

NM OIL CONSERVATION

ARTESIA DISTRICT

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 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico **OCT 23 2014**
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 30-015-42753	² Pool Code 96144	³ Pool Name Carlsbad; Bone Spring, East
⁴ Property Code 38927	⁵ Property Name LONE TREE DRAW 13 STATE COM	⁶ Well Number 12H
⁷ OGRID No. 6137	⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁹ Elevation 3170.4

¹⁰ 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	13	21 S	27 E		150	NORTH	1830	EAST	EDDY

¹¹ 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
O	13	21 S	27 E		330	SOUTH	2300	EAST	EDDY

¹² Dedicated Acres 160.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

N89°39'54"E 2683.58 FT NW CORNER SEC. 13 LAT. = 32.4875567°N LONG. = 104.1518461°W N/4 CORNER SEC. 13 LAT. = 32.4875870°N LONG. = 104.1431449°W NMSP EAST (FT) N = 541151.55 E = 597296.67 NMSP EAST (FT) N = 541167.23 E = 599979.56 LONE TREE DRAW 13 STATE COM 12H ELEV. = 3170.4 LAT. = 32.4871855°N (NAD83) LONG. = 104.1403712°W NMSP EAST (FT) N = 541022.69 E = 600835.05 NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. W/4 CORNER SEC. 13 LAT. = 32.4802575°N LONG. = 104.1518272°W NMSP EAST (FT) N = 538496.13 E = 597307.02 SW CORNER SEC. 13 LAT. = 32.4729692°N LONG. = 104.1517858°W NMSP EAST (FT) N = 535844.67 E = 597324.30 S/4 CORNER SEC. 13 LAT. = 32.4730669°N LONG. = 104.1431032°W NMSP EAST (FT) N = 535884.89 E = 600001.85		N89°38'05"E 2685.30 FT 1830' 150' SURFACE LOCATION NE CORNER SEC. 13 LAT. = 32.4876206°N LONG. = 104.1344381°W NMSP EAST (FT) N = 541184.34 E = 602664.16 E/4 CORNER SEC. 13 LAT. = 32.4803887°N LONG. = 104.1344261°W NMSP EAST (FT) N = 538553.42 E = 602672.77 SE CORNER SEC. 13 LAT. = 32.4731637°N LONG. = 104.1344163°W NMSP EAST (FT) N = 535924.99 E = 602680.71 BOTTOM OF HOLE LAT. = 32.4739876°N LONG. = 104.1418738°W NMSP EAST (FT) N = 536220.51 E = 600380.36 BOTTOM OF HOLE LAT. = 32.4730669°N LONG. = 104.1431032°W NMSP EAST (FT) N = 535884.89 E = 600001.85 2300'	
N00°13'24"W 2656.08 FT N00°22'24"W 2652.15 FT		S00°11'15"E 2631.57 FT S00°10'23"E 2629.07 FT	

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 unleased 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.

Linda Good **10/21/2014**
Signature Date

Linda Good
Printed Name

linda.good@dvn.com
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.

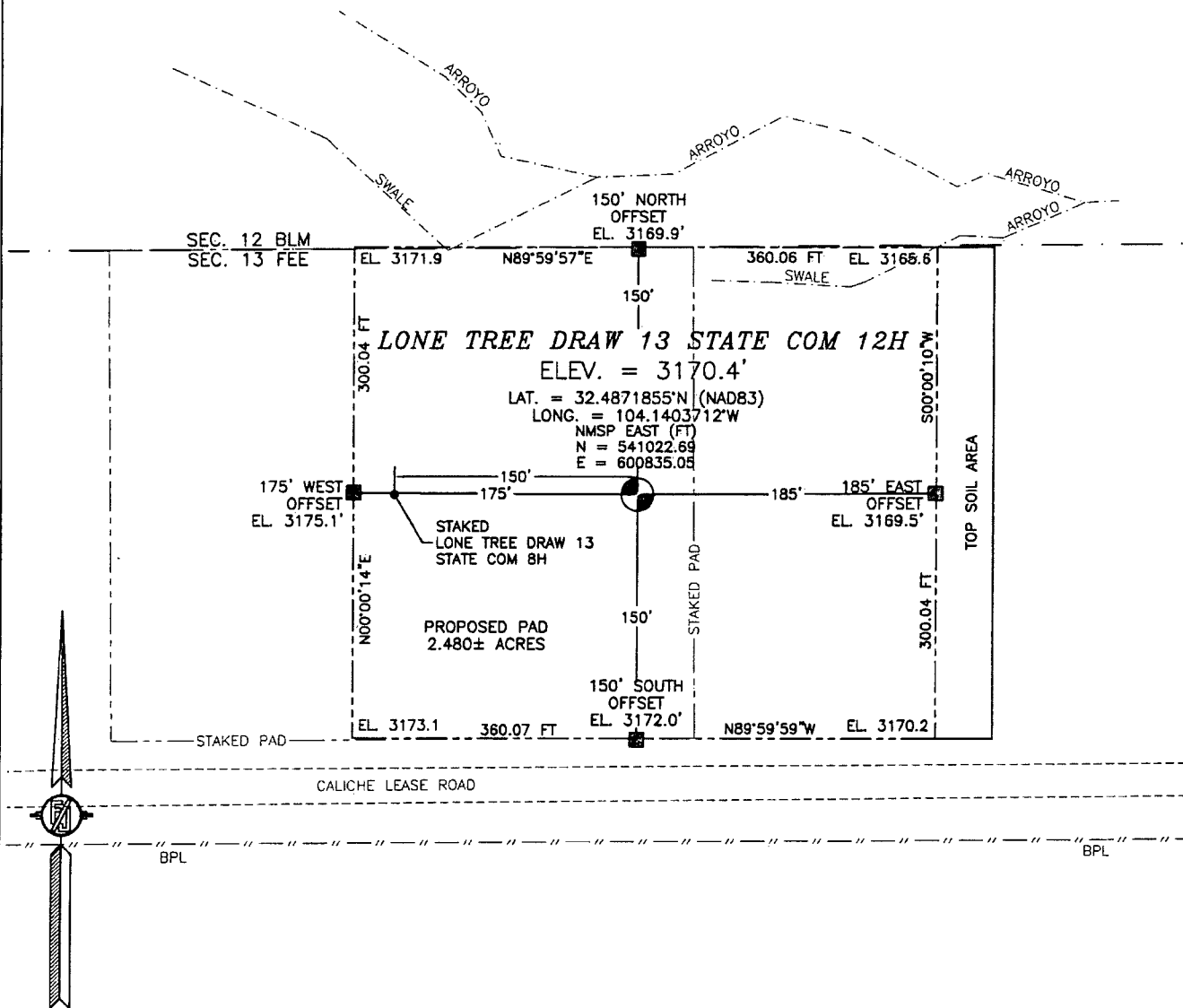
JANUARY 27 2014
Date of Survey

[Signature]
Signature and Seal of Professional Surveyor

Certificate Number: **FILEMON F. JARAMILLO, PLS 12797**
SURVEY NO. 2501

SECTION 13, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE.



010 50 100 200
SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CR 206 (ILLINOIS CAMP RD.) AND SR 200 (GEORGE SHOUP RELIEF ROUTE) GO NORTH ON CR 206 1.3 MILES TO CR 800 (RAINS ROAD) ON RIGHT GO EAST ON CR 800 2.3 MILES PAST RAMBO BOOSTER STA. TO A CALICHE LEASE ROAD ON RIGHT ACROSS FROM BORROW PIT GO EAST 2.75 MILES TO ROAD THAT TURNS NORTH LEFT PAST CATTLE GUARD GO NORTH ABOUT 800 FT. ROAD TURNS RIGHT GO EAST 0.6 MILES SITE IS ABOUT 175 FT. ON LEFT.

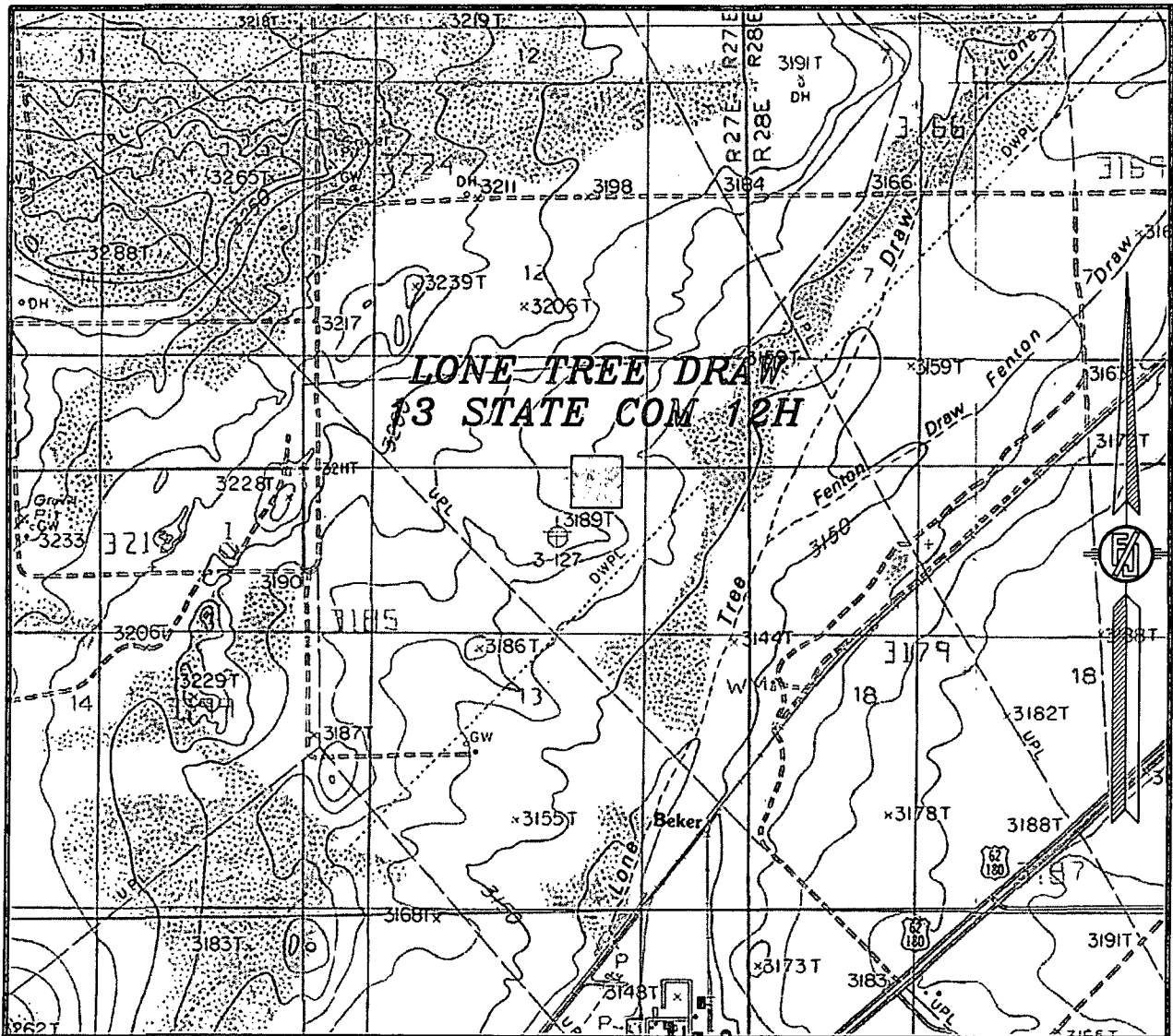
DEVON ENERGY PRODUCTION COMPANY, L.P.
LONE TREE DRAW 13 STATE COM 12H
LOCATED 150 FT. FROM THE NORTH LINE
AND 1830 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 2, 2014

SURVEY NO. 2501

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

SECTION 13, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
CARLSBAD EAST

NOT TO SCALE

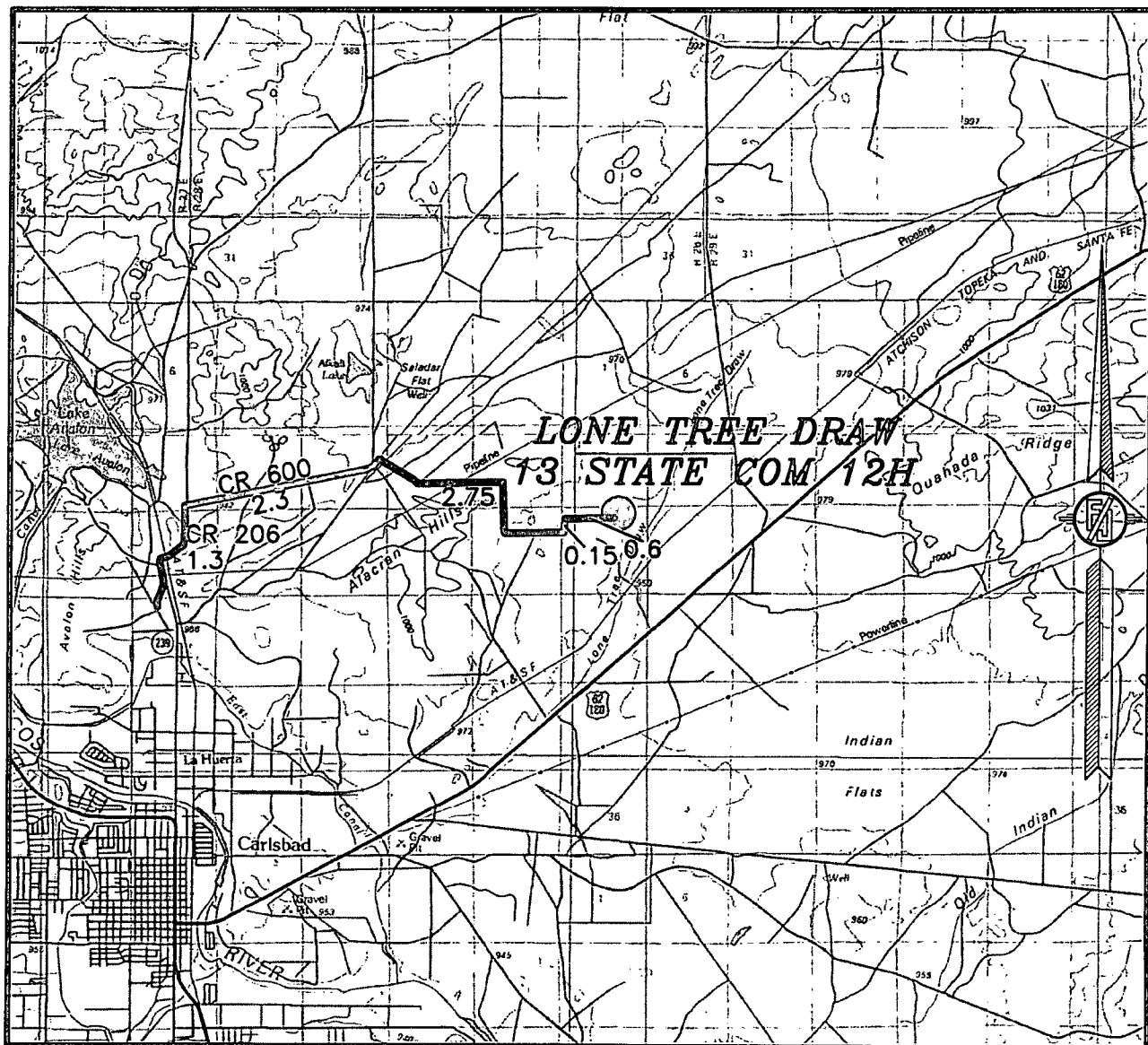
DEVON ENERGY PRODUCTION COMPANY, L.P.
LONE TREE DRAW 13 STATE COM 12H
LOCATED 150 FT. FROM THE NORTH LINE
AND 1830 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 2, 2014

SURVEY NO. 2501

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

SECTION 13, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CR 206 (ILLINOIS CAMP RD.) AND SR 200 (GEORGE SHOUP RELIEF ROUTE) GO NORTH ON CR 206 1.3 MILES TO CR 600 (RAINS ROAD) ON RIGHT GO EAST ON CR 600 2.3 MILES PAST RAMBO BOOSTER STA. TO A CALICHE LEASE ROAD ON RIGHT ACROSS FROM BORROW PIT GO EAST 2.75 MILES TO ROAD THAT TURNS NORTH LEFT PAST CATTLE GUARD GO NORTH ABOUT 800 FT. ROAD TURNS RIGHT GO EAST 0.6 MILES SITE IS ABOUT 175 FT. ON LEFT.

DEVON ENERGY PRODUCTION COMPANY, L.P.

LONE TREE DRAW 13 STATE COM 12H

LOCATED 150 FT. FROM THE NORTH LINE

AND 1830 FT. FROM THE EAST LINE OF

SECTION 13, TOWNSHIP 21 SOUTH,

RANGE 27 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

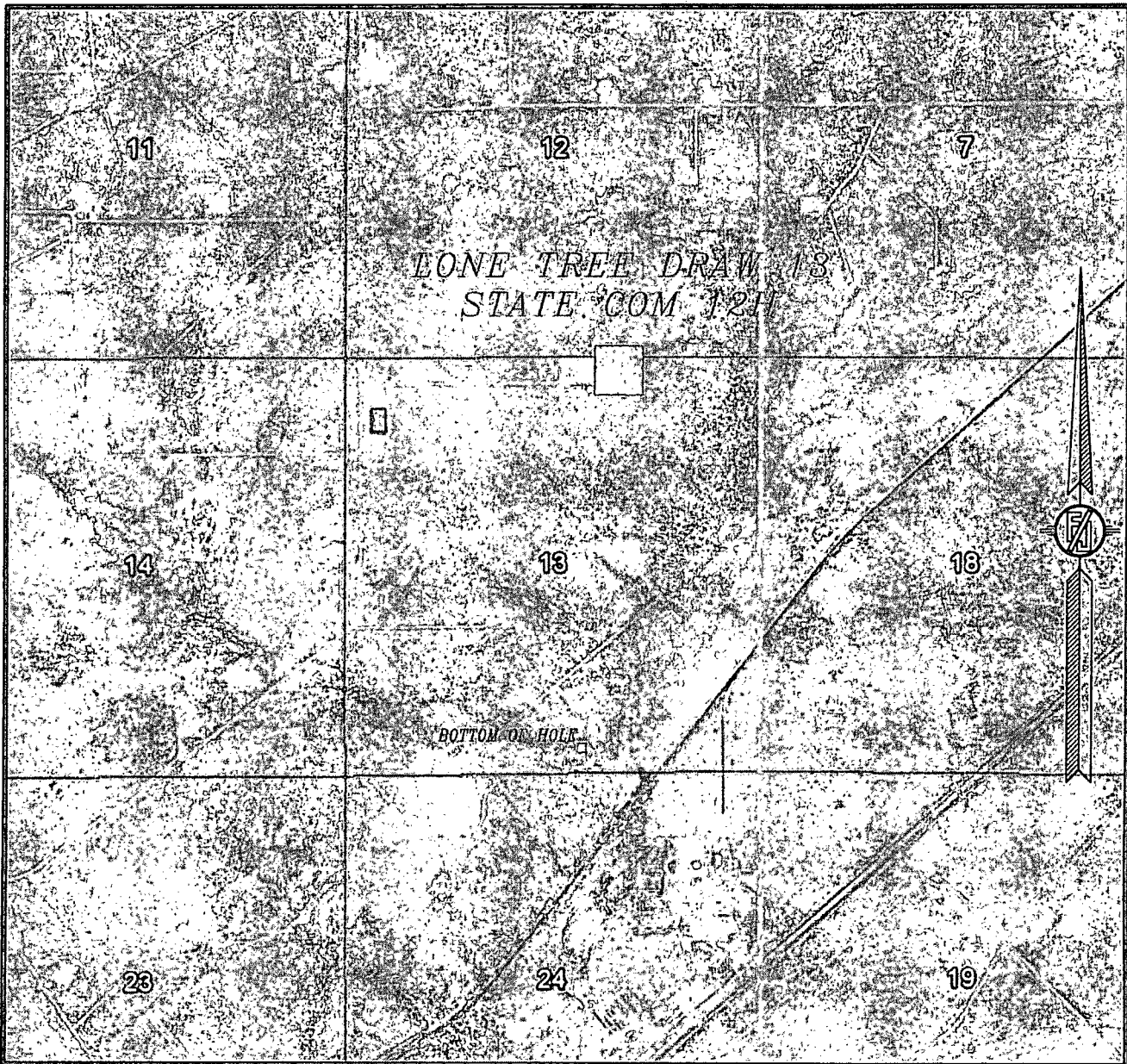
JANUARY 2, 2014

SURVEY NO. 2501

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

CARLSBAD, NEW MEXICO

SECTION 13, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APRIL 2013

DEVON ENERGY PRODUCTION COMPANY, L.P.
LONE TREE DRAW 13 STATE COM 12H
LOCATED 150 FT. FROM THE NORTH LINE
AND 1830 FT. FROM THE EAST LINE OF
SECTION 13, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 2, 2014

SURVEY NO. 2501

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

Devon Energy, Lone Tree Draw 13 State Com/12H

1. Geologic Formations

TVD of target	6,805'	Pilot hole depth	N/A
MD at TD:	11,423'	Deepest expected fresh water:	

Reef

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Salado (Salt)	345		
Tansil (Base Salt)	568		
Yates	661		
Capitan	905		
Capitan Base	2,695		
Delaware	2,758		
Lower Brushy Canyon	5,221		
Bone Spring Lime	5,431		
Avalon Sand	5,574		
1 st Bone Spring Sand	6,637		
1st BS UPR Sd	6,640		
1st BS UPR Base	6,687		
1st BS MID Sd Top	6,699		
1st BS MID Sd Base	6,733		
1st BS LWR Sd Top	6,784		
1st BS LWR Sd Base	6,843		
2nd Bone Spring Lime	6,887		

*H₂S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy, Lone Tree Draw 13 State Com/12H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	300'	13.375"	48	H-40	STC	5.74	12.90	37.57
12.25"	0	2,710'	9.625"	36	J-55	LTC	1.43	2.50	4.64
8.75"	0	11,423'	5.5"	17	P-110	BTC	2.64	3.27	4.91
BLM Minimum Safety Factor							1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Lone Tree Draw 13 State Com/12H

3. Cementing Program

Casing	# Sk	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
Surf.	350	14.8	6.32	1.33	7	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
Inter.	560	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	330	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
Prod.	500	11	14.81	2.55	22	2 nd stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	1350	14.5	5.31	1.2	25	1 st Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	75%
Production	2210'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
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Devon Energy, Lone Tree Draw 13 State Com/12H

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	Y Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly (FMC Uni-head). This assembly will only be tested when installed on the surface casing. 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. • Wellhead will be installed by FMC's representatives. • If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • FMC representative will install the test plug for the initial BOP test. • FMC will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the FMC Uni-head. 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 3,000 psi WP.

Devon Energy, Lone Tree Draw 13 State Com/12H

	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 attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	300'	FW Gel	8.6-8.8	28-34	N/C
300'	2,710'	Saturated Brine	10.0-10.2	28-34	N/C
2,710'	11,423'	Cut Brine	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

6. Logging and Testing Procedures

Logging, Coring and Testing	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3062 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe

DEVON ENERGY

Project: Eddy County, NM (NAD-83)
Site: Lone Tree Draw "13" State Com
Well: 12H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.52°

Magnetic Field
Strength: 48331.0nT
Dip Angle: 60.24°
Date: 10/20/2014
Model: BGGM2014

PROJECT DETAILS: Eddy County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

devon

DESIGN TARGET DETAILS

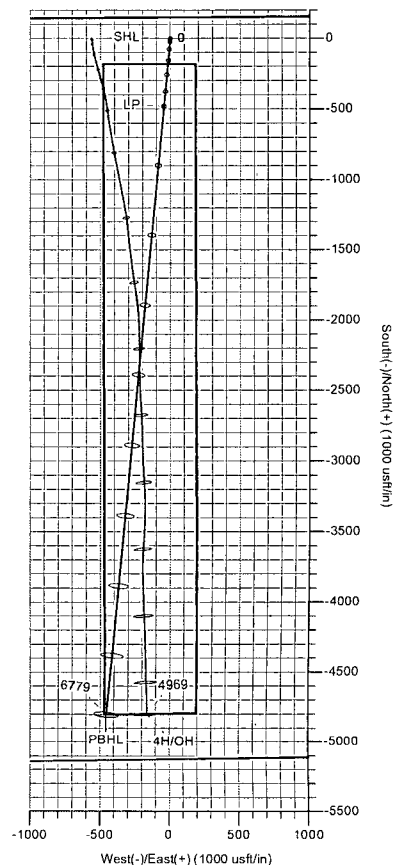
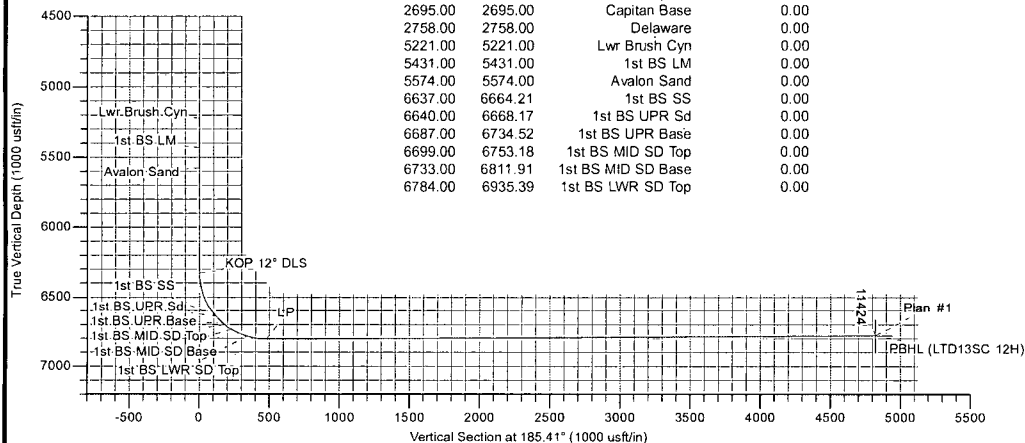
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (LTD13SC 12H)	0.00	0.00	0.00	541022.69	600835.05	32° 29' 13.888 N	104° 8' 25.336 W
PBHL (LTD13SC 12H)	6779.00	-4802.18	-454.69	536220.51	600380.36	32° 28' 26.355 N	104° 8' 30.746 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6327.54	0.00	0.00	6327.54	0.00	0.00	0.00	0.00	0.00	KOP 12° DLS
3	7080.40	90.34	185.41	6805.00	-478.18	-45.28	12.00	185.41	480.32	LP
4	11423.81	90.34	185.41	6779.00	-4802.18	-454.69	0.00	0.00	4823.66	TD

FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation	DipDir
345.00	345.00	Salado	0.00
568.00	568.00	Tansil	0.00
661.00	661.00	Yates	0.00
905.00	905.00	Capitan	0.00
2695.00	2695.00	Capitan Base	0.00
2758.00	2758.00	Delaware	0.00
5221.00	5221.00	Lwr Brush Cyn	0.00
5431.00	5431.00	1st BS LM	0.00
5574.00	5574.00	Avalon Sand	0.00
6637.00	6664.21	1st BS SS	0.00
6640.00	6668.17	1st BS UPR Sd	0.00
6687.00	6734.52	1st BS UPR Base	0.00
6699.00	6753.18	1st BS MID SD Top	0.00
6733.00	6811.91	1st BS MID SD Base	0.00
6784.00	6935.39	1st BS LWR SD Top	0.00



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

Plan: Plan #1 (12H/OH)
Lone Tree Draw "13" State Com
Created By: Brady Deaver Date: 9:54, October 20 2014
Date: _____
Approved: _____ Date: _____

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 23 2014
RECEIVED

DEVON ENERGY

Eddy County, NM (NAD-83)
Lone Tree Draw "13" State Com
12H

OH

Plan: Plan #1

Standard Planning Report

20 October, 2014

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 12H
Company:	DEVON ENERGY	TVD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	MD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Site:	Lone Tree Draw "13" State Com	North Reference:	Grid
Well:	12H	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		Lone Tree Draw "13" State Com			
Site Position:		Northing:	541,005.87 usft	Latitude:	32° 29' 13.750 N
From:	Map	Easting:	598,047.12 usft	Longitude:	104° 8' 57.887 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.10 °

Well	12H, 1st BS SS					
Well Position	+N/-S	16.82 usft	Northing:	541,022.69 usft	Latitude:	32° 29' 13.868 N
	+E/-W	2,787.93 usft	Easting:	600,835.05 usft	Longitude:	104° 8' 25.336 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,170.40 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	10/20/2014	7.63	60.24	48,331

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	185.41

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,327.54	0.00	0.00	6,327.54	0.00	0.00	0.00	0.00	0.00	0.00	
7,080.40	90.34	185.41	6,805.00	-478.18	-45.28	12.00	12.00	-23.19	185.41	
11,423.81	90.34	185.41	6,779.00	-4,802.18	-454.69	0.00	0.00	0.00	0.00	PBHL (LTD13SC 12H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 12H
Company:	DEVON ENERGY	TVD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	MD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Site:	Lone Tree Draw "13" State Com	North Reference:	Grid
Well:	12H	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
SHL (LTD13SC 12H)									
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
345.00	0.00	0.00	345.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
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
568.00	0.00	0.00	568.00	0.00	0.00	0.00	0.00	0.00	0.00
Tansil									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
661.00	0.00	0.00	661.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
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
905.00	0.00	0.00	905.00	0.00	0.00	0.00	0.00	0.00	0.00
Capitan									
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
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,695.00	0.00	0.00	2,695.00	0.00	0.00	0.00	0.00	0.00	0.00
Capitan Base									
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,758.00	0.00	0.00	2,758.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 12H
Company:	DEVON ENERGY	TVD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	MD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Site:	Lone Tree Draw "13" State Com	North Reference:	Grid
Well:	12H	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)
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,221.00	0.00	0.00	5,221.00	0.00	0.00	0.00	0.00	0.00	0.00
Lwr Brush Cyn									
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,431.00	0.00	0.00	5,431.00	0.00	0.00	0.00	0.00	0.00	0.00
1st BS LM									
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,574.00	0.00	0.00	5,574.00	0.00	0.00	0.00	0.00	0.00	0.00
Avalon Sand									
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,327.54	0.00	0.00	6,327.54	0.00	0.00	0.00	0.00	0.00	0.00
KOP 12" DLS									
6,350.00	2.70	185.41	6,349.99	-0.53	-0.05	0.53	12.00	12.00	0.00
6,375.00	5.70	185.41	6,374.92	-2.35	-0.22	2.36	12.00	12.00	0.00
6,400.00	8.70	185.41	6,399.72	-5.46	-0.52	5.49	12.00	12.00	0.00
6,425.00	11.70	185.41	6,424.32	-9.87	-0.93	9.91	12.00	12.00	0.00
6,450.00	14.70	185.41	6,448.66	-15.55	-1.47	15.62	12.00	12.00	0.00
6,475.00	17.70	185.41	6,472.67	-22.49	-2.13	22.59	12.00	12.00	0.00
6,500.00	20.70	185.41	6,496.27	-30.67	-2.90	30.81	12.00	12.00	0.00
6,525.00	23.70	185.41	6,519.42	-40.07	-3.79	40.25	12.00	12.00	0.00
6,550.00	26.70	185.41	6,542.04	-50.67	-4.80	50.89	12.00	12.00	0.00
6,575.00	29.70	185.41	6,564.07	-62.42	-5.91	62.70	12.00	12.00	0.00
6,600.00	32.70	185.41	6,585.45	-75.31	-7.13	75.65	12.00	12.00	0.00
6,625.00	35.70	185.41	6,606.13	-89.30	-8.46	89.70	12.00	12.00	0.00
6,650.00	38.70	185.41	6,626.04	-104.35	-9.88	104.81	12.00	12.00	0.00
6,664.21	40.40	185.41	6,637.00	-113.35	-10.73	113.86	12.00	12.00	0.00
1st BS SS									
6,668.17	40.88	185.41	6,640.00	-115.92	-10.98	116.44	12.00	12.00	0.00
1st BS UPR Sd									
6,675.00	41.70	185.41	6,645.13	-120.41	-11.40	120.94	12.00	12.00	0.00

LEAM Drilling Systems LLC

Planning Report

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Project:	Eddy County, NM (NAD-83)	MD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Site:	Lone Tree Draw "13" State Com	North Reference:	Grid
Well:	12H	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)	
6,700.00	44.70	185.41	6,663.36	-137.44	-13.01	138.05	12.00	12.00	0.00	
6,725.00	47.70	185.41	6,680.66	-155.40	-14.71	156.10	12.00	12.00	0.00	
6,734.52	48.84	185.41	6,687.00	-162.48	-15.38	163.20	12.00	12.00	0.00	
1st BS UPR Base										
6,750.00	50.70	185.41	6,697.00	-174.24	-16.50	175.02	12.00	12.00	0.00	
6,753.18	51.08	185.41	6,699.00	-176.69	-16.73	177.48	12.00	12.00	0.00	
1st BS MID SD Top										
6,775.00	53.70	185.41	6,712.32	-193.90	-18.36	194.77	12.00	12.00	0.00	
6,800.00	56.70	185.41	6,726.59	-214.33	-20.29	215.29	12.00	12.00	0.00	
6,811.91	58.12	185.41	6,733.00	-224.32	-21.24	225.32	12.00	12.00	0.00	
1st BS MID SD Base										
6,825.00	59.70	185.41	6,739.76	-235.48	-22.30	236.54	12.00	12.00	0.00	
6,850.00	62.70	185.41	6,751.81	-257.29	-24.36	258.44	12.00	12.00	0.00	
6,875.00	65.70	185.41	6,762.69	-279.69	-26.48	280.94	12.00	12.00	0.00	
6,900.00	68.70	185.41	6,772.38	-302.63	-28.65	303.99	12.00	12.00	0.00	
6,925.00	71.70	185.41	6,780.84	-326.05	-30.87	327.51	12.00	12.00	0.00	
6,935.39	72.94	185.41	6,784.00	-335.90	-31.80	337.40	12.00	12.00	0.00	
1st BS LWR SD Top										
6,950.00	74.70	185.41	6,788.07	-349.87	-33.13	351.44	12.00	12.00	0.00	
6,975.00	77.70	185.41	6,794.04	-374.04	-35.42	375.71	12.00	12.00	0.00	
7,000.00	80.70	185.41	6,798.72	-398.48	-37.73	400.27	12.00	12.00	0.00	
7,025.00	83.70	185.41	6,802.12	-423.14	-40.06	425.03	12.00	12.00	0.00	
7,050.00	86.70	185.41	6,804.21	-447.94	-42.41	449.94	12.00	12.00	0.00	
7,075.00	89.70	185.41	6,805.00	-472.81	-44.77	474.92	12.00	12.00	0.00	
7,080.40	90.34	185.41	6,805.00	-478.18	-45.28	480.32	12.00	12.00	0.00	
LP										
7,100.00	90.34	185.41	6,804.88	-497.70	-47.12	499.92	0.00	0.00	0.00	
7,200.00	90.34	185.41	6,804.28	-597.25	-56.55	599.92	0.00	0.00	0.00	
7,300.00	90.34	185.41	6,803.68	-696.80	-65.98	699.92	0.00	0.00	0.00	
7,400.00	90.34	185.41	6,803.08	-796.36	-75.40	799.92	0.00	0.00	0.00	
7,500.00	90.34	185.41	6,802.49	-895.91	-84.83	899.92	0.00	0.00	0.00	
7,600.00	90.34	185.41	6,801.89	-995.46	-94.25	999.92	0.00	0.00	0.00	
7,700.00	90.34	185.41	6,801.29	-1,095.02	-103.68	1,099.91	0.00	0.00	0.00	
7,800.00	90.34	185.41	6,800.69	-1,194.57	-113.11	1,199.91	0.00	0.00	0.00	
7,900.00	90.34	185.41	6,800.09	-1,294.12	-122.53	1,299.91	0.00	0.00	0.00	
8,000.00	90.34	185.41	6,799.49	-1,393.68	-131.96	1,399.91	0.00	0.00	0.00	
8,100.00	90.34	185.41	6,798.89	-1,493.23	-141.38	1,499.91	0.00	0.00	0.00	
8,200.00	90.34	185.41	6,798.30	-1,592.78	-150.81	1,599.90	0.00	0.00	0.00	
8,300.00	90.34	185.41	6,797.70	-1,692.33	-160.24	1,699.90	0.00	0.00	0.00	
8,400.00	90.34	185.41	6,797.10	-1,791.89	-169.66	1,799.90	0.00	0.00	0.00	
8,500.00	90.34	185.41	6,796.50	-1,891.44	-179.09	1,899.90	0.00	0.00	0.00	
8,600.00	90.34	185.41	6,795.90	-1,990.99	-188.52	1,999.90	0.00	0.00	0.00	
8,700.00	90.34	185.41	6,795.30	-2,090.55	-197.94	2,099.90	0.00	0.00	0.00	
8,800.00	90.34	185.41	6,794.70	-2,190.10	-207.37	2,199.89	0.00	0.00	0.00	
8,900.00	90.34	185.41	6,794.11	-2,289.65	-216.79	2,299.89	0.00	0.00	0.00	
9,000.00	90.34	185.41	6,793.51	-2,389.20	-226.22	2,399.89	0.00	0.00	0.00	
9,100.00	90.34	185.41	6,792.91	-2,488.76	-235.65	2,499.89	0.00	0.00	0.00	
9,200.00	90.34	185.41	6,792.31	-2,588.31	-245.07	2,599.89	0.00	0.00	0.00	
9,300.00	90.34	185.41	6,791.71	-2,687.86	-254.50	2,699.89	0.00	0.00	0.00	
9,400.00	90.34	185.41	6,791.11	-2,787.42	-263.92	2,799.88	0.00	0.00	0.00	
9,500.00	90.34	185.41	6,790.51	-2,886.97	-273.35	2,899.88	0.00	0.00	0.00	

LEAM Drilling Systems LLC

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Wellbore:	OH		
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9,600.00	90.34	185.41	6,789.92	-2,986.52	-282.78	2,999.88	0.00	0.00	0.00
9,700.00	90.34	185.41	6,789.32	-3,086.08	-292.20	3,099.88	0.00	0.00	0.00
9,800.00	90.34	185.41	6,788.72	-3,185.63	-301.63	3,199.88	0.00	0.00	0.00
9,900.00	90.34	185.41	6,788.12	-3,285.18	-311.05	3,299.87	0.00	0.00	0.00
10,000.00	90.34	185.41	6,787.52	-3,384.73	-320.48	3,399.87	0.00	0.00	0.00
10,100.00	90.34	185.41	6,786.92	-3,484.29	-329.91	3,499.87	0.00	0.00	0.00
10,200.00	90.34	185.41	6,786.32	-3,583.84	-339.33	3,599.87	0.00	0.00	0.00
10,300.00	90.34	185.41	6,785.73	-3,683.39	-348.76	3,699.87	0.00	0.00	0.00
10,400.00	90.34	185.41	6,785.13	-3,782.95	-358.18	3,799.87	0.00	0.00	0.00
10,500.00	90.34	185.41	6,784.53	-3,882.50	-367.61	3,899.86	0.00	0.00	0.00
10,600.00	90.34	185.41	6,783.93	-3,982.05	-377.04	3,999.86	0.00	0.00	0.00
10,700.00	90.34	185.41	6,783.33	-4,081.60	-386.46	4,099.86	0.00	0.00	0.00
10,800.00	90.34	185.41	6,782.73	-4,181.16	-395.89	4,199.86	0.00	0.00	0.00
10,900.00	90.34	185.41	6,782.14	-4,280.71	-405.32	4,299.86	0.00	0.00	0.00
11,000.00	90.34	185.41	6,781.54	-4,380.26	-414.74	4,399.85	0.00	0.00	0.00
11,100.00	90.34	185.41	6,780.94	-4,479.82	-424.17	4,499.85	0.00	0.00	0.00
11,200.00	90.34	185.41	6,780.34	-4,579.37	-433.59	4,599.85	0.00	0.00	0.00
11,300.00	90.34	185.41	6,779.74	-4,678.92	-443.02	4,699.85	0.00	0.00	0.00
11,400.00	90.34	185.41	6,779.14	-4,778.48	-452.45	4,799.85	0.00	0.00	0.00
11,423.81	90.34	185.41	6,779.00	-4,802.18	-454.69	4,823.66	0.00	0.00	0.00
TD - PBHL (LTD13SC 12H)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (LTD13SC 12H)	0.00	0.00	0.00	0.00	0.00	541,022.69	600,835.05	32° 29' 13.868 N	104° 8' 25.336 W
- hit/miss target									
- plan hits target center									
- Point									
PBHL (LTD13SC 12H)	0.00	0.00	6,779.00	-4,802.18	-454.69	536,220.51	600,380.36	32° 28' 26.355 N	104° 8' 30.746 W
- plan hits target center									
- Point									

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 12H
Company:	DEVON ENERGY	TVD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Project:	Eddy County, NM (NAD-83)	MD Reference:	Cactus 126: 3170.4' GL + 25' RKB @ 3195.40usft (Original Well Elev)
Site:	Lone Tree Draw "13" State Com	North Reference:	Grid
Well:	12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
345.00	345.00	Salado		0.00		
568.00	568.00	Tansil		0.00		
661.00	661.00	Yates		0.00		
905.00	905.00	Capitan		0.00		
2,695.00	2,695.00	Capitan Base		0.00		
2,758.00	2,758.00	Delaware		0.00		
5,221.00	5,221.00	Lwr Brush Cyn		0.00		
5,431.00	5,431.00	1st BS LM		0.00		
5,574.00	5,574.00	Avalon Sand		0.00		
6,664.21	6,637.00	1st BS SS		0.00		
6,668.17	6,640.00	1st BS UPR Sd		0.00		
6,734.52	6,687.00	1st BS UPR Base		0.00		
6,753.18	6,699.00	1st BS MID SD Top		0.00		
6,811.91	6,733.00	1st BS MID SD Base		0.00		
6,935.39	6,784.00	1st BS LWR SD Top		0.00		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,327.54	6,327.54	0.00	0.00	KOP 12" DLS
7,080.40	6,805.00	-478.18	-45.28	LP
11,423.81	6,779.00	-4,802.18	-454.69	TD