

DEVON ENERGY

Project: Lea County, NM (NAD-83)
Site: Black Mamba 15 State Com
Well: 5H
Wellbore: 5H OH
Design: Plan #1



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.94°

Magnetic Field
Strength: 48305.9snT
Dip Angle: 60.18°
Date: 9/9/2014
Model: BGGM2014

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

HOBBS OCD

devon

OCT 02 2014

DESIGN TARGET DETAILS

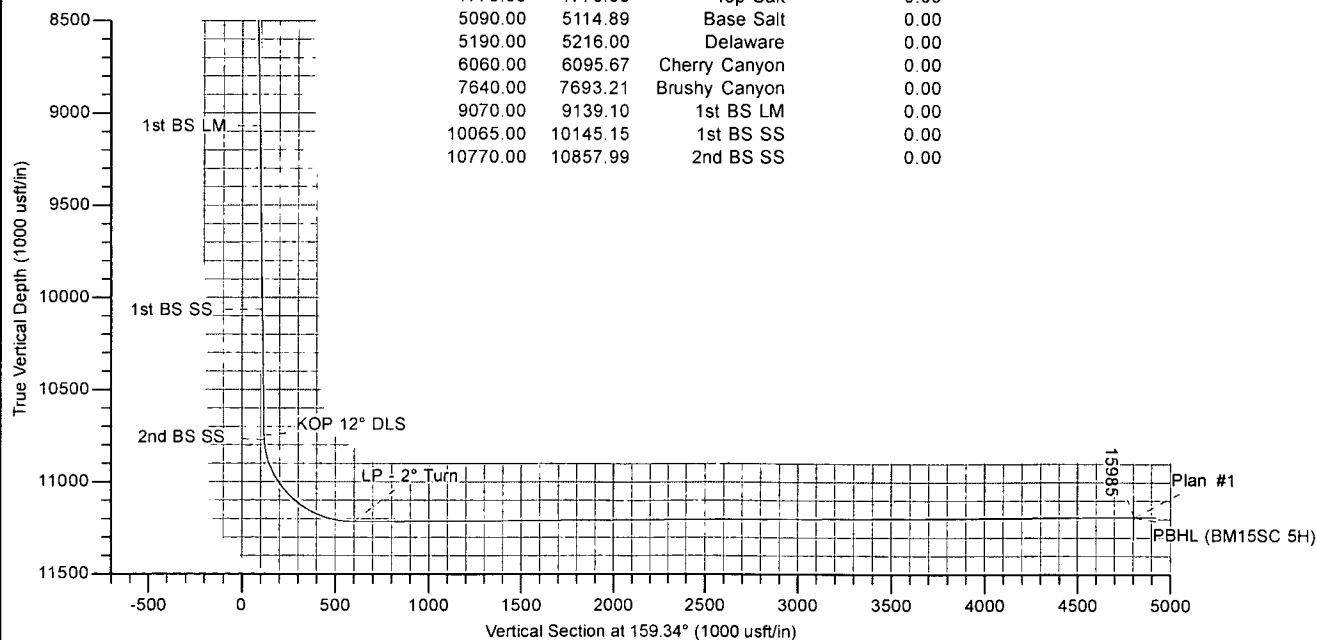
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (BM15SC 5H)	0.00	0.00	0.00	477648.16	780502.27	32° 18' 38.713 N	103° 33' 33.092 W
PBHL (BM15SC 5H)	11190.00	-4496.17	1695.32	473151.99	782197.59	32° 17' 54.101 N	103° 33' 13.719 W

SECTION DETAILS

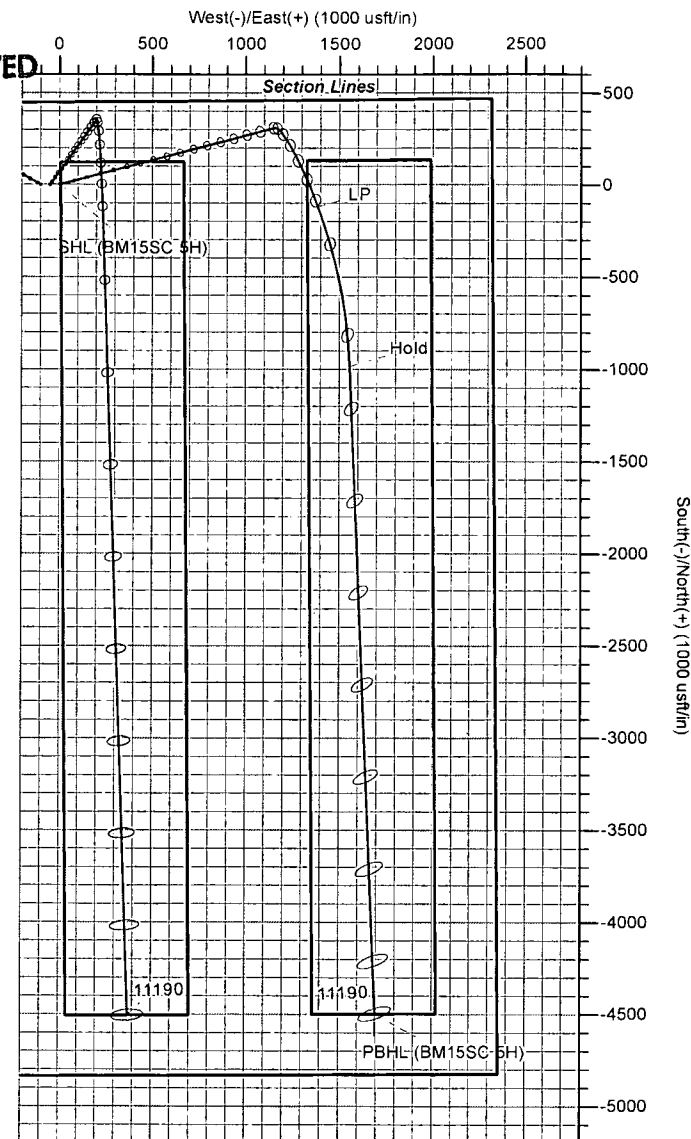
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2470.98	0.00	0.00	2470.98	0.00	0.00	0.00	0.00	0.00	Start Nudge
3	3037.65	8.50	75.00	3035.57	10.86	40.53	1.50	75.00	4.14	Hold
4	10837.65	8.50	75.00	10749.89	309.26	1154.16	0.00	0.00	117.83	KOP 12° DLS
5	11584.30	90.34	160.00	11216.00	-118.13	1384.01	12.00	85.00	598.83	LP - 2° Turn
6	12469.48	90.34	177.70	11210.72	-983.15	1554.47	2.00	89.95	1468.36	Hold
7	15985.39	90.34	177.70	11190.00	-4496.17	1695.32	0.00	0.00	4805.17	TD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1290.00	1290.00	Rustler	0.00	
1770.00	1770.00	Top Salt	0.00	
5090.00	5114.89	Base Salt	0.00	
5190.00	5216.00	Delaware	0.00	
6060.00	6095.67	Cherry Canyon	0.00	
7640.00	7693.21	Brushy Canyon	0.00	
9070.00	9139.10	1st BS LM	0.00	
10065.00	10145.15	1st BS SS	0.00	
10770.00	10857.99	2nd BS SS	0.00	



RECEIVED



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

Plan: Plan #1 (5H/5H OH)
Black Mamba 15 State Com
Created By: Brady Deaver
Date: 13:54, September 09 2014
Approved: _____ Date: _____

HOBBS OCD
OCT 02 2014
RECEIVED

DEVON ENERGY

Lea County, NM (NAD-83)
Black Mamba 15 State Com
5H

5H OH

Plan: Plan #1

Standard Planning Report

09 September, 2014

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Site:	Black Mamba 15 State Com	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	5H OH		
Design:	Plan #1		

Project	Lea 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	Black Mamba 15 State Com				
Site Position:		Northing:	477,647.32 usft	Latitude:	32° 18' 38.711 N
From:	Map	Easting:	780,402.30 usft	Longitude:	103° 33' 34.257 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	5H, 2nd BS SS					
Well Position	+N/-S	0.84 usft	Northing:	477,648.16 usft	Latitude:	32° 18' 38.713 N
	+E/-W	99.97 usft	Easting:	780,502.27 usft	Longitude:	103° 33' 33.092 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	3,729.90 usft	Ground Level:	3,704.90 usft

Wellbore	5H OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	9/9/2014	7.35	60.18	48,306

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	159.34	

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	
2,470.98	0.00	0.00	2,470.98	0.00	0.00	0.00	0.00	0.00	0.00	
3,037.65	8.50	75.00	3,035.57	10.86	40.53	1.50	1.50	0.00	75.00	
10,837.65	8.50	75.00	10,749.89	309.26	1,154.16	0.00	0.00	0.00	0.00	
11,584.30	90.34	160.00	11,216.00	-118.13	1,384.01	12.00	10.96	11.38	85.00	
12,469.48	90.34	177.70	11,210.72	-983.15	1,554.47	2.00	0.00	2.00	89.95	
15,985.39	90.34	177.70	11,190.00	-4,496.17	1,695.32	0.00	0.00	0.00	0.00	PBHL (BM15SC 5H)

LEAM Drilling Systems LLC

Planning Report

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Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Site:	Black Mamba 15 State Com	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	5H 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 (BM15SC 5H)									
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
1,290.00	0.00	0.00	1,290.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
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
1,770.00	0.00	0.00	1,770.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
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
2,470.98	0.00	0.00	2,470.98	0.00	0.00	0.00	0.00	0.00	0.00
Start Nudge									
2,500.00	0.44	75.00	2,500.00	0.03	0.11	0.01	1.50	1.50	0.00
2,600.00	1.94	75.00	2,599.98	0.56	2.10	0.21	1.50	1.50	0.00
2,700.00	3.44	75.00	2,699.86	1.78	6.63	0.68	1.50	1.50	0.00
2,800.00	4.94	75.00	2,799.59	3.67	13.68	1.40	1.50	1.50	0.00
2,900.00	6.44	75.00	2,899.10	6.23	23.25	2.37	1.50	1.50	0.00
3,000.00	7.94	75.00	2,998.31	9.47	35.33	3.61	1.50	1.50	0.00
3,037.65	8.50	75.00	3,035.57	10.86	40.53	4.14	1.50	1.50	0.00
Hold									
3,100.00	8.50	75.00	3,097.24	13.24	49.43	5.05	0.00	0.00	0.00
3,200.00	8.50	75.00	3,196.14	17.07	63.71	6.50	0.00	0.00	0.00
3,300.00	8.50	75.00	3,295.04	20.90	77.98	7.96	0.00	0.00	0.00
3,400.00	8.50	75.00	3,393.94	24.72	92.26	9.42	0.00	0.00	0.00
3,500.00	8.50	75.00	3,492.85	28.55	106.54	10.88	0.00	0.00	0.00
3,600.00	8.50	75.00	3,591.75	32.37	120.82	12.33	0.00	0.00	0.00
3,700.00	8.50	75.00	3,690.65	36.20	135.09	13.79	0.00	0.00	0.00
3,800.00	8.50	75.00	3,789.55	40.02	149.37	15.25	0.00	0.00	0.00
3,900.00	8.50	75.00	3,888.45	43.85	163.65	16.71	0.00	0.00	0.00
4,000.00	8.50	75.00	3,987.35	47.67	177.92	18.16	0.00	0.00	0.00
4,100.00	8.50	75.00	4,086.25	51.50	192.20	19.62	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Site:	Black Mamba 15 State Corn	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	5H 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)
4,200.00	8.50	75.00	4,185.16	55.33	206.48	21.08	0.00	0.00	0.00
4,300.00	8.50	75.00	4,284.06	59.15	220.76	22.54	0.00	0.00	0.00
4,400.00	8.50	75.00	4,382.96	62.98	235.03	24.00	0.00	0.00	0.00
4,500.00	8.50	75.00	4,481.86	66.80	249.31	25.45	0.00	0.00	0.00
4,600.00	8.50	75.00	4,580.76	70.63	263.59	26.91	0.00	0.00	0.00
4,700.00	8.50	75.00	4,679.66	74.45	277.87	28.37	0.00	0.00	0.00
4,800.00	8.50	75.00	4,778.57	78.28	292.14	29.83	0.00	0.00	0.00
4,900.00	8.50	75.00	4,877.47	82.11	306.42	31.28	0.00	0.00	0.00
5,000.00	8.50	75.00	4,976.37	85.93	320.70	32.74	0.00	0.00	0.00
5,100.00	8.50	75.00	5,075.27	89.76	334.97	34.20	0.00	0.00	0.00
5,114.89	8.50	75.00	5,090.00	90.33	337.10	34.42	0.00	0.00	0.00
Base Salt									
5,200.00	8.50	75.00	5,174.17	93.58	349.25	35.66	0.00	0.00	0.00
5,216.00	8.50	75.00	5,190.00	94.19	351.54	35.89	0.00	0.00	0.00
Delaware									
5,300.00	8.50	75.00	5,273.07	97.41	363.53	37.11	0.00	0.00	0.00
5,400.00	8.50	75.00	5,371.98	101.23	377.81	38.57	0.00	0.00	0.00
5,500.00	8.50	75.00	5,470.88	105.06	392.08	40.03	0.00	0.00	0.00
5,600.00	8.50	75.00	5,569.78	108.88	406.36	41.49	0.00	0.00	0.00
5,700.00	8.50	75.00	5,668.68	112.71	420.64	42.94	0.00	0.00	0.00
5,800.00	8.50	75.00	5,767.58	116.54	434.92	44.40	0.00	0.00	0.00
5,900.00	8.50	75.00	5,866.48	120.36	449.19	45.86	0.00	0.00	0.00
6,000.00	8.50	75.00	5,965.38	124.19	463.47	47.32	0.00	0.00	0.00
6,095.67	8.50	75.00	6,060.00	127.85	477.13	48.71	0.00	0.00	0.00
Cherry Canyon									
6,100.00	8.50	75.00	6,064.29	128.01	477.75	48.77	0.00	0.00	0.00
6,200.00	8.50	75.00	6,163.19	131.84	492.03	50.23	0.00	0.00	0.00
6,300.00	8.50	75.00	6,262.09	135.66	506.30	51.69	0.00	0.00	0.00
6,400.00	8.50	75.00	6,360.99	139.49	520.58	53.15	0.00	0.00	0.00
6,500.00	8.50	75.00	6,459.89	143.31	534.86	54.61	0.00	0.00	0.00
6,600.00	8.50	75.00	6,558.79	147.14	549.13	56.06	0.00	0.00	0.00
6,700.00	8.50	75.00	6,657.70	150.97	563.41	57.52	0.00	0.00	0.00
6,800.00	8.50	75.00	6,756.60	154.79	577.69	58.98	0.00	0.00	0.00
6,900.00	8.50	75.00	6,855.50	158.62	591.97	60.44	0.00	0.00	0.00
7,000.00	8.50	75.00	6,954.40	162.44	606.24	61.89	0.00	0.00	0.00
7,100.00	8.50	75.00	7,053.30	166.27	620.52	63.35	0.00	0.00	0.00
7,200.00	8.50	75.00	7,152.20	170.09	634.80	64.81	0.00	0.00	0.00
7,300.00	8.50	75.00	7,251.11	173.92	649.08	66.27	0.00	0.00	0.00
7,400.00	8.50	75.00	7,350.01	177.74	663.35	67.72	0.00	0.00	0.00
7,500.00	8.50	75.00	7,448.91	181.57	677.63	69.18	0.00	0.00	0.00
7,600.00	8.50	75.00	7,547.81	185.40	691.91	70.64	0.00	0.00	0.00
7,693.21	8.50	75.00	7,640.00	188.96	705.22	72.00	0.00	0.00	0.00
Brushy Canyon									
7,700.00	8.50	75.00	7,646.71	189.22	706.18	72.10	0.00	0.00	0.00
7,800.00	8.50	75.00	7,745.61	193.05	720.46	73.55	0.00	0.00	0.00
7,900.00	8.50	75.00	7,844.52	196.87	734.74	75.01	0.00	0.00	0.00
8,000.00	8.50	75.00	7,943.42	200.70	749.02	76.47	0.00	0.00	0.00
8,100.00	8.50	75.00	8,042.32	204.52	763.29	77.93	0.00	0.00	0.00
8,200.00	8.50	75.00	8,141.22	208.35	777.57	79.38	0.00	0.00	0.00
8,300.00	8.50	75.00	8,240.12	212.18	791.85	80.84	0.00	0.00	0.00
8,400.00	8.50	75.00	8,339.02	216.00	806.13	82.30	0.00	0.00	0.00
8,500.00	8.50	75.00	8,437.92	219.83	820.40	83.76	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

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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)
8,600.00	8.50	75.00	8,536.83	223.65	834.68	85.22	0.00	0.00	0.00
8,700.00	8.50	75.00	8,635.73	227.48	848.96	86.67	0.00	0.00	0.00
8,800.00	8.50	75.00	8,734.63	231.30	863.23	88.13	0.00	0.00	0.00
8,900.00	8.50	75.00	8,833.53	235.13	877.51	89.59	0.00	0.00	0.00
9,000.00	8.50	75.00	8,932.43	238.95	891.79	91.05	0.00	0.00	0.00
9,100.00	8.50	75.00	9,031.33	242.78	906.07	92.50	0.00	0.00	0.00
9,139.10	8.50	75.00	9,070.00	244.28	911.65	93.07	0.00	0.00	0.00
1st BS LM									
9,200.00	8.50	75.00	9,130.24	246.61	920.34	93.96	0.00	0.00	0.00
9,300.00	8.50	75.00	9,229.14	250.43	934.62	95.42	0.00	0.00	0.00
9,400.00	8.50	75.00	9,328.04	254.26	948.90	96.88	0.00	0.00	0.00
9,500.00	8.50	75.00	9,426.94	258.08	963.18	98.33	0.00	0.00	0.00
9,600.00	8.50	75.00	9,525.84	261.91	977.45	99.79	0.00	0.00	0.00
9,700.00	8.50	75.00	9,624.74	265.73	991.73	101.25	0.00	0.00	0.00
9,800.00	8.50	75.00	9,723.65	269.56	1,006.01	102.71	0.00	0.00	0.00
9,900.00	8.50	75.00	9,822.55	273.38	1,020.28	104.16	0.00	0.00	0.00
10,000.00	8.50	75.00	9,921.45	277.21	1,034.56	105.62	0.00	0.00	0.00
10,100.00	8.50	75.00	10,020.35	281.04	1,048.84	107.08	0.00	0.00	0.00
10,145.15	8.50	75.00	10,065.00	282.76	1,055.29	107.74	0.00	0.00	0.00
1st BS SS									
10,200.00	8.50	75.00	10,119.25	284.86	1,063.32	108.54	0.00	0.00	0.00
10,300.00	8.50	75.00	10,218.15	288.69	1,077.39	109.99	0.00	0.00	0.00
10,400.00	8.50	75.00	10,317.05	292.51	1,091.67	111.45	0.00	0.00	0.00
10,500.00	8.50	75.00	10,415.96	296.34	1,105.95	112.91	0.00	0.00	0.00
10,600.00	8.50	75.00	10,514.86	300.16	1,120.23	114.37	0.00	0.00	0.00
10,700.00	8.50	75.00	10,613.76	303.99	1,134.50	115.83	0.00	0.00	0.00
10,800.00	8.50	75.00	10,712.66	307.81	1,148.78	117.28	0.00	0.00	0.00
10,837.65	8.50	75.00	10,749.89	309.26	1,154.16	117.83	0.00	0.00	0.00
KOP 12° DLS									
10,850.00	8.75	84.75	10,762.11	309.58	1,155.97	118.17	12.00	2.05	78.92
10,857.99	9.04	90.66	10,770.00	309.63	1,157.21	118.56	12.00	3.62	74.00
2nd BS SS									
10,875.00	9.94	101.81	10,786.78	309.31	1,159.98	119.84	12.00	5.28	65.52
10,900.00	11.79	114.43	10,811.34	307.81	1,164.42	122.80	12.00	7.38	50.49
10,925.00	14.03	123.38	10,835.70	305.09	1,169.28	127.06	12.00	8.98	35.81
10,950.00	16.51	129.80	10,859.82	301.15	1,174.54	132.61	12.00	9.93	25.69
10,975.00	19.14	134.55	10,883.62	295.99	1,180.19	139.42	12.00	10.51	18.97
11,000.00	21.86	138.17	10,907.04	289.65	1,186.21	147.49	12.00	10.88	14.48
11,025.00	24.64	141.01	10,930.00	282.13	1,192.60	156.78	12.00	11.13	11.38
11,050.00	27.47	143.31	10,952.46	273.45	1,199.32	167.27	12.00	11.30	9.19
11,075.00	30.33	145.21	10,974.35	263.64	1,206.37	178.93	12.00	11.43	7.58
11,100.00	33.21	146.80	10,995.60	252.73	1,213.72	191.74	12.00	11.52	6.39
11,125.00	36.10	148.17	11,016.16	240.74	1,221.36	205.65	12.00	11.59	5.47
11,150.00	39.01	149.36	11,035.98	227.71	1,229.25	220.63	12.00	11.64	4.76
11,175.00	41.94	150.41	11,055.00	213.67	1,237.39	236.63	12.00	11.69	4.20
11,200.00	44.87	151.35	11,073.16	198.67	1,245.75	253.62	12.00	11.72	3.75
11,225.00	47.80	152.19	11,090.42	182.73	1,254.30	271.55	12.00	11.75	3.38
11,250.00	50.75	152.96	11,106.73	165.92	1,263.02	290.36	12.00	11.77	3.08
11,275.00	53.69	153.67	11,122.04	148.26	1,271.89	310.01	12.00	11.79	2.83
11,300.00	56.64	154.33	11,136.32	129.82	1,280.88	330.44	12.00	11.81	2.62
11,325.00	59.60	154.94	11,149.52	110.64	1,289.98	351.59	12.00	11.82	2.45

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Site:	Black Mamba 15 State Com	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	5H 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)
11,350.00	62.56	155.52	11,161.61	90.77	1,299.14	373.42	12.00	11.83	2.31
11,375.00	65.52	156.06	11,172.55	70.28	1,308.36	395.85	12.00	11.84	2.19
11,400.00	68.48	156.58	11,182.32	49.20	1,317.60	418.82	12.00	11.85	2.09
11,425.00	71.44	157.08	11,190.89	27.61	1,326.83	442.29	12.00	11.85	2.00
11,450.00	74.40	157.57	11,198.23	5.56	1,336.04	466.17	12.00	11.86	1.93
11,475.00	77.37	158.04	11,204.32	-16.88	1,345.20	490.40	12.00	11.86	1.88
11,500.00	80.34	158.50	11,209.16	-39.66	1,354.28	514.92	12.00	11.86	1.84
11,525.00	83.30	158.95	11,212.71	-62.72	1,363.26	539.66	12.00	11.87	1.80
11,550.00	86.27	159.39	11,214.99	-85.99	1,372.11	564.56	12.00	11.87	1.78
11,575.00	89.24	159.84	11,215.97	-109.40	1,380.81	589.53	12.00	11.87	1.77
11,584.30	90.34	160.00	11,216.00	-118.13	1,384.01	598.83	12.00	11.87	1.77
LP - 2° Turn									
11,600.00	90.34	160.31	11,215.91	-132.90	1,389.34	614.53	2.00	0.00	2.00
11,700.00	90.34	162.31	11,215.31	-227.63	1,421.37	714.46	2.00	0.00	2.00
11,800.00	90.34	164.31	11,214.72	-323.41	1,450.08	814.22	2.00	0.00	2.00
11,900.00	90.34	166.31	11,214.12	-420.13	1,475.43	913.67	2.00	0.00	2.00
12,000.00	90.34	168.31	11,213.52	-517.69	1,497.39	1,012.69	2.00	0.00	2.00
12,100.00	90.34	170.31	11,212.92	-615.95	1,515.93	1,111.18	2.00	0.00	2.00
12,200.00	90.34	172.31	11,212.32	-714.79	1,531.03	1,208.99	2.00	0.00	2.00
12,300.00	90.34	174.31	11,211.73	-814.11	1,542.68	1,306.03	2.00	0.00	2.00
12,400.00	90.34	176.31	11,211.13	-913.76	1,550.84	1,402.16	2.00	0.00	2.00
12,469.48	90.34	177.70	11,210.72	-983.15	1,554.47	1,468.36	2.00	0.00	2.00
Hold									
12,500.00	90.34	177.70	11,210.54	-1,013.64	1,555.69	1,497.32	0.00	0.00	0.00
12,600.00	90.34	177.70	11,209.95	-1,113.56	1,559.70	1,592.23	0.00	0.00	0.00
12,700.00	90.34	177.70	11,209.36	-1,213.48	1,563.70	1,687.14	0.00	0.00	0.00
12,800.00	90.34	177.70	11,208.78	-1,313.40	1,567.71	1,782.04	0.00	0.00	0.00
12,900.00	90.34	177.70	11,208.19	-1,413.31	1,571.72	1,876.95	0.00	0.00	0.00
13,000.00	90.34	177.70	11,207.60	-1,513.23	1,575.72	1,971.86	0.00	0.00	0.00
13,100.00	90.34	177.70	11,207.01	-1,613.15	1,579.73	2,066.76	0.00	0.00	0.00
13,200.00	90.34	177.70	11,206.42	-1,713.07	1,583.73	2,161.67	0.00	0.00	0.00
13,300.00	90.34	177.70	11,205.83	-1,812.99	1,587.74	2,256.57	0.00	0.00	0.00
13,400.00	90.34	177.70	11,205.24	-1,912.90	1,591.75	2,351.48	0.00	0.00	0.00
13,500.00	90.34	177.70	11,204.65	-2,012.82	1,595.75	2,446.39	0.00	0.00	0.00
13,600.00	90.34	177.70	11,204.06	-2,112.74	1,599.76	2,541.29	0.00	0.00	0.00
13,700.00	90.34	177.70	11,203.47	-2,212.66	1,603.76	2,636.20	0.00	0.00	0.00
13,800.00	90.34	177.70	11,202.88	-2,312.58	1,607.77	2,731.10	0.00	0.00	0.00
13,900.00	90.34	177.70	11,202.29	-2,412.49	1,611.78	2,826.01	0.00	0.00	0.00
14,000.00	90.34	177.70	11,201.70	-2,512.41	1,615.78	2,920.92	0.00	0.00	0.00
14,100.00	90.34	177.70	11,201.11	-2,612.33	1,619.79	3,015.82	0.00	0.00	0.00
14,200.00	90.34	177.70	11,200.52	-2,712.25	1,623.80	3,110.73	0.00	0.00	0.00
14,300.00	90.34	177.70	11,199.93	-2,812.17	1,627.80	3,205.63	0.00	0.00	0.00
14,400.00	90.34	177.70	11,199.34	-2,912.08	1,631.81	3,300.54	0.00	0.00	0.00
14,500.00	90.34	177.70	11,198.76	-3,012.00	1,635.81	3,395.45	0.00	0.00	0.00
14,600.00	90.34	177.70	11,198.17	-3,111.92	1,639.82	3,490.35	0.00	0.00	0.00
14,700.00	90.34	177.70	11,197.58	-3,211.84	1,643.83	3,585.26	0.00	0.00	0.00
14,800.00	90.34	177.70	11,196.99	-3,311.76	1,647.83	3,680.17	0.00	0.00	0.00
14,900.00	90.34	177.70	11,196.40	-3,411.67	1,651.84	3,775.07	0.00	0.00	0.00
15,000.00	90.34	177.70	11,195.81	-3,511.59	1,655.84	3,869.98	0.00	0.00	0.00
15,100.00	90.34	177.70	11,195.22	-3,611.51	1,659.85	3,964.88	0.00	0.00	0.00
15,200.00	90.34	177.70	11,194.63	-3,711.43	1,663.86	4,059.79	0.00	0.00	0.00
15,300.00	90.34	177.70	11,194.04	-3,811.35	1,667.86	4,154.70	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3704.9' GL + 25' RKB @ 3729.90usft
Site:	Black Mamba 15 State Com	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	5H 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)	
15,400.00	90.34	177.70	11,193.45	-3,911.26	1,671.87	4,249.60	0.00	0.00	0.00	
15,500.00	90.34	177.70	11,192.86	-4,011.18	1,675.87	4,344.51	0.00	0.00	0.00	
15,600.00	90.34	177.70	11,192.27	-4,111.10	1,679.88	4,439.41	0.00	0.00	0.00	
15,700.00	90.34	177.70	11,191.68	-4,211.02	1,683.89	4,534.32	0.00	0.00	0.00	
15,800.00	90.34	177.70	11,191.09	-4,310.94	1,687.89	4,629.23	0.00	0.00	0.00	
15,900.00	90.34	177.70	11,190.50	-4,410.85	1,691.90	4,724.13	0.00	0.00	0.00	
15,985.39	90.34	177.70	11,190.00	-4,496.17	1,695.32	4,805.17	0.00	0.00	0.00	
TD - PBHL (BM15SC 5H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL (BM15SC 5H)	0.00	0.00	0.00	0.00	0.00	477,648.16	780,502.27	32° 18' 38.713 N	103° 33' 33.092 W	
- plan hits target center										
- Point										
PBHL (BM15SC 5H)	0.00	0.00	11,190.00	-4,496.17	1,695.32	473,151.99	782,197.59	32° 17' 54.101 N	103° 33' 13.719 W	
- plan hits target center										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,290.00	1,290.00	Rustler		0.00		
1,770.00	1,770.00	Top Salt		0.00		
5,114.89	5,090.00	Base Salt		0.00		
5,216.00	5,190.00	Delaware		0.00		
6,095.67	6,060.00	Cherry Canyon		0.00		
7,693.21	7,640.00	Brushy Canyon		0.00		
9,139.10	9,070.00	1st BS LM		0.00		
10,145.15	10,065.00	1st BS SS		0.00		
10,857.99	10,770.00	2nd BS SS		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,470.98	2,470.98	0.00	0.00	Start Nudge	
3,037.65	3,035.57	10.86	40.53	Hold	
10,837.65	10,749.89	309.26	1,154.16	KOP 12° DLS	
11,584.30	11,216.00	-118.13	1,384.01	LP - 2° Turn	
12,469.48	11,210.72	-983.15	1,554.47	Hold	
15,985.39	11,190.00	-4,496.17	1,695.32	TD	