

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		5. Lease Serial No. NMNM0503
2. Name of Operator DEVON ENERGY PRODUCTION CO LP		6. If Indian, Allottee or Tribe Name
Contact: ERIN L WORKMAN Email: ERIN.WORKMAN@DVN.COM		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 333 WEST SHERIDAN AVE OKLAHOMA CITY, OK 73102	3b. Phone No. (include area code) Ph: 405-552-7970	8. Well Name and No. COTTON DRAW 15 FED 2H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 15 T25S R31E NWNE 330FNL 2030FEL		9. API Well No. 30-015-40748-00-X1
		10. Field and Pool, or Exploratory UNDESIGNATED Paduca B.S.
		11. County or Parish, and State EDDY COUNTY, NM

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

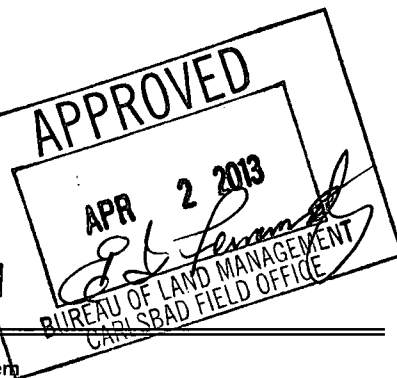
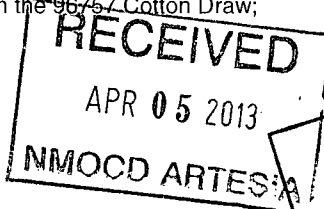
TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ 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 recompleat 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 recompleat 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 Co., LP respectfully requests to change from the 96757 Cotton Draw; Delaware, South to the 2nd Bone Spring.

Attachments: Directional & Drilling Plans

SEE ATTACHED FOR
CONDITIONS OF APPROVAL



Accepted for record
NMOC D

14. I hereby certify that the foregoing is true and correct. Electronic Submission #202609 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 03/27/2013 (13KMS5715SE)	
Name (Printed/Typed) ERIN L WORKMAN	Title REGULATORY COMPLIANCE ASSOC.
Signature (Electronic Submission)	Date 03/26/2013

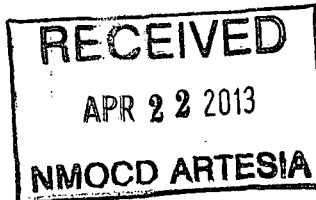
THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By EDWARD FERNANDEZ	Title PETROLEUM ENGINEER	Date 04/02/2013
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
1220 S. Francis Dr., Santa Fe, NM 87505
Phone: (505) 992-4441 Fax: (505) 992-0720
DISTRICT II
111 E. First St., Santa Fe, NM 87501
Phone: (505) 992-0881 Fax: (505) 992-0720
DISTRICT III
1220 S. Francis Dr., Santa Fe, NM 87505
Phone: (505) 992-4441 Fax: (505) 992-0720
DISTRICT IV
1220 S. Francis Dr., Santa Fe, NM 87505
Phone: (505) 992-4441 Fax: (505) 992-0720

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-40748	Pool Code 96641	Pool Name Paduca; Bone Spring
Property Code 39469	Property Name COTTON DRAW 15 FED	Well Number 2H
OGRIID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, LP	Elevation 3383.5'

Surface Location

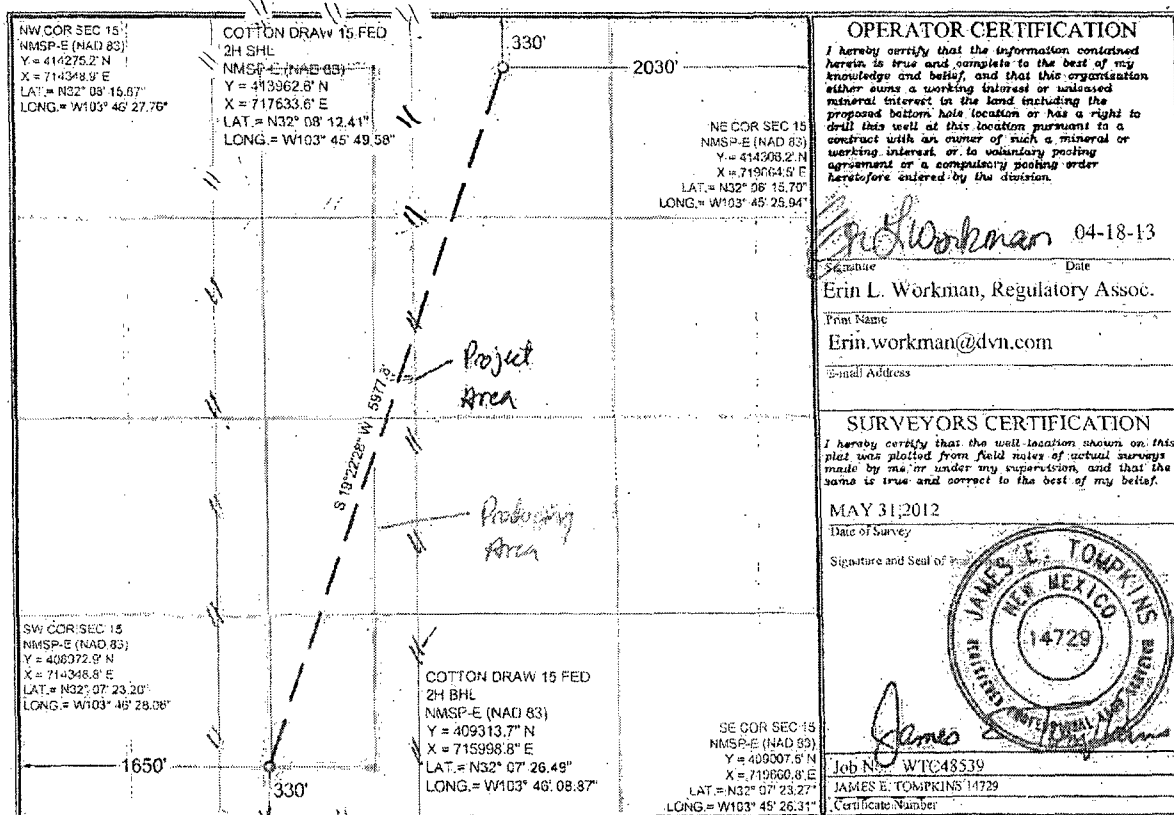
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	15	25 S	31 E		330	NORTH	2030	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	15	25 S	31 E		330	SOUTH	1650	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
160			

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.



Cotton Draw 15 Fed Com 2H -- APD DRILLING PLAN
JSL 03-18-2013

Casing Program

See
COA

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0 - 875	13-3/8"	0 - 875	48#	STC	H-40
12-1/4"	875 - 4,500	9-5/8"	0 - 4,500	54.5#	BTC	HCK-55
8-3/4"	4,500 - 9,500	5-1/2"	0 - 9,500	17#	LTC	HCP-110
8-3/4"	9,500 - 14,987	5-1/2"	9,500 - 14,987	17#	BTC	HCP-110

Note: only new casing will be utilized

MAXIMUM LATERAL TVD 10,407

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Design Factors:

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
13-3/8", 48#, H-40, ST&C	1.98	4.44	8.94
9-5/8", 54.5#, HCK-55 BTC	1.81	1.69	21.94
5-1/2" 17# HCP-110 LTC	1.68	2.40	3.38
5-1/2" 17# HCP-110 BTC	1.53	2.19	2.14

Mud Program:

See
COA

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0 - 875	8.4 - 9.0	30 - 34	N/C	FW
875 - 4,500	9.8 - 10.0	28 - 32	N/C	Brine
4,500 - 14,987	8.6 - 9.0	28 - 32	N/C-12	FW

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Pressure Control Equipment: * See COA

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

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

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. 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 5,000 psi WP.

See
COA

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.

Cementing Program (cement volumes based on 100 % excess Surface, 50% excess Intermediate and at least 25% excess Production)

13-3/8" Surface	875 ft	Lead: 300 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E-Flake + 4% bwoc Bentonite + 70.1% Fresh Water, 13.5 ppg Yield: 1.75 cf/sk TOC @ surface 500 ft Tail: 515 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E-Flake + 63.1% Fresh Water, 14.8 ppg Yield: 1.35 cf/sk
9-5/8" Intermediate	4500 ft	Lead: 900 sacks (65:35) Class C Cement:Poz (Fly Ash): + 5% bwow Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 6% bwoc Bentonite + 70.9% Fresh Water, 12.9 ppg Yield: 1.85 cf/sk TOC @ surface Tail: 360 sacks Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.5% Water, 14.8 ppg Yield: 1.33 cf/sk
5-1/2" Production	14956 ft.	3000 1st Lead: 380 sacks (50:50) Class H Cement:Poz (Fly Ash) + 10% bwoc Bentonite + 8 lb/sk Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 0.3% bwoc HR-601 + 0.3% bwoc Econolite + 77.2% Fresh Water, 11.8 ppg Yield: 2.52 cf/sk 2300 2nd Lead: 375sacks (65:35) Class H Cement:Poz (Fly Ash) + 6% bwoc Bentonite + 0.125 lbs/sack Poly-E-Flake + 0.1% bwoc HR-601 + 74.1% Fresh Water, 12.5 ppg Yield: 1.95 cf/sk 5700 ft. Tail: 1475 sacks (50:50) Class H Cement:Poz (Fly Ash) + 1 lb/sk Sodium Chloride + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.1% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water, 14.5 ppg Yield: 1.22 cf/sk

TOC for All Strings:

Surface:	0
Intermediate:	0
Production:	4000. ft

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

DEVON ENERGY

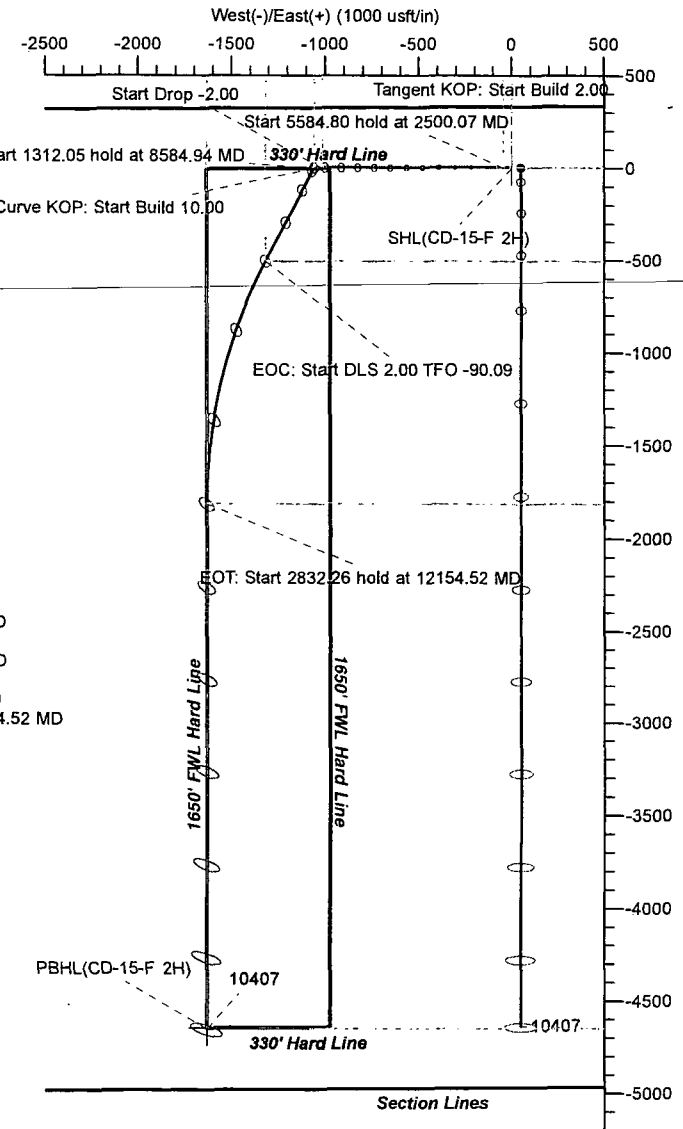
Project: Eddy County, NM (NAD-83)
 Site: Cotton Draw
 Well: 15 Fed Com 2H
 Wellbore: OH
 Design: Plan #1



Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 7.15°

Magnetic Field
 Strength: 48366.5snT
 Dip Angle: 60.03°
 Date: 03/21/2013
 Model: IGRF2010

devon

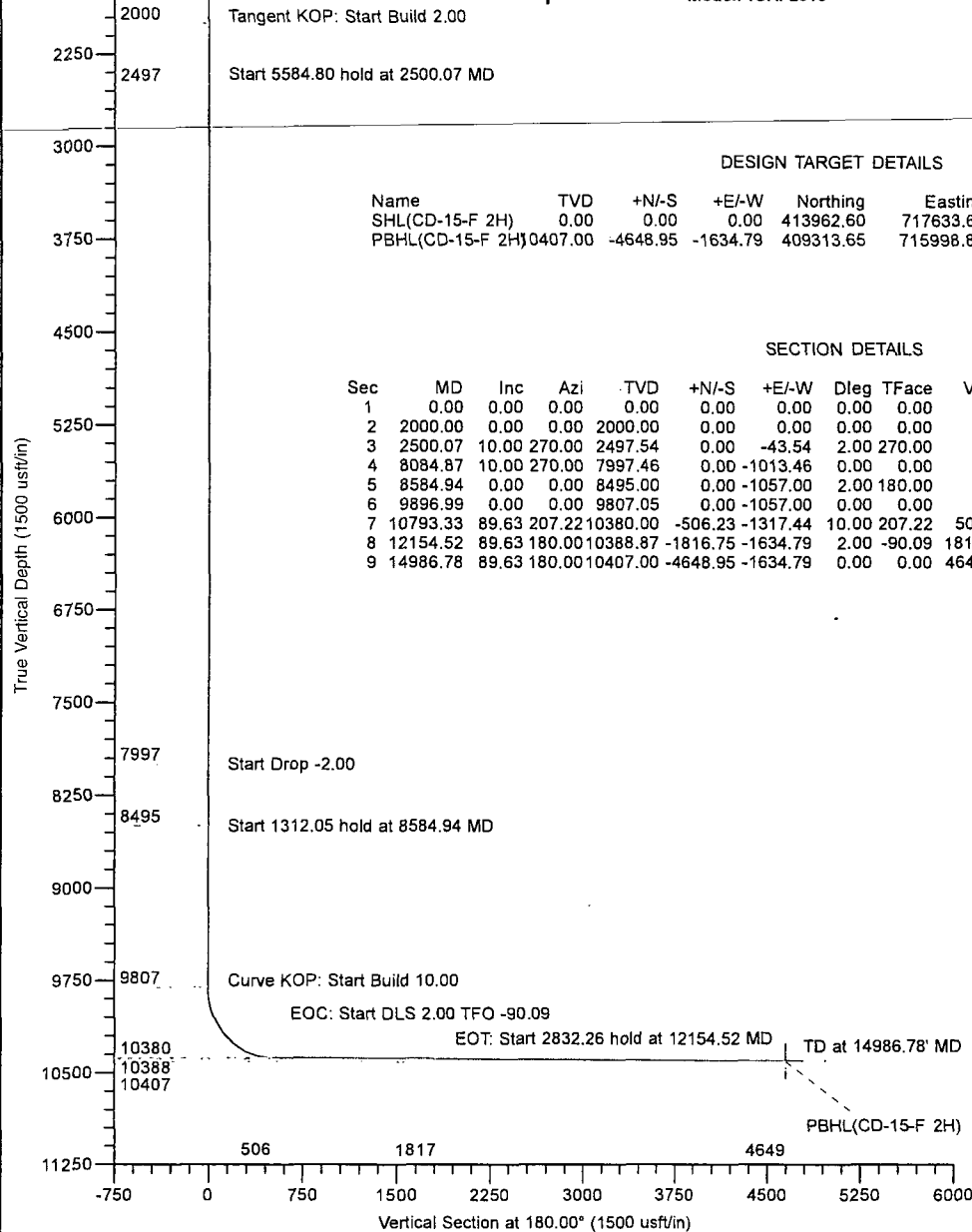


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL(CD-15-F 2H)	0.00	0.00	0.00	413962.60	717633.60	32° 8' 12.410 N	103° 45' 49.577 W
PBHL(CD-15-F 2H)	0407.00	-4648.95	-1634.79	409313.65	715998.81	32° 7' 26.490 N	103° 46' 8.873 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	Tangent KOP: Start Build 2.00
3	2500.07	10.00	270.00	2497.54	0.00	-43.54	2.00	270.00	0.00	Start 5584.80 hold at 2500.07 MD
4	8084.87	10.00	270.00	7997.46	0.00	-1013.46	0.00	0.00	0.02	Start Drop -2.00
5	8584.94	0.00	0.00	8495.00	0.00	-1057.00	2.00	180.00	0.02	Start 1312.05 hold at 8584.94 MD
6	9896.99	0.00	0.00	9807.05	0.00	-1057.00	0.00	0.00	0.02	Curve KOP: Start Build 10.00
7	10793.33	89.63	207.22	10380.00	-506.23	-1317.44	10.00	207.22	506.26	EOC: Start DLS 2.00 TFO -90.09
8	12154.52	89.63	180.00	10388.87	-1816.75	-1634.79	2.00	-90.09	1816.78	EOT: Start 2832.26 hold at 12154.52 MD
9	14986.78	89.63	180.00	10407.00	-4648.95	-1634.79	0.00	0.00	4648.98	TD at 14986.78' MD



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #1 (15 Fed Com 2H/OH)
 Cotton Draw
 Created By: Tyler Carlson Date: 16:18, March 21 2013
 Date: _____
 Approved: _____ Date: _____

LEAM Drilling Systems LLC

Planning Report

Database:	EDM:5000.1 Single User Db	Local Co-ordinate Reference:	Well: 15 Fed Com 2H
Company:	DEVON ENERGY	TVD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Project:	Eddy County, NM (NAD:83)	MD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Site:	Cotton Draw	North Reference:	Grid
Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project:	Eddy County, NM (NAD:83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Cotton Draw		
Site Position:		Northing:	413,963.10 usft
From:	Map	Easting:	717,683.70 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 8' 12.412 N
		Longitude:	103° 45' 48.994 W
		Grid Convergence:	0.30 °

Well:	15 Fed Com 2H		
Well Position	+N-S	-0.50 usft	Northing: 413,962.60 usft
	+E-W	-50.10 usft	Easting: 717,633.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,409.00 usft
		Latitude:	32° 8' 12.410 N
		Longitude:	103° 45' 49.577 W
		Ground Level:	

Wellbore:	OH		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	03/21/13	(°)	(°)	(nT)
			7.45	60.03	48,366

Design:	Plan #1		
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Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00

Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	180.00

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.07	10.00	270.00	2,497.54	0.00	-43.54	2.00	2.00	0.00	270.00	
8,084.87	10.00	270.00	7,997.46	0.00	-1,013.46	0.00	0.00	0.00	0.00	
8,584.94	0.00	0.00	8,495.00	0.00	-1,057.00	2.00	-2.00	0.00	180.00	
9,896.99	0.00	0.00	9,807.05	0.00	-1,057.00	0.00	0.00	0.00	0.00	
10,793.33	89.63	207.22	10,380.00	-506.23	-1,317.44	10.00	10.00	0.00	207.22	
12,154.52	89.63	180.00	10,388.87	-1,816.75	-1,634.79	2.00	0.00	-2.00	-90.09	
14,986.78	89.63	180.00	10,407.00	-4,648.95	-1,634.79	0.00	0.00	0.00	0.00	PBHL(CD-15-F 2H)

LEAM Drilling Systems LLC

Planning Report

Database	EDM 5000.1 Single User Db	Local Co-ordinate Reference	Well 15 Fed.Com 2H
Company	DEVON ENERGY	TVD Reference	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Project	Eddy County NM (NAD-83)	MD Reference	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Site	Cotton Draw	North Reference	Grid
Well	15 Fed.Com 2H	Survey Calculation Method	Minimum Curvature
Wellbore	OH		
Design	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (%/100usft)	Build Rate (%/100usft)	Turn Rate (%/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
Tangent KOP: Start Build 2.00										
2,100.00	2.00	270.00	2,099.98	0.00	-1.75	0.00	2.00	2.00	0.00	
2,200.00	4.00	270.00	2,199.84	0.00	-6.98	0.00	2.00	2.00	0.00	
2,300.00	6.00	270.00	2,299.45	0.00	-15.69	0.00	2.00	2.00	0.00	
2,400.00	8.00	270.00	2,398.70	0.00	-27.88	0.00	2.00	2.00	0.00	
2,500.07	10.00	270.00	2,497.54	0.00	-43.54	0.00	2.00	2.00	0.00	
Start 5684.80 hold at 2500.07 MD										
2,600.00	10.00	270.00	2,595.95	0.00	-60.89	0.00	0.00	0.00	0.00	
2,700.00	10.00	270.00	2,694.43	0.00	-78.26	0.00	0.00	0.00	0.00	
2,800.00	10.00	270.00	2,792.91	0.00	-95.62	0.00	0.00	0.00	0.00	
2,900.00	10.00	270.00	2,891.39	0.00	-112.99	0.00	0.00	0.00	0.00	
3,000.00	10.00	270.00	2,989.87	0.00	-130.36	0.00	0.00	0.00	0.00	
3,100.00	10.00	270.00	3,088.35	0.00	-147.73	0.00	0.00	0.00	0.00	
3,200.00	10.00	270.00	3,186.83	0.00	-165.09	0.00	0.00	0.00	0.00	
3,300.00	10.00	270.00	3,285.31	0.00	-182.46	0.00	0.00	0.00	0.00	
3,400.00	10.00	270.00	3,383.79	0.00	-199.83	0.00	0.00	0.00	0.00	
3,500.00	10.00	270.00	3,482.27	0.00	-217.20	0.00	0.00	0.00	0.00	
3,600.00	10.00	270.00	3,580.75	0.00	-234.56	0.00	0.00	0.00	0.00	
3,700.00	10.00	270.00	3,679.23	0.00	-251.93	0.00	0.00	0.00	0.00	
3,800.00	10.00	270.00	3,777.71	0.00	-269.30	0.01	0.00	0.00	0.00	
3,900.00	10.00	270.00	3,876.19	0.00	-286.67	0.01	0.00	0.00	0.00	
4,000.00	10.00	270.00	3,974.67	0.00	-304.03	0.01	0.00	0.00	0.00	
4,100.00	10.00	270.00	4,073.15	0.00	-321.40	0.01	0.00	0.00	0.00	
4,200.00	10.00	270.00	4,171.63	0.00	-338.77	0.01	0.00	0.00	0.00	
4,300.00	10.00	270.00	4,270.11	0.00	-356.13	0.01	0.00	0.00	0.00	
4,400.00	10.00	270.00	4,368.59	0.00	-373.50	0.01	0.00	0.00	0.00	
4,500.00	10.00	270.00	4,467.07	0.00	-390.87	0.01	0.00	0.00	0.00	
4,600.00	10.00	270.00	4,565.55	0.00	-408.24	0.01	0.00	0.00	0.00	
4,700.00	10.00	270.00	4,664.03	0.00	-425.60	0.01	0.00	0.00	0.00	
4,800.00	10.00	270.00	4,762.51	0.00	-442.97	0.01	0.00	0.00	0.00	
4,900.00	10.00	270.00	4,860.99	0.00	-460.34	0.01	0.00	0.00	0.00	
5,000.00	10.00	270.00	4,959.47	0.00	-477.71	0.01	0.00	0.00	0.00	
5,100.00	10.00	270.00	5,057.95	0.00	-495.07	0.01	0.00	0.00	0.00	

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15 Fed Com 2H
Company:	DEVON ENERGY	TVD Reference:	GE 3384 + KB 25 @ 3409.00usft (Permitting)
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3384 + KB 25 @ 3409.00usft (Permitting)
Site:	Cotton Draw	North Reference:	Grid
Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	N-S (usft)	E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.00	10.00	270.00	5,156.43	0.00	-512.44	0.01	0.00	0.00	0.00
5,300.00	10.00	270.00	5,254.91	0.00	-529.81	0.01	0.00	0.00	0.00
5,400.00	10.00	270.00	5,353.40	0.00	-547.17	0.01	0.00	0.00	0.00
5,500.00	10.00	270.00	5,451.88	0.00	-564.54	0.01	0.00	0.00	0.00
5,600.00	10.00	270.00	5,550.36	0.00	-581.91	0.01	0.00	0.00	0.00
5,700.00	10.00	270.00	5,648.84	0.00	-599.28	0.01	0.00	0.00	0.00
5,800.00	10.00	270.00	5,747.32	0.00	-616.64	0.01	0.00	0.00	0.00
5,900.00	10.00	270.00	5,845.80	0.00	-634.01	0.01	0.00	0.00	0.00
6,000.00	10.00	270.00	5,944.28	0.00	-651.38	0.01	0.00	0.00	0.00
6,100.00	10.00	270.00	6,042.76	0.00	-668.75	0.01	0.00	0.00	0.00
6,200.00	10.00	270.00	6,141.24	0.00	-686.11	0.01	0.00	0.00	0.00
6,300.00	10.00	270.00	6,239.72	0.00	-703.48	0.01	0.00	0.00	0.00
6,400.00	10.00	270.00	6,338.20	0.00	-720.85	0.01	0.00	0.00	0.00
6,500.00	10.00	270.00	6,436.68	0.00	-738.22	0.01	0.00	0.00	0.00
6,600.00	10.00	270.00	6,535.16	0.00	-755.58	0.01	0.00	0.00	0.00
6,700.00	10.00	270.00	6,633.64	0.00	-772.95	0.01	0.00	0.00	0.00
6,800.00	10.00	270.00	6,732.12	0.00	-790.32	0.01	0.00	0.00	0.00
6,900.00	10.00	270.00	6,830.60	0.00	-807.68	0.02	0.00	0.00	0.00
7,000.00	10.00	270.00	6,929.08	0.00	-825.05	0.02	0.00	0.00	0.00
7,100.00	10.00	270.00	7,027.56	0.00	-842.42	0.02	0.00	0.00	0.00
7,200.00	10.00	270.00	7,126.04	0.00	-859.79	0.02	0.00	0.00	0.00
7,300.00	10.00	270.00	7,224.52	0.00	-877.15	0.02	0.00	0.00	0.00
7,400.00	10.00	270.00	7,323.00	0.00	-894.52	0.02	0.00	0.00	0.00
7,500.00	10.00	270.00	7,421.48	0.00	-911.89	0.02	0.00	0.00	0.00
7,600.00	10.00	270.00	7,519.96	0.00	-929.26	0.02	0.00	0.00	0.00
7,700.00	10.00	270.00	7,618.44	0.00	-946.62	0.02	0.00	0.00	0.00
7,800.00	10.00	270.00	7,716.92	0.00	-963.99	0.02	0.00	0.00	0.00
7,900.00	10.00	270.00	7,815.40	0.00	-981.36	0.02	0.00	0.00	0.00
8,000.00	10.00	270.00	7,913.88	0.00	-998.73	0.02	0.00	0.00	0.00
8,084.87	10.00	270.00	7,997.46	0.00	-1,013.46	0.02	0.00	0.00	0.00
Start Drop -2.00									
8,100.00	9.70	270.00	8,012.37	0.00	-1,016.05	0.02	2.00	-2.00	0.00
8,200.00	7.70	270.00	8,111.22	0.00	-1,031.18	0.02	2.00	-2.00	0.00
8,300.00	5.70	270.00	8,210.53	0.00	-1,042.84	0.02	2.00	-2.00	0.00
8,400.00	3.70	270.00	8,310.19	0.00	-1,051.03	0.02	2.00	-2.00	0.00
8,500.00	1.70	270.00	8,410.07	0.00	-1,055.74	0.02	2.00	-2.00	0.00
8,584.94	0.00	0.00	8,495.00	0.00	-1,057.00	0.02	2.00	-2.00	0.00
Start 1312.05 hold at 8584.94 MD									
8,600.00	0.00	0.00	8,510.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
8,700.00	0.00	0.00	8,610.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
8,800.00	0.00	0.00	8,710.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
8,900.00	0.00	0.00	8,810.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,000.00	0.00	0.00	8,910.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,100.00	0.00	0.00	9,010.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,200.00	0.00	0.00	9,110.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,300.00	0.00	0.00	9,210.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,400.00	0.00	0.00	9,310.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,500.00	0.00	0.00	9,410.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,600.00	0.00	0.00	9,510.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,700.00	0.00	0.00	9,610.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,800.00	0.00	0.00	9,710.06	0.00	-1,057.00	0.02	0.00	0.00	0.00
9,896.99	0.00	0.00	9,807.05	0.00	-1,057.00	0.02	0.00	0.00	0.00
Curve KOP Start Build 10.00									

LEAM Drilling Systems LLC

Planning Report

Database	EDM 5000.1 Single User Db	Local Co-ordinate Reference	Well 15/Fed Com 2H
Company	DEVON ENERGY	TVD Reference	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Project	Eddy County, NM (NAD-83)	MD Reference	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Site	Cotton Draw	North Reference	Grid
Well	15/Fed Com 2H	Survey Calculation Method	Minimum Curvature
Wellbore	OH		
Design	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,900.00	0.30	207.22	9,810.06	-0.01	-1,057.00	0.03	10.00	10.00	0.00	
9,950.00	5.30	207.22	9,859.98	-2.18	-1,058.12	2.20	10.00	10.00	0.00	
10,000.00	10.30	207.22	9,909.50	-8.21	-1,061.22	8.23	10.00	10.00	0.00	
10,050.00	15.30	207.22	9,958.25	-18.06	-1,066.29	18.08	10.00	10.00	0.00	
10,100.00	20.30	207.22	10,005.84	-31.65	-1,073.28	31.67	10.00	10.00	0.00	
10,150.00	25.30	207.22	10,051.92	-48.87	-1,082.14	48.89	10.00	10.00	0.00	
10,200.00	30.30	207.22	10,096.13	-69.60	-1,092.81	69.62	10.00	10.00	0.00	
10,250.00	35.30	207.22	10,138.15	-93.68	-1,105.20	93.70	10.00	10.00	0.00	
10,300.00	40.30	207.22	10,177.64	-120.92	-1,119.21	120.94	10.00	10.00	0.00	
10,350.00	45.30	207.22	10,214.31	-151.12	-1,134.75	151.14	10.00	10.00	0.00	
10,400.00	50.30	207.22	10,247.89	-184.05	-1,151.69	184.07	10.00	10.00	0.00	
10,450.00	55.30	207.22	10,278.11	-219.45	-1,169.90	219.47	10.00	10.00	0.00	
10,500.00	60.30	207.22	10,304.74	-257.06	-1,189.25	257.09	10.00	10.00	0.00	
10,550.00	65.30	207.22	10,327.59	-296.60	-1,209.59	296.62	10.00	10.00	0.00	
10,600.00	70.30	207.22	10,346.48	-337.75	-1,230.76	337.77	10.00	10.00	0.00	
10,650.00	75.30	207.22	10,361.26	-380.21	-1,252.61	380.23	10.00	10.00	0.00	
10,700.00	80.30	207.22	10,371.82	-423.65	-1,274.96	423.67	10.00	10.00	0.00	
10,750.00	85.30	207.22	10,378.08	-467.75	-1,297.64	467.77	10.00	10.00	0.00	
10,793.33	89.63	207.22	10,380.00	-506.23	-1,317.44	506.26	10.00	10.00	0.00	
EOC: Start DLS 2.00 TFO 90.09										
10,800.00	89.63	207.09	10,380.04	-512.16	-1,320.48	512.19	2.00	0.00	-2.00	
10,900.00	89.63	205.09	10,380.68	-601.97	-1,364.46	601.99	2.00	0.00	-2.00	
11,000.00	89.63	203.09	10,381.33	-693.25	-1,405.28	693.28	2.00	0.00	-2.00	
11,100.00	89.63	201.09	10,381.98	-785.90	-1,442.88	785.93	2.00	0.00	-2.00	
11,200.00	89.62	199.09	10,382.63	-879.81	-1,477.23	879.84	2.00	0.00	-2.00	
11,300.00	89.62	197.09	10,383.29	-974.86	-1,508.28	974.89	2.00	0.00	-2.00	
11,400.00	89.62	195.09	10,383.94	-1,070.94	-1,536.00	1,070.96	2.00	0.00	-2.00	
11,500.00	89.62	193.09	10,384.60	-1,167.92	-1,560.34	1,167.95	2.00	0.00	-2.00	
11,600.00	89.62	191.09	10,385.26	-1,265.69	-1,581.29	1,265.72	2.00	0.00	-2.00	
11,700.00	89.62	189.09	10,385.92	-1,364.14	-1,598.80	1,364.17	2.00	0.00	-2.00	
11,800.00	89.63	187.09	10,386.57	-1,463.14	-1,612.88	1,463.17	2.00	0.00	-2.00	
11,900.00	89.63	185.09	10,387.22	-1,562.57	-1,623.49	1,562.60	2.00	0.00	-2.00	
12,000.00	89.63	183.09	10,387.87	-1,662.30	-1,630.62	1,662.34	2.00	0.00	-2.00	
12,100.00	89.63	181.09	10,388.52	-1,762.23	-1,634.27	1,762.26	2.00	0.00	-2.00	
12,154.52	89.63	180.00	10,388.87	-1,816.75	-1,634.79	1,816.78	2.00	0.00	-2.00	
EOI: Start 2832:26 hold at 12154:52 MD										
12,200.00	89.63	180.00	10,389.16	-1,862.23	-1,634.79	1,862.26	0.00	0.00	0.00	
12,300.00	89.63	180.00	10,389.80	-1,962.22	-1,634.79	1,962.25	0.00	0.00	0.00	
12,400.00	89.63	180.00	10,390.44	-2,062.22	-1,634.79	2,062.25	0.00	0.00	0.00	
12,500.00	89.63	180.00	10,391.08	-2,162.22	-1,634.79	2,162.25	0.00	0.00	0.00	
12,600.00	89.63	180.00	10,391.72	-2,262.22	-1,634.79	2,262.25	0.00	0.00	0.00	
12,700.00	89.63	180.00	10,392.36	-2,362.22	-1,634.79	2,362.25	0.00	0.00	0.00	
12,800.00	89.63	180.00	10,393.00	-2,462.21	-1,634.79	2,462.24	0.00	0.00	0.00	
12,900.00	89.63	180.00	10,393.64	-2,562.21	-1,634.79	2,562.24	0.00	0.00	0.00	
13,000.00	89.63	180.00	10,394.28	-2,662.21	-1,634.79	2,662.24	0.00	0.00	0.00	
13,100.00	89.63	180.00	10,394.92	-2,762.21	-1,634.79	2,762.24	0.00	0.00	0.00	
13,200.00	89.63	180.00	10,395.56	-2,862.21	-1,634.79	2,862.24	0.00	0.00	0.00	
13,300.00	89.63	180.00	10,396.20	-2,962.20	-1,634.79	2,962.23	0.00	0.00	0.00	
13,400.00	89.63	180.00	10,396.84	-3,062.20	-1,634.79	3,062.23	0.00	0.00	0.00	
13,500.00	89.63	180.00	10,397.48	-3,162.20	-1,634.79	3,162.23	0.00	0.00	0.00	
13,600.00	89.63	180.00	10,398.12	-3,262.20	-1,634.79	3,262.23	0.00	0.00	0.00	
13,700.00	89.63	180.00	10,398.76	-3,362.19	-1,634.79	3,362.23	0.00	0.00	0.00	
13,800.00	89.63	180.00	10,399.40	-3,462.19	-1,634.79	3,462.22	0.00	0.00	0.00	
13,900.00	89.63	180.00	10,400.04	-3,562.19	-1,634.79	3,562.22	0.00	0.00	0.00	

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15 Fed Com 2H
Company:	DEVON ENERGY	TVD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Site:	Cotton Draw	North Reference:	Grid
Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (%/100usft)	Build Rate (%/100usft)	Turn Rate (%/100usft)	
14,000.00	89.63	180.00	10,400.68	-3,662.19	-1,634.79	3,662.22	0.00	0.00	0.00	
14,100.00	89.63	180.00	10,401.32	-3,762.19	-1,634.79	3,762.22	0.00	0.00	0.00	
14,200.00	89.63	180.00	10,401.96	-3,862.18	-1,634.79	3,862.22	0.00	0.00	0.00	
14,300.00	89.63	180.00	10,402.60	-3,962.18	-1,634.79	3,962.21	0.00	0.00	0.00	
14,400.00	89.63	180.00	10,403.24	-4,062.18	-1,634.79	4,062.21	0.00	0.00	0.00	
14,500.00	89.63	180.00	10,403.88	-4,162.18	-1,634.79	4,162.21	0.00	0.00	0.00	
14,600.00	89.63	180.00	10,404.52	-4,262.18	-1,634.79	4,262.21	0.00	0.00	0.00	
14,700.00	89.63	180.00	10,405.16	-4,362.17	-1,634.79	4,362.21	0.00	0.00	0.00	
14,800.00	89.63	180.00	10,405.80	-4,462.17	-1,634.79	4,462.20	0.00	0.00	0.00	
14,900.00	89.63	180.00	10,406.44	-4,562.17	-1,634.79	4,562.20	0.00	0.00	0.00	
14,986.78	89.63	180.00	10,407.00	-4,648.95	-1,634.79	4,648.98	0.00	0.00	0.00	
TD at 14986.78' MD										

Design Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/S (usft)	+E/W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL(CD-15-F 2H)	- plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	413,962.60	717,633.60	32° 8' 12.410 N	103° 45' 49.577 W
PBHL(CD-15-F 2H)	- plan hits target center - Point	0.00	0.00	10,407.00	-4,648.95	-1,634.79	409,313.65	715,998.80	32° 7' 26.490 N	103° 46' 8.873 W

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/S (usft)	+E/W (usft)	Comment	
2,000.00	2,000.00	0.00	0.00	Tangent KOP: Start Build 2.00	
2,500.07	2,497.54	0.00	-43.54	Start 5584.80 hold at 2500.07 MD	
8,084.87	7,997.46	0.00	-1,013.46	Start Drop -2.00	
8,584.94	8,495.00	0.00	-1,057.00	Start 1312.05 hold at 8584.94 MD	
9,896.99	9,807.05	0.00	-1,057.00	Curve KOP: Start Build 10.00	
10,793.33	10,380.00	-506.23	-1,317.44	EOC: Start DLS 2.00 TFO -90.09	
12,154.52	10,388.87	-1,816.75	-1,634.79	EOT: Start 2832.26 hold at 12154.52 MD	
14,986.78	10,407.00	-4,648.95	-1,634.79	TD at 14986.78' MD	

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well: 15 Fed Com 2H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Reference Site:	Cotton Draw	MD Reference:	GE 3384 + KB 25' @ 3409.00usft (Permitting)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2:00 sigma
Reference Wellbore:	OH	Database:	EDM: 5000:1 Single User: Db
Reference Design:	Plan #1	Offset TVD Reference:	Reference Datum

Reference:	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	0.00 to 14,987.53usft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 2,000,000.00 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date: 03/21/13	
From (usft)	To (usft)	Survey (Wellbore)
0.00	14,986.78	Plan #1 (OH)
		Tool Name
		LEAM MWD
		Description
		MWD - Standard

Summary							
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
Offset Well - Wellbore - Design							
Cotton Draw							
15 Fed Com 1H - OH - Plan #1	2,000.00	1,991.00	50.10	41.38	5.741	CC, ES	
15 Fed Com 1H - OH - Plan #1	2,100.00	2,090.98	51.85	42.69	5.662	SF	

Offset Design	Cotton Draw - 15 Fed Com 1H - OH - Plan #1												Offset Site Error: 0.00 usft
Survey Program:	10-LEAM MWD												Offset Well Error: 0.00 usft
Reference	Offset	Semi-Major Axis	Reference	Offset	Highside To offset	Offset Wellbore Centre	Distance Between Centres	Distance Between Ellipses	Minimum Separation	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset (usft)	Highside (ft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)	Offset Wellbore Centre (usft)
0.00	0.00	0.00	9.00	0.00	0.00	89.43	0.50	50.10	50.90	50.90	0.00	N/A	
100.00	100.00	91.00	100.00	0.11	0.08	89.43	0.50	50.10	50.10	49.91	0.20	253.984	
200.00	200.00	191.00	200.00	0.34	0.30	89.43	0.50	50.10	50.10	49.47	0.63	78.906	
300.00	300.00	291.00	300.00	0.56	0.52	89.43	0.50	50.10	50.10	49.02	1.08	46.199	
400.00	400.00	391.00	400.00	0.79	0.75	89.43	0.50	50.10	50.10	48.57	1.53	32.661	
500.00	500.00	491.00	500.00	1.01	0.97	89.43	0.50	50.10	50.10	48.12	1.98	25.259	
600.00	600.00	591.00	600.00	1.24	1.20	89.43	0.50	50.10	50.10	47.67	2.43	20.592	
700.00	700.00	691.00	700.00	1.46	1.42	89.43	0.50	50.10	50.10	47.22	2.88	17.381	
800.00	800.00	791.00	800.00	1.69	1.65	89.43	0.50	50.10	50.10	46.77	3.33	15.036	
900.00	900.00	891.00	900.00	1.91	1.87	89.43	0.50	50.10	50.10	46.32	3.78	13.249	
1,000.00	1,000.00	991.00	1,000.00	2.14	2.10	89.43	0.50	50.10	50.10	45.87	4.23	11.841	
1,100.00	1,100.00	1,091.00	1,100.00	2.36	2.32	89.43	0.50	50.10	50.10	45.42	4.68	10.704	
1,200.00	1,200.00	1,191.00	1,200.00	2.58	2.55	89.43	0.50	50.10	50.10	44.97	5.13	9.766	
1,300.00	1,300.00	1,291.00	1,300.00	2.81	2.77	89.43	0.50	50.10	50.10	44.52	5.58	8.979	
1,400.00	1,400.00	1,391.00	1,400.00	3.03	3.00	89.43	0.50	50.10	50.10	44.07	6.03	8.310	
1,500.00	1,500.00	1,491.00	1,500.00	3.26	3.22	89.43	0.50	50.10	50.10	43.62	6.48	7.733	
1,600.00	1,600.00	1,591.00	1,600.00	3.48	3.44	89.43	0.50	50.10	50.10	43.17	6.93	7.231	
1,700.00	1,700.00	1,691.00	1,700.00	3.71	3.67	89.43	0.50	50.10	50.10	42.72	7.38	6.791	
1,800.00	1,800.00	1,791.00	1,800.00	3.93	3.89	89.43	0.50	50.10	50.10	42.28	7.83	6.401	
1,900.00	1,900.00	1,891.00	1,900.00	4.16	4.12	89.43	0.50	50.10	50.10	41.83	8.28	6.053	
2,000.00	2,000.00	1,991.00	2,000.00	4.38	4.34	89.43	0.50	50.10	50.10	41.38	8.73	5.741 CC, ES	
2,100.00	2,099.98	2,090.98	2,099.98	4.59	4.57	179.45	0.50	50.10	51.85	42.69	9.16	5.662 SF	
2,200.00	2,199.84	2,190.84	2,199.84	4.80	4.79	179.50	0.50	50.10	57.08	47.51	9.57	5.967	
2,300.00	2,299.45	2,290.45	2,299.45	5.01	5.02	179.56	0.50	50.10	65.80	55.83	9.97	6.603	
2,400.00	2,398.70	2,389.70	2,398.70	5.23	5.24	179.63	0.50	50.10	77.98	67.63	10.35	7.531	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 15 Fed Com 2H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	GE 3384 + KB:25' @ 3409.00usft (Permitting)
Reference Site:	Cotton Draw	MD Reference:	GE 3384 + KB:25' @ 3409.00usft (Permitting)
Site Error:	0:00 usft	North Reference:	Grid
Reference Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0:00 usft	Output errors are at:	2:00 sigma
Reference Wellbore:	OH	Database:	EDM/5000.1/Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Reference Datum

Offset Design: Cotton Draw - 15 Fed Com 1H - OH - Plan #1														Offset Site Error:
Survey Program: O-LEAM-MWD														Offset Well Error:
Reference	Offset	Semi Major Axis	Reference	Offset	Highside	Offset Wellbore Centre	Between	Between	Minimum	Separation	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside (usft)	N-S (usft)	E-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor		
2,500.07	2,497.54	2,488.54	2,497.54	5.47	5.46	179.69	0.50	50.10	93.64	82.90	10.73	8.724		
2,600.00	2,595.95	2,586.95	2,595.95	5.73	5.68	179.74	0.50	50.10	110.99	99.83	11.16	9.944		
2,700.00	2,694.43	2,685.43	2,694.43	6.00	5.90	179.77	0.50	50.10	128.36	116.76	11.59	11.071		
2,800.00	2,792.91	2,783.91	2,792.91	6.29	6.13	179.80	0.50	50.10	145.73	133.70	12.03	12.114		
2,900.00	2,891.39	2,882.39	2,891.39	6.59	6.35	179.82	0.50	50.10	163.09	150.62	12.47	13.081		
3,000.00	2,989.87	2,980.87	2,989.87	6.89	6.57	179.84	0.50	50.10	180.46	167.55	12.91	13.979		
3,100.00	3,088.35	3,079.35	3,088.35	7.21	6.79	179.85	0.50	50.10	197.83	184.47	13.35	14.815		
3,200.00	3,186.83	3,177.83	3,186.83	7.53	7.01	179.86	0.50	50.10	215.19	201.40	13.80	15.595		
3,300.00	3,285.31	3,276.31	3,285.31	7.85	7.23	179.87	0.50	50.10	232.56	218.32	14.25	16.324		
3,400.00	3,383.79	3,374.79	3,383.79	8.19	7.45	179.88	0.50	50.10	249.93	235.23	14.70	17.007		
3,500.00	3,482.27	3,473.27	3,482.27	8.52	7.68	179.89	0.50	50.10	267.30	252.15	15.15	17.647		
3,600.00	3,580.75	3,571.75	3,580.75	8.87	7.90	179.90	0.50	50.10	284.66	269.06	15.60	18.248		
3,700.00	3,679.23	3,670.23	3,679.23	9.21	8.12	179.90	0.50	50.10	302.03	285.98	16.05	18.814		
3,800.00	3,777.71	3,768.71	3,777.71	9.56	8.34	179.91	0.50	50.10	319.40	302.89	16.51	19.347		
3,900.00	3,876.19	3,867.19	3,876.19	9.91	8.56	179.91	0.50	50.10	336.77	319.80	16.97	19.850		
4,000.00	3,974.67	3,965.67	3,974.67	10.27	8.78	179.92	0.50	50.10	354.13	336.71	17.42	20.326		
4,100.00	4,073.15	4,064.15	4,073.15	10.62	9.00	179.92	0.50	50.10	371.50	353.62	17.88	20.776		
4,200.00	4,171.63	4,162.63	4,171.63	10.98	9.22	179.93	0.50	50.10	388.87	370.53	18.34	21.203		
4,300.00	4,270.11	4,261.11	4,270.11	11.34	9.45	179.93	0.50	50.10	406.23	387.43	18.80	21.608		
4,400.00	4,368.59	4,359.59	4,368.59	11.71	9.67	179.93	0.50	50.10	423.60	404.34	19.26	21.993		
4,500.00	4,467.07	4,458.07	4,467.07	12.07	9.89	179.93	0.50	50.10	440.97	421.25	19.72	22.359		
4,600.00	4,565.55	4,556.55	4,565.55	12.44	10.11	179.94	0.50	50.10	458.34	438.15	20.18	22.708		
4,700.00	4,664.03	4,655.03	4,664.03	12.81	10.33	179.94	0.50	50.10	475.70	455.06	20.65	23.040		
4,800.00	4,762.51	4,753.51	4,762.51	13.17	10.55	179.94	0.50	50.10	493.07	471.96	21.11	23.357		
4,900.00	4,860.99	4,851.99	4,860.99	13.54	10.77	179.94	0.50	50.10	510.44	488.86	21.57	23.660		
5,000.00	4,959.47	4,950.47	4,959.47	13.92	11.00	179.94	0.50	50.10	527.81	505.77	22.04	23.949		
5,100.00	5,057.95	5,048.95	5,057.95	14.29	11.22	179.95	0.50	50.10	545.17	522.67	22.50	24.227		
5,200.00	5,156.43	5,147.43	5,156.43	14.66	11.44	179.95	0.50	50.10	562.54	539.57	22.97	24.492		
5,300.00	5,254.91	5,245.91	5,254.91	15.03	11.66	179.95	0.50	50.10	579.91	556.47	23.43	24.747		
5,400.00	5,353.40	5,344.40	5,353.40	15.41	11.88	179.95	0.50	50.10	597.28	573.38	23.90	24.991		
5,500.00	5,451.88	5,442.88	5,451.88	15.78	12.10	179.95	0.50	50.10	614.64	590.28	24.37	25.225		
5,600.00	5,550.36	5,541.36	5,550.36	16.16	12.32	179.95	0.50	50.10	632.01	607.18	24.83	25.451		
5,700.00	5,648.84	5,639.84	5,648.84	16.54	12.54	179.96	0.50	50.10	649.38	624.08	25.30	25.667		
5,800.00	5,747.32	5,738.32	5,747.32	16.91	12.77	179.96	0.50	50.10	666.74	640.98	25.77	25.876		
5,900.00	5,845.80	5,836.80	5,845.80	17.29	12.99	179.96	0.50	50.10	684.11	657.88	26.23	26.077		
6,000.00	5,944.28	5,935.28	5,944.28	17.67	13.21	179.96	0.50	50.10	701.48	674.78	26.70	26.271		
6,100.00	6,042.76	6,033.76	6,042.76	18.05	13.43	179.96	0.50	50.10	718.85	691.68	27.17	26.457		
6,200.00	6,141.24	6,132.24	6,141.24	18.43	13.65	179.96	0.50	50.10	736.21	708.58	27.64	26.637		
6,300.00	6,239.72	6,230.72	6,239.72	18.81	13.87	179.96	0.50	50.10	753.58	725.47	28.11	26.811		
6,400.00	6,338.20	6,329.20	6,338.20	19.19	14.09	179.96	0.50	50.10	770.95	742.37	28.58	26.979		
6,500.00	6,436.68	6,427.68	6,436.68	19.57	14.32	179.96	0.50	50.10	788.32	759.27	29.04	27.142		
6,600.00	6,535.16	6,526.16	6,535.16	19.95	14.54	179.96	0.50	50.10	805.68	776.17	29.51	27.299		
6,700.00	6,633.64	6,624.64	6,633.64	20.33	14.76	179.96	0.50	50.10	823.05	793.07	29.98	27.451		
6,800.00	6,732.12	6,723.12	6,732.12	20.71	14.98	179.97	0.50	50.10	840.42	809.97	30.45	27.598		
6,900.00	6,830.60	6,821.60	6,830.60	21.09	15.20	179.97	0.50	50.10	857.78	826.86	30.92	27.740		
7,000.00	6,929.08	6,920.08	6,929.08	21.47	15.42	179.97	0.50	50.10	875.15	843.76	31.39	27.878		
7,100.00	7,027.56	7,018.56	7,027.56	21.85	15.64	179.97	0.50	50.10	892.52	860.66	31.86	28.012		
7,200.00	7,126.04	7,117.04	7,126.04	22.24	15.87	179.97	0.50	50.10	909.89	877.56	32.33	28.142		
7,300.00	7,224.52	7,215.52	7,224.52	22.62	16.09	179.97	0.50	50.10	927.25	894.45	32.80	28.268		
7,400.00	7,323.00	7,314.00	7,323.00	23.00	16.31	179.97	0.50	50.10	944.62	911.35	33.27	28.391		
7,500.00	7,421.48	7,412.48	7,421.48	23.38	16.53	179.97	0.50	50.10	961.99	928.25	33.74	28.510		
7,600.00	7,519.96	7,510.96	7,519.96	23.77	16.75	179.97	0.50	50.10	979.36	945.14	34.21	28.625		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON/ENERGY	Local Co-ordinate Reference:	Well: 15 Fed Com 2H
Project:	Eddy County, NM (NAD:83)	TVD Reference:	GE 3384 + KB/25' @ 3409.00usft (Permitting)
Reference Site:	Cotton Draw	MD Reference:	GE 3384 + KB/25' @ 3409.00usft (Permitting)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	15 Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Reference Datum:

Offset Design: Cotton Draw: 15 Fed Com 1H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 10 LEAM MWD														Offset Well Error:	0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre	Distance	Minimum	Separation	Warning				
Depth	Depth	Depth	Depth	Depth	Depth	Toolface	N-S	Between	Between	Separation	Factor				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	Centres	Ellipses	(usft)					
7,700.00	7,618.44	7,609.44	7,618.44	24.15	16.97	179.97	0.50	50.10	996.72	962.04	34.68	28.737			
7,800.00	7,716.92	7,707.92	7,716.92	24.53	17.19	179.97	0.50	50.10	1,014.09	978.94	35.15	28.846			
7,900.00	7,815.40	7,806.40	7,815.40	24.92	17.41	179.97	0.50	50.10	1,031.46	995.83	35.63	28.953			
8,000.00	7,913.88	7,904.88	7,913.88	25.30	17.64	179.97	0.50	50.10	1,048.83	1,012.73	36.10	29.056			
8,084.87	7,997.46	7,988.46	7,997.46	25.63	17.82	179.97	0.50	50.10	1,063.56	1,027.07	36.50	29.142			
8,100.00	8,012.37	8,003.37	8,012.37	25.68	17.86	179.97	0.50	50.10	1,066.15	1,029.57	36.58	29.143			
8,200.00	8,111.22	8,102.22	8,111.22	25.96	18.08	179.97	0.50	50.10	1,081.28	1,044.17	37.11	29.138			
8,300.00	8,210.53	8,201.53	8,210.53	26.20	18.30	179.97	0.50	50.10	1,092.94	1,055.36	37.59	29.079			
8,400.00	8,310.19	8,301.19	8,310.19	26.41	18.53	179.97	0.50	50.10	1,101.13	1,063.12	38.01	28.968			
8,500.00	8,410.07	8,401.07	8,410.07	26.58	18.75	179.97	0.50	50.10	1,105.84	1,067.45	38.39	28.807			
8,584.94	8,495.00	8,486.00	8,495.00	26.70	18.94	89.97	0.50	50.10	1,107.10	1,065.12	41.98	28.370			
8,600.00	8,510.06	8,501.06	8,510.06	26.72	18.98	89.97	0.50	50.10	1,107.10	1,065.06	42.04	26.332			
8,700.00	8,610.06	8,601.06	8,610.06	26.87	19.20	89.97	0.50	50.10	1,107.10	1,064.65	42.45	26.081			
8,800.00	8,710.06	8,701.06	8,710.06	27.02	19.43	89.97	0.50	50.10	1,107.10	1,064.24	42.86	25.833			
8,900.00	8,810.06	8,801.06	8,810.06	27.17	19.65	89.97	0.50	50.10	1,107.10	1,063.84	43.26	25.590			
9,000.00	8,910.06	8,901.06	8,910.06	27.32	19.88	89.97	0.50	50.10	1,107.10	1,063.43	43.67	25.351			
9,100.00	9,010.06	9,001.06	9,010.06	27.47	20.10	89.97	0.50	50.10	1,107.10	1,063.02	44.08	25.116			
9,200.00	9,110.06	9,101.06	9,110.06	27.62	20.32	89.97	0.50	50.10	1,107.10	1,062.61	44.49	24.884			
9,300.00	9,210.06	9,201.06	9,210.06	27.78	20.55	89.97	0.50	50.10	1,107.10	1,062.20	44.90	24.657			
9,400.00	9,310.06	9,301.06	9,310.06	27.93	20.77	89.97	0.50	50.10	1,107.10	1,061.79	45.31	24.433			
9,500.00	9,410.06	9,401.06	9,410.06	28.09	21.00	89.97	0.50	50.10	1,107.10	1,061.38	45.72	24.213			
9,600.00	9,510.06	9,501.06	9,510.06	28.25	21.22	89.97	0.50	50.10	1,107.10	1,060.96	46.14	23.997			
9,700.00	9,610.06	9,601.06	9,610.06	28.41	21.45	89.97	0.50	50.10	1,107.10	1,060.55	46.55	23.784			
9,800.00	9,710.06	9,701.06	9,710.06	28.56	21.67	89.97	0.50	50.10	1,107.10	1,060.14	46.96	23.574			
9,896.99	9,807.05	9,798.05	9,807.05	28.72	21.89	89.97	0.50	50.10	1,107.10	1,059.74	47.36	23.374			
9,900.00	9,810.06	9,801.06	9,810.06	28.72	21.90	-117.25	0.49	50.10	1,107.10	1,062.89	44.21	25.041			
9,950.00	9,859.98	9,851.14	9,860.07	28.81	21.98	-117.14	-1.96	50.10	1,108.22	1,063.77	44.45	24.930			
10,000.00	9,909.50	9,901.09	9,909.53	28.92	22.06	-116.82	-8.74	50.09	1,111.32	1,066.68	44.64	24.897			
10,050.00	9,958.25	9,950.78	9,957.98	29.06	22.15	-116.30	-19.74	50.09	1,116.38	1,071.60	44.78	24.933			
10,100.00	10,005.84	10,000.11	10,004.95	29.21	22.23	-115.59	-34.76	50.08	1,123.36	1,078.47	44.89	25.022			
10,150.00	10,051.92	10,048.99	10,050.04	29.40	22.31	-114.68	-53.58	50.07	1,132.22	1,087.20	45.03	25.146			
10,200.00	10,096.13	10,097.34	10,092.91	29.60	22.38	-113.59	-75.91	50.05	1,142.88	1,097.68	45.21	25.282			
10,250.00	10,138.15	10,145.11	10,133.27	29.84	22.46	-112.31	-101.44	50.04	1,155.27	1,109.80	45.47	25.408			
10,300.00	10,177.64	10,192.27	10,170.90	30.09	22.56	-110.85	-129.86	50.02	1,169.28	1,123.43	45.85	25.503			
10,350.00	10,214.31	10,238.82	10,205.62	30.38	22.67	-109.23	-160.84	50.00	1,184.82	1,138.45	46.37	25.553			
10,400.00	10,247.89	10,284.78	10,237.31	30.69	22.80	-107.45	-194.10	49.98	1,201.75	1,154.73	47.03	25.555			
10,450.00	10,278.11	10,330.17	10,265.91	31.03	22.94	-105.53	-229.34	49.96	1,219.96	1,172.14	47.82	25.510			
10,500.00	10,304.74	10,375.06	10,291.35	31.40	23.09	-103.48	-266.30	49.93	1,239.29	1,190.56	48.73	25.430			
10,550.00	10,327.59	10,419.51	10,313.63	31.80	23.27	-101.32	-304.76	49.91	1,259.60	1,209.88	49.72	25.333			
10,600.00	10,346.48	10,463.62	10,332.71	32.23	23.47	-99.08	-344.52	49.88	1,280.74	1,229.99	50.75	25.238			
10,650.00	10,361.26	10,507.49	10,348.61	32.68	23.68	-96.77	-385.39	49.86	1,302.54	1,250.77	51.76	25.163			
10,700.00	10,371.82	10,551.23	10,361.30	33.15	23.92	-94.42	-427.23	49.83	1,324.83	1,272.11	52.73	25.126			
10,750.00	10,378.08	10,594.96	10,370.76	33.65	24.18	-92.06	-469.92	49.81	1,347.47	1,293.86	53.61	25.135			
10,793.33	10,380.00	10,632.96	10,376.31	34.10	24.42	-90.01	-507.51	49.78	1,367.23	1,312.94	54.29	25.186			
10,800.00	10,380.04	10,638.83	10,376.95	34.16	24.46	-90.04	-513.34	49.78	1,370.27	1,315.90	54.37	25.202			
10,900.00	10,380.68	10,728.45	10,380.22	35.08	25.10	-90.15	-602.85	49.72	1,414.18	1,358.54	55.65	25.414			
11,000.00	10,381.33	10,819.76	10,380.83	36.04	25.83	-90.14	-694.16	49.67	1,454.94	1,397.86	57.08	25.490			
11,100.00	10,381.98	10,912.44	10,381.44	37.02	26.65	-90.12	-786.84	49.61	1,492.49	1,433.78	58.71	25.420			
11,200.00	10,382.63	11,006.37	10,382.07	38.03	27.57	-90.11	-880.77	49.55	1,526.78	1,466.33	60.46	25.254			
11,300.00	10,383.29	11,101.44	10,382.70	39.06	28.57	-90.09	-975.84	49.49	1,557.77	1,495.48	62.30	25.006			
11,400.00	10,383.94	11,197.53	10,383.34	40.11	29.66	-90.08	-1,071.93	49.43	1,585.43	1,521.20	64.22	24.687			
11,500.00	10,384.60	11,294.54	10,383.98	41.17	30.81	-90.06	-1,168.93	49.37	1,609.71	1,543.49	66.22	24.310			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

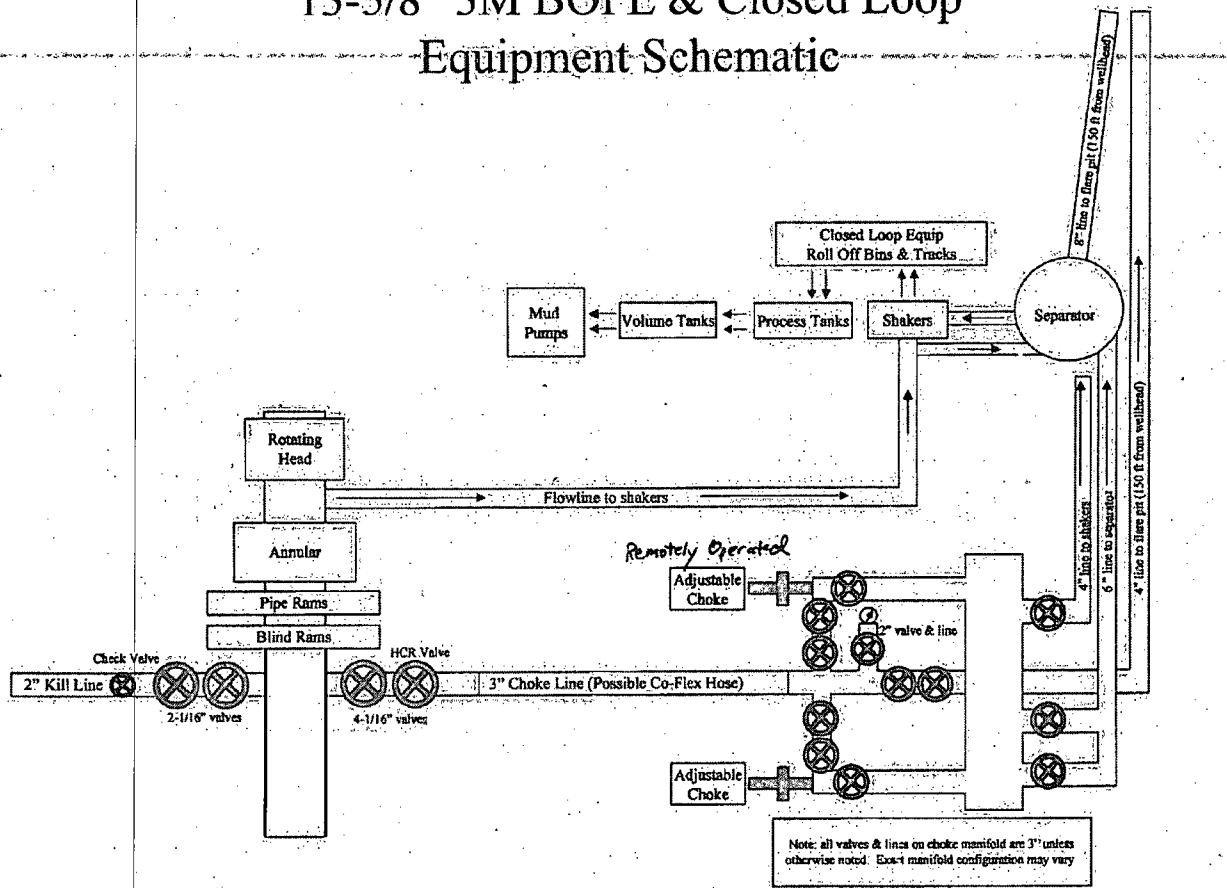
LEAM Drilling Systems LLC

Anticollision Report

Company:	DEVON ENERGY	Local Co-ordinate/Reference:	Well 15: Fed Com 2H
Project:	Eddy County, NM (NAD-83)	TVD/Reference:	GE 3384 + KB'25' @ 3409.00usft (Permitting)
Reference Site:	Cotton Draw	MD/Reference:	GE 3384 + KB'25' @ 3409.00usft (Permitting)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	15: Fed Com 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD/Reference:	Reference Datum

Offset Design: Cotton Draw - 15: Fed Com 1H - OH - Plan #1													Offset Site Error: 0.00 usft	
Survey Program: O-LEAM MWD													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance		Minimum Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
11,600.00	10,385.26	11,392.33	10,384.63	42.24	32.03	-90.05	-1,266.72	49.31	1,630.59	1,562.33	68.26	23.886		
11,700.00	10,385.92	11,490.79	10,385.28	43.32	33.32	-90.04	-1,365.18	49.25	1,648.05	1,577.70	70.35	23.426		
11,800.00	10,386.57	11,589.79	10,385.94	44.41	34.65	-90.02	-1,464.18	49.18	1,662.06	1,589.60	72.46	22.937		
11,900.00	10,387.22	11,689.23	10,386.60	45.50	36.03	-90.01	-1,563.62	49.12	1,672.61	1,598.03	74.58	22.427		
12,000.00	10,387.87	11,788.98	10,387.26	46.60	37.45	-90.00	-1,663.36	49.06	1,679.68	1,602.99	76.69	21.901		
12,100.00	10,388.52	11,888.91	10,387.92	47.70	38.91	-89.99	-1,763.29	49.00	1,683.27	1,604.48	78.79	21.365		
12,154.52	10,388.87	11,943.42	10,388.28	48.30	39.72	-89.98	-1,817.80	48.96	1,683.75	1,603.84	79.92	21.069		
12,200.00	10,389.16	11,988.90	10,388.59	48.81	40.39	-89.98	-1,863.28	48.93	1,683.72	1,602.51	81.21	20.732		
12,300.00	10,389.80	12,088.90	10,389.25	49.96	41.91	-89.98	-1,963.28	48.87	1,683.66	1,599.57	84.09	20.023		
12,400.00	10,390.44	12,188.90	10,389.91	51.15	43.44	-89.98	-2,063.28	48.81	1,683.60	1,596.58	87.02	19.347		
12,500.00	10,391.08	12,288.90	10,390.58	52.38	45.00	-89.98	-2,163.28	48.75	1,683.54	1,593.53	90.00	18.705		
12,600.00	10,391.72	12,388.90	10,391.24	53.63	46.58	-89.98	-2,263.27	48.68	1,683.47	1,590.44	93.03	18.095		
12,700.00	10,392.36	12,488.90	10,391.90	54.92	48.17	-89.98	-2,363.27	48.62	1,683.41	1,587.30	96.11	17.516		
12,800.00	10,393.00	12,588.90	10,392.57	56.23	49.78	-89.99	-2,463.27	48.56	1,683.35	1,584.13	99.22	16.966		
12,900.00	10,393.64	12,688.90	10,393.23	57.56	51.41	-89.99	-2,563.27	48.50	1,683.29	1,580.92	102.36	16.444		
13,000.00	10,394.28	12,788.90	10,393.90	58.93	53.04	-89.99	-2,663.26	48.43	1,683.22	1,577.68	105.54	15.948		
13,100.00	10,394.92	12,888.90	10,394.56	60.31	54.69	-89.99	-2,763.26	48.37	1,683.16	1,574.41	108.75	15.478		
13,200.00	10,395.56	12,988.90	10,395.22	61.72	56.35	-89.99	-2,863.26	48.31	1,683.10	1,571.12	111.98	15.030		
13,300.00	10,396.20	13,088.90	10,395.89	63.14	58.02	-89.99	-2,963.26	48.25	1,683.04	1,567.80	115.24	14.605		
13,400.00	10,396.84	13,188.90	10,396.55	64.59	59.69	-89.99	-3,063.26	48.18	1,682.97	1,564.46	118.52	14.200		
13,500.00	10,397.48	13,288.90	10,397.21	66.05	61.38	-89.99	-3,163.25	48.12	1,682.91	1,561.09	121.82	13.815		
13,600.00	10,398.12	13,388.90	10,397.88	67.54	63.07	-89.99	-3,263.25	48.06	1,682.85	1,557.71	125.14	13.448		
13,700.00	10,398.76	13,488.90	10,398.54	69.03	64.77	-89.99	-3,363.25	48.00	1,682.79	1,554.31	128.48	13.098		
13,800.00	10,399.40	13,588.90	10,399.20	70.54	66.48	-89.99	-3,463.25	47.93	1,682.73	1,550.90	131.83	12.764		
13,900.00	10,400.04	13,688.90	10,399.87	72.07	68.19	-89.99	-3,563.24	47.87	1,682.66	1,547.47	135.20	12.446		
14,000.00	10,400.68	13,788.90	10,400.53	73.61	69.91	-89.99	-3,663.24	47.81	1,682.60	1,544.02	138.58	12.142		
14,100.00	10,401.32	13,888.90	10,401.20	75.16	71.63	-90.00	-3,763.24	47.75	1,682.54	1,540.57	141.97	11.851		
14,200.00	10,401.96	13,988.90	10,401.86	76.72	73.36	-90.00	-3,863.24	47.68	1,682.48	1,537.10	145.38	11.573		
14,300.00	10,402.60	14,088.90	10,402.52	78.30	75.09	-90.00	-3,963.23	47.62	1,682.41	1,533.62	148.80	11.307		
14,400.00	10,403.24	14,188.90	10,403.19	79.88	76.82	-90.00	-4,063.23	47.56	1,682.35	1,530.13	152.22	11.052		
14,500.00	10,403.88	14,288.90	10,403.85	81.48	78.56	-90.00	-4,163.23	47.50	1,682.29	1,526.63	155.66	10.807		
14,600.00	10,404.52	14,388.90	10,404.51	83.08	80.30	-90.00	-4,263.23	47.43	1,682.23	1,523.12	159.11	10.573		
14,700.00	10,405.16	14,488.90	10,405.18	84.69	82.05	-90.00	-4,363.23	47.37	1,682.17	1,519.60	162.56	10.348		
14,800.00	10,405.80	14,588.90	10,405.84	86.31	83.80	-90.00	-4,463.22	47.31	1,682.10	1,516.08	166.02	10.132		
14,900.00	10,406.44	14,688.90	10,406.50	87.94	85.55	-90.00	-4,563.22	47.25	1,682.04	1,512.55	169.49	9.924		
14,962.62	10,406.85	14,751.52	10,406.92	88.97	86.65	-90.00	-4,625.84	47.21	1,682.00	1,510.35	171.65	9.799		
14,986.78	10,407.00	14,763.67	10,407.00	89.36	86.86	-90.00	-4,637.99	47.20	1,682.03	1,509.74	172.29	9.763		
14,987.63	10,407.01	14,763.67	10,407.00	89.43	86.86	-90.00	-4,637.99	47.20	1,682.03	1,509.73	172.30	9.762		

13-5/8" 3M BOPE & Closed Loop Equipment Schematic



CONDITIONS OF APPROVAL

Sundry Dated 03/26/2013

OPERATOR'S NAME:	DEVON ENERGY
LEASE NO.:	NM0503
WELL NAME & NO.:	2H-COTTON DRAW 15 FED - 30-015-40748
SURFACE HOLE FOOTAGE:	330'/N. & 2030'/E.
BOTTOM HOLE FOOTAGE:	330'/S. & 1650'/W.
LOCATION:	Section 15, T. 25 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

Original COA still applies with the following changes:

A. CASING

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, Castile, Delaware, and Bone Spring.
Possible lost circulation in the Delaware and Bone Spring.**

1. The **13-3/8 inch surface casing shall be set at approximately 725 feet (in a competent bed below the Magenta Dolomite, a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface. Freshwater mud to be used to setting depth.**
 - 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 **9-5/8** inch intermediate casing **which shall be set at approximately 4200' as proposed**, is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - ☒ Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
4. If hardband 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.

B. 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.
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 **3000 (3M) psi**.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent Service Company required.
4. 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.

C. DRILL STEM TEST

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

D. 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.