-3600.24	-26.44	3410.58	3378.68	106.94	
9100.00	9028.85	8938.07	8936.78	20.20	16.69	354.32	-3600.52	-26.56	3390.52	3358.99	107.50	
9125.00	9042.24	8951.02	8949.74	20.29	16.71	353.83	-3600.78	-26.69	3369.73	3338.53	108.02	
9150.00	9054.52	8962.95	8961.66	20.39	16.73	353.22	-3601.02	-26.80	3348.24	3317.37	108.47	
9175.00	9065.64	8973.82	8972.53	20.49	16.76	352.47	-3601.24	-26.92	3326.12	3295.55	108.81	
9200.00	9075.57	8983.59	8982.30	20.60	16.78	351.52	-3601.44	-27.02	3303.43	3273.12	109.00	
9225.00	9084.29	8992.24	8990.95	20.72	16.79	350.28	-3601.62	-27.12	3280.23	3250.13	108.99	
9250.00	9091.77	8999.75	8998.45	20.85	16.81	348.61	-3601.77	-27.20	3256.58	3226.61	108.66	
9275.00	9097.99	9005.87	9004.57	20.98	16.82	346.25	-3601.90	-27.27	3232.55	3202.58	107.86	
9300.00	9102.94	9010.84	9009.54	21.13	16.83	342.70	-3602.01	-27.33	3208.20	3178.01	106.28	
9325.00	9106.59	9014.66	9013.35	21.28	16.84	336.84	-3602.09	-27.37	3183.60	3152.76	103.22	
9350.00	9108.95	9017.30	9015.99	21.44	16.84	325.76	-3602.15	-27.40	3158.82	3126.28	97.10	
9375.09	9110.01	9018.76	9017.45	21.60	16.85	301.23	-3602.18	-27.42	3133.83	3097.47	86.20	
9400.00	9110.40	9019.62	9018.31	21.78	16.85	301.05	-3602.20	-27.43	3108.98	3072.45	85.11	
9500.00	9111.97	9023.08	9021.77	22.54	16.85	300.29	-3602.27	-27.47	3009.25	2971.96	80.69	
9600.00	9113.54	9026.56	9025.26	23.43	16.86	299.51	-3602.35	-27.51	2909.53	2871.36	76.22	
9700.00	9115.12	9030.06	9028.76	24.42	16.87	298.72	-3602.42	-27.54	2809.83	2770.68	71.76	
9800.00	9116.69	9033.59	9032.28	25.50	16.88	297.92	-3602.50	-27.58	2710.14	2669.91	67.36	
9900.00	9118.27	9037.13	9035.82	26.65	16.88	297.09	-3602.58	-27.62	2610.48	2569.08	63.06	
10000.00	9119.84	9040.69	9039.38	27.88	16.89	296.25	-3602.66	-27.66	2510.83	2468.19	58.89	
10100.00	9121.41	9044.27	9042.96	29.17	16.90	295.39	-3602.74	-27.70	2411.21	2367.25	54.86	
10200.00	9122.99	9047.87	9046.56	30.52	16.90	294.51	-3602.82	-27.74	2311.61	2266.28	50.99	
10300.00	9124.56	9051.50	9050.18	31.91	16.91	293.61	-3602.90	-27.77	2212.05	2165.28	47.30	
10400.00	9126.13	9055.14	9053.82	33.34	16.92	292.70	-3602.98	-27.81	2112.52	2064.26	43.77	
10500.00	9127.71	9058.80	9057.49	34.81	16.93	291.77	-3603.07	-27.85	2013.02	1963.23	40.42	
10600.00	9129.28	9062.49	9061.17	36.30	16.93	290.82	-3603.15	-27.89	1913.58	1862.20	37.25	
10700.00	9130.85	9066.20	9064.88	37.83	16.94	289.85	-3603.24	-27.93	1814.18	1761.19	34.23	
10800.00	9132.43	9069.93	9068.60	39.38	16.95	288.86	-3603.32	-27.97	1714.85	1660.20	31.38	
10900.00	9134.00	9073.68	9072.35	40.95	16.96	287.86	-3603.41	-28.00	1615.59	1559.26	28.68	
11000.00	9135.57	9077.45	9076.12	42.55	16.96	286.84	-3603.50	-28.04	1516.42	1458.37	26.12	
11100.00	9137.15	9081.24	9079.92	44.16	16.97	285.80	-3603.59	-28.08	1417.36	1357.57	23.71	
11200.00	9138.72	9085.06	9083.73	45.78	16.98	284.74	-3603.68	-28.12	1318.42	1256.88	21.42	
11300.00	9140.29	9088.90	9087.57	47.42	16.99	283.67	-3603.77	-28.16	1219.65	1156.33	19.26	



Weatherford Anticollision Report



Weatherford

Company: Devon Energy Date: 3/5/2013 Time: 15:09:48 Page: 4
Field: Eddy Co. NM (NAD 83)
Reference Site: Bootes 15 Fed Com 2H Co-ordinate (NE) Reference: Well: Bootes 15 Fed Com 2H Grid North
Reference Well: Bootes 15 Fed Com 2H Vertical (TVD) Reference: SITE 3570.0
Reference Wellpath: Db: Sybase

Site: Exist. Acme 5 Fed Com 1
Well: Exist. Acme 5 Fed Com 1
Wellpath: 1 VO

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis		Offset Location		Ctr-Ctr Edge		Separation	
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft	Warning
11400.00	9141.87	9092.76	9091.43	49.07	16.99	282.58	-3603.86	-28.19	1121.08	1055.97	17.22
11500.00	9143.44	9096.64	9095.32	50.73	17.00	281.47	-3603.95	-28.23	1022.77	955.86	15.29
11600.00	9145.02	9100.57	9099.24	52.40	17.01	280.34	-3604.05	-28.27	924.81	856.09	13.46
11700.00	9146.59	9104.61	9103.28	54.09	17.02	279.17	-3604.15	-28.31	827.32	756.78	11.73
11800.00	9148.16	9108.65	9107.32	55.78	17.02	277.99	-3604.24	-28.35	730.48	658.12	10.10
11900.00	9149.74	9112.70	9111.37	57.47	17.03	276.81	-3604.34	-28.39	634.60	560.42	8.56
12000.00	9151.31	9116.75	9115.41	59.18	17.04	275.61	-3604.44	-28.43	540.18	464.19	7.11
12100.00	9152.88	9120.80	9119.46	60.89	17.05	274.41	-3604.54	-28.47	448.15	370.36	5.76
12200.00	9154.46	9124.85	9123.52	62.61	17.06	273.21	-3604.64	-28.51	360.35	280.77	4.53
12220.83	9154.78	9125.70	9124.36	62.96	17.06	272.96	-3604.66	-28.52	342.90	262.95	4.29
12300.00	9156.03	9128.90	9127.56	64.21	17.07	272.16	-3604.73	-28.55	279.68	198.44	3.44
12400.00	9157.61	9132.90	9131.56	65.58	17.07	270.99	-3604.83	-28.59	211.42	128.77	2.56
12500.00	9159.20	9136.85	9135.51	66.81	17.08	269.72	-3604.93	-28.63	171.26	87.38	2.04
12600.00	9160.78	9140.74	9139.39	67.89	17.09	268.46	-3605.02	-28.67	179.35	94.40	2.11
12688.88	9162.18	9144.13	9142.78	68.73	17.10	267.43	-3605.10	-28.70	223.52	137.77	2.61
12700.00	9162.35	9144.55	9143.20	68.92	17.10	267.29	-3605.11	-28.71	230.67	144.73	2.68
12800.00	9163.92	9148.32	9146.97	70.70	17.10	266.05	-3605.20	-28.74	305.80	218.15	3.49
12900.00	9165.49	9152.10	9150.75	72.49	17.11	264.81	-3605.30	-28.78	392.16	302.83	4.39
13000.00	9167.06	9155.87	9154.52	74.28	17.12	263.57	-3605.39	-28.82	483.77	392.78	5.32
13100.00	9168.63	9159.65	9158.30	76.08	17.13	262.34	-3605.48	-28.86	578.15	485.53	6.24
13200.00	9170.20	9163.42	9162.07	77.89	17.13	261.12	-3605.57	-28.90	674.12	579.91	7.15
13300.00	9171.77	9167.20	9165.85	79.70	17.14	259.90	-3605.66	-28.94	771.11	675.32	8.05
13400.00	9173.34	9170.98	9169.62	81.51	17.15	258.70	-3605.75	-28.98	868.76	771.44	8.93
13500.00	9174.91	9174.75	9173.40	83.33	17.16	257.50	-3605.85	-29.02	966.87	868.05	9.78
13600.00	9176.48	9178.53	9177.17	85.16	17.16	256.31	-3605.94	-29.06	1065.33	965.04	10.62
13700.00	9178.05	9182.30	9180.94	86.99	17.17	255.13	-3606.03	-29.10	1164.03	1062.32	11.44
13800.00	9179.62	9186.08	9184.72	88.82	17.18	253.97	-3606.12	-29.14	1262.93	1159.83	12.25

**Weatherford****Weatherford Drilling Services**

GeoDec v5.03

Report Date: March 04, 2013

Job Number: _____

Customer: Devon

Well Name: Bootes 15 Fed Com 2H

API Number: _____

Rig Name: _____

Location: Eddy Co., NM

Block: _____

Engineer: RWJ

US State Plane 1983

Geodetic Latitude / Longitude

System: New Mexico Eastern Zone

System: Latitude / Longitude

Projection: Transverse Mercator/Gauss Kruger

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: GRS 1980

Ellipsoid: Clarke 1866

North/South 606932.900 USFT

Latitude 32.6674688 DEG

East/West 688851.140 USFT

Longitude -103.8534587 DEG

Grid Convergence: -26° Total Correction: $+7.38^{\circ}$

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 32.66747° N 32° 40 min 2.888 secLongitude = 103.85346° W 103° 51 min 12.451 secMagnetic Declination = 7.64° [True North Offset]

Local Gravity = .9988 g CheckSum = 6703

Local Field Strength = 48669 nT Magnetic Vector X = 23779 nT

Magnetic Dip = 60.46° Magnetic Vector Y = 3188 nT

Magnetic Model = bggm2012 Magnetic Vector Z = 42345 nT

Spud Date = Apr 15, 2013 Magnetic Vector H = 23992 nT

Signed: _____

Date: _____

Weatherford
Wft Plan Report X Y's.

Company: Devon Energy
Field: Eddy Co., NM (NAD 83)
Site: Bootes 15 Fed Com 2H
Well: Bootes 15 Fed Com 2H
Wellpath: 1

Date: 3/5/2013
Co-ordinate(NE) Refer
Vertical (TVD) Refere
Section (VS) Referenc
Survey Calculation Me

Plan: Plan #2

Date Composed:

Version:

Tied-to:

Principal: Yes

Site: Bootes 15 Fed Com 2H

Site Position:	Northings:	606932.90 ft	Latitude:
From: Map	Easting:	688851.14 ft	Longitude: 1
Position Uncertainty: 0.00 ft			North Reference:
Ground Level: 3550.00 ft			Grid Convergence:

Well: Bootes 15 Fed Com 2H

Slot Name:

Well Position: +N/-S 0.00 ft	Northings:	606932.90 ft	Latitude:
+E/-W 0.00 ft	Easting :	688851.14 ft	Longitude: 1
Position Uncertainty: 0.00 ft			

Wellpath: 1

Drilled From:
Tie-on Depth:
Above System Datum
Declination:
Mag Dip Angle:
+E/-W
ft
0.00

Current Datum: SITE	Height 3570.00 ft
Magnetic Data: 4/15/2013	
Field Strength: 48694 nT	
Vertical Section:Depth From (TVD)	+N/-S
ft	ft
0.00	0.00

Plan Section Information

MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100f
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8632.60	0.00	0.00	8632.60	0.00	0.00	0.00	0.00
9375.09	89.10	183.50	9110.01	-469.08	-28.69	12.00	12.00
12220.83	89.10	183.50	9154.78	-3309.16	-202.40	0.00	0.00
12688.88	89.10	169.46	9162.18	-3775.10	-173.72	3.00	0.00
13824.15	89.10	169.46	9180.00	-4891.06	33.98	0.00	0.00

Survey

MD	Incl	Azim	TVD	N/S	E/W	VS	DLS
ft	deg	deg	ft	ft	ft	ft	deg/100ft
8600.00	0.00	0.00	8600.00	0.00	0.00	0.00	0.00
8632.60	0.00	0.00	8632.60	0.00	0.00	0.00	0.00
8650.00	2.09	183.50	8650.00	-0.32	-0.02	0.32	12.00
8675.00	5.09	183.50	8674.94	-1.88	-0.11	1.88	12.00
8700.00	8.09	183.50	8699.78	-4.74	-0.29	4.74	12.00

8725.00	11.09	183.50	8724.42	-8.90	-0.54	8.89	12.00
8750.00	14.09	183.50	8748.82	-14.33	-0.88	14.33	12.00
8775.00	17.09	183.50	8772.90	-21.04	-1.29	21.03	12.00
8800.00	20.09	183.50	8796.59	-28.99	-1.77	28.98	12.00
8825.00	23.09	183.50	8819.84	-38.17	-2.33	38.15	12.00
8850.00	26.09	183.50	8842.57	-48.55	-2.97	48.53	12.00
8875.00	29.09	183.50	8864.72	-60.11	-3.68	60.08	12.00
8900.00	32.09	183.50	8886.24	-72.80	-4.45	72.77	12.00
8925.00	35.09	183.50	8907.06	-86.61	-5.30	86.57	12.00
8950.00	38.09	183.50	8927.13	-101.48	-6.21	101.43	12.00
8975.00	41.09	183.50	8946.40	-117.38	-7.18	117.33	12.00
9000.00	44.09	183.50	8964.80	-134.26	-8.21	134.20	12.00
9025.00	47.09	183.50	8982.30	-152.09	-9.30	152.02	12.00
9050.00	50.09	183.50	8998.83	-170.80	-10.45	170.72	12.00
9075.00	53.09	183.50	9014.36	-190.35	-11.64	190.26	12.00
9100.00	56.09	183.50	9028.85	-210.68	-12.89	210.59	12.00
9125.00	59.09	183.50	9042.24	-231.75	-14.17	231.64	12.00
9150.00	62.09	183.50	9054.52	-253.48	-15.50	253.37	12.00
9175.00	65.09	183.50	9065.64	-275.83	-16.87	275.70	12.00
9200.00	68.09	183.50	9075.57	-298.73	-18.27	298.59	12.00
9225.00	71.09	183.50	9084.29	-322.11	-19.70	321.96	12.00
9250.00	74.09	183.50	9091.77	-345.92	-21.16	345.76	12.00
9275.00	77.09	183.50	9097.99	-370.08	-22.64	369.91	12.00
9300.00	80.09	183.50	9102.94	-394.54	-24.13	394.36	12.00
9325.00	83.09	183.50	9106.59	-419.22	-25.64	419.03	12.00
9350.00	86.09	183.50	9108.95	-444.06	-27.16	443.86	12.00
9375.00	89.10	183.50	9110.01	-469.08	-28.69	468.86	12.00
9400.00	89.10	183.50	9110.40	-493.94	-30.21	493.72	0.00
9500.00	89.10	183.50	9111.97	-593.74	-36.31	593.47	0.00
9600.00	89.10	183.50	9113.54	-693.54	-42.42	693.23	0.00
9700.00	89.10	183.50	9115.12	-793.34	-48.52	792.98	0.00
9800.00	89.10	183.50	9116.69	-893.14	-54.63	892.74	0.00
9900.00	89.10	183.50	9118.27	-992.94	-60.73	992.50	0.00
10000.00	89.10	183.50	9119.84	-1092.75	-66.84	1092.25	0.00
10100.00	89.10	183.50	9121.41	-1192.55	-72.94	1192.01	0.00
10200.00	89.10	183.50	9122.99	-1292.35	-79.04	1291.76	0.00
10300.00	89.10	183.50	9124.56	-1392.15	-85.15	1391.52	0.00
10400.00	89.10	183.50	9126.13	-1491.95	-91.25	1491.28	0.00
10500.00	89.10	183.50	9127.71	-1591.75	-97.36	1591.03	0.00
10600.00	89.10	183.50	9129.28	-1691.55	-103.46	1690.79	0.00
10700.00	89.10	183.50	9130.85	-1791.35	-109.56	1790.55	0.00
10800.00	89.10	183.50	9132.43	-1891.15	-115.67	1890.30	0.00
10900.00	89.10	183.50	9134.00	-1990.96	-121.77	1990.06	0.00
11000.00	89.10	183.50	9135.57	-2090.76	-127.88	2089.81	0.00
11100.00	89.10	183.50	9137.15	-2190.56	-133.98	2189.57	0.00
11200.00	89.10	183.50	9138.72	-2290.36	-140.08	2289.33	0.00
11300.00	89.10	183.50	9140.29	-2390.16	-146.19	2389.08	0.00
11400.00	89.10	183.50	9141.87	-2489.96	-152.29	2488.84	0.00
11500.00	89.10	183.50	9143.44	-2589.76	-158.40	2588.59	0.00
11600.00	89.10	183.50	9145.02	-2689.56	-164.50	2688.35	0.00

11700.00	89.10	183.50	9146.59	-2789.36	-170.60	2788.11	0.00
11800.00	89.10	183.50	9148.16	-2889.17	-176.71	2887.86	0.00
11900.00	89.10	183.50	9149.74	-2988.97	-182.81	2987.62	0.00
12000.00	89.10	183.50	9151.31	-3088.77	-188.92	3087.37	0.00
12100.00	89.10	183.50	9152.88	-3188.57	-195.02	3187.13	0.00
12200.00	89.10	183.50	9154.46	-3288.37	-201.13	3286.89	0.00
12220.83	89.10	183.50	9154.78	-3309.16	-202.40	3307.67	0.00
12300.00	89.09	181.12	9156.03	-3388.25	-205.59	3386.73	3.00
12400.00	89.09	178.12	9157.61	-3488.22	-204.93	3486.71	3.00
12500.00	89.09	175.12	9159.20	-3588.03	-199.05	3586.55	3.00
12600.00	89.10	172.12	9160.78	-3687.38	-187.94	3685.98	3.00
12688.88	89.10	169.46	9162.18	-3775.10	-173.72	3773.79	3.00
12700.00	89.10	169.46	9162.35	-3786.03	-171.69	3784.74	0.00
12800.00	89.10	169.46	9163.92	-3884.33	-153.39	3883.16	0.00
12900.00	89.10	169.46	9165.49	-3982.63	-135.10	3981.59	0.00
13000.00	89.10	169.46	9167.06	-4080.93	-116.80	4080.01	0.00
13100.00	89.10	169.46	9168.63	-4179.23	-98.51	4178.44	0.00
13200.00	89.10	169.46	9170.20	-4277.53	-80.21	4276.86	0.00
13300.00	89.10	169.46	9171.77	-4375.83	-61.91	4375.29	0.00
13400.00	89.10	169.46	9173.34	-4474.13	-43.62	4473.71	0.00
13500.00	89.10	169.46	9174.91	-4572.43	-25.32	4572.14	0.00
13600.00	89.10	169.46	9176.48	-4670.73	-7.03	4670.56	0.00
13700.00	89.10	169.46	9178.05	-4769.03	11.27	4768.99	0.00
13800.00	89.10	169.46	9179.62	-4867.33	29.56	4867.41	0.00
13824.15	89.10	169.46	9180.00	-4891.06	33.98	4891.18	0.00

Targets

Name	Description		TVD	+N/-S	+E/-W	Map Northing	M Ea
	Dip.	Dir.	ft	ft	ft	ft	
LP	0.90	183.50	9110.00	-469.08	-28.69	606463.82	688
-Rectangle	(3000x50)						
PBHL	0.90	170.00	9180.00	-4891.06	33.98	602041.84	688
-Rectangle	(1450x50)						

Casing Points

MD	TVD	Diameter	Hole Size	Name
----	-----	----------	-----------	------

Annotation

MD ft	TVD ft	
8632.60	8632.60	KOP
9375.09	9110.01	LP
12220.83	9154.78	Turn
12688.88	9162.18	Hold
13824.14	9180.00	PBHL

CONDITIONS OF APPROVAL

Sundry dated 3/8/2013

OPERATOR'S NAME:	Devon Energy Production Co., LP
LEASE NO.:	NM-102040
WELL NAME & NO.:	Bootes 15 Fed Com #2H -30-015-40408
SURFACE HOLE FOOTAGE:	50' FNL & 1650' FEL
BOTTOM HOLE FOOTAGE:	340' FSL & 1900' FEL
LOCATION:	Section 15, T. 19 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

Original COA still applies with the following changes:

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

**Possible water and brine flows in the Salado and Artesia groups.
Possible lost circulation in the Artesia group and Capitan Reef.**

1. The **20 inch** surface casing shall be set at **approximately 660 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **13-3/8-inch 1st** intermediate casing **which shall be set at approximately 2600' as per sundry, is:**

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef.**

3. The minimum required fill of cement behind the **9-5/8 inch 2nd** intermediate casing **which shall be set at approximately 4500' as per sundry, is:**

Note: DV tool shall be set a minimum of 50 feet below previous casing shoe.

- a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

- b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement shall be required as excess calculates to 20%. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef.**

Positive standoff centralizers shall be utilized for the production string every other joint of casing from 100' MD above KOP or at the legal footage setback, whichever is the deeper MD, up to TOC.

4. The minimum required fill of cement behind the **5-1/2 inch** production casing is:

Note: DV tool shall be set a minimum of 50 feet below previous casing shoe

- a. First stage to DV tool, cement shall:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage..

- b. Second stage above DV tool, cement shall:

☒ Cement should tie-back a minimum of **200 feet** above the Capitan Reef. Operator shall provide method of verification.

5. If handband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

A. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17. **For H&P rigs – the stump test is not an approved BOP test. Equipment shall be tested when mounted on well head.**
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi. Operator has proposed a 20" 2M Annular preventer for drilling below the surface casing shoe, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** inch intermediate casing shoe shall be **3000 (3M) psi.**
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.** The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to

Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- c. The results of the test shall be reported to the appropriate BLM office.
- d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

B. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

C. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

EGF 032513