

JUN 12 2015

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30-025-42631

devon

Black Mamba 15 State Com 9H
Lea Co, NM

Weatherford

Plan Data for Black Mamba 15 State Com 9H

Plan Point Information:									
Dogleg	Severity	Unit:	Position offsets from Slot centre						
MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
0.00	0.00	0.00	0.00	0.00	0.00	478571.53	782185.32	0.00	0.00
5300.00	0.00	0.00	5300.00	0.00	0.00	478571.53	782185.32	0.00	0.00
5550.00	5.00	90.00	5549.68	0.00	10.90	478571.53	782116.22	0.81	2.00
9113.50	5.00	90.00	9099.62	0.00	321.48	478571.53	782426.80	23.82	0.00
9363.50	0.00	0.00	9349.51	0.00	332.38	478571.53	782437.70	24.63	2.00
10446.24	0.00	0.00	10432.05	0.00	332.38	478571.53	782437.70	24.63	0.00
11348.61	90.24	179.26	11005.00	-575.28	339.80	477996.25	782445.12	598.88	10.00
16191.07	90.24	179.26	10985.00	-5417.29	402.26	473154.24	782507.58	5432.20	0.00

Plan Data for Black Mamba 15 State Com 9H

Slot: Black Mamba 15 State Com 9H
Position:
Offset is from Site centre
+N/-S: 0.82USft Northing: 478571.53USft Latitude: 32°18'47.7"
+E/-W: 99.99USft Easting: 782185.32USft Longitude: -103°33'14.3"
Elevation Above VRD: 3650.00USft

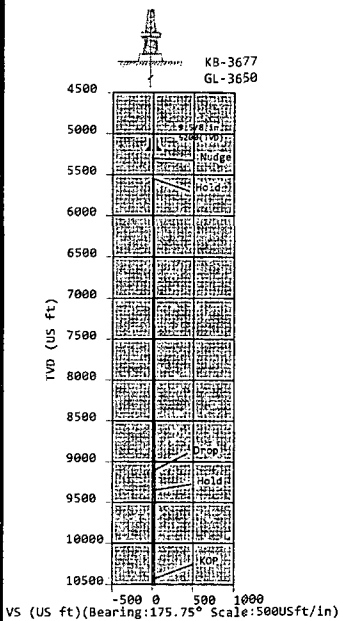
Plan Data for Black Mamba 15 State Com 9H

Target Set Information:
Name: Black Mamba 15 State Com 9H
Position offsets from Slot centre
Name TVD +N/-S +E/-W Northing Easting Shape Comment
(USft) (USft) (USft) (USft) (USft)
PBHL 9H 10985.00 -5417.29 402.26 473154.24 782507.58 Cuboid

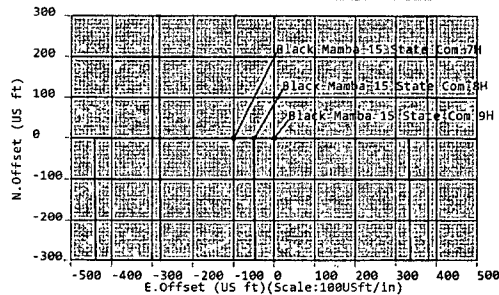
Plan Data for Black Mamba 15 State Com 9H

Well: Black Mamba 15 State Com 9H
Type: Main-Well
File Number:
Plan Folder: P1 Plan: P1-V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 175.75°
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
BGM 48259(nT) 7.21° 60.22° 2015-11-15

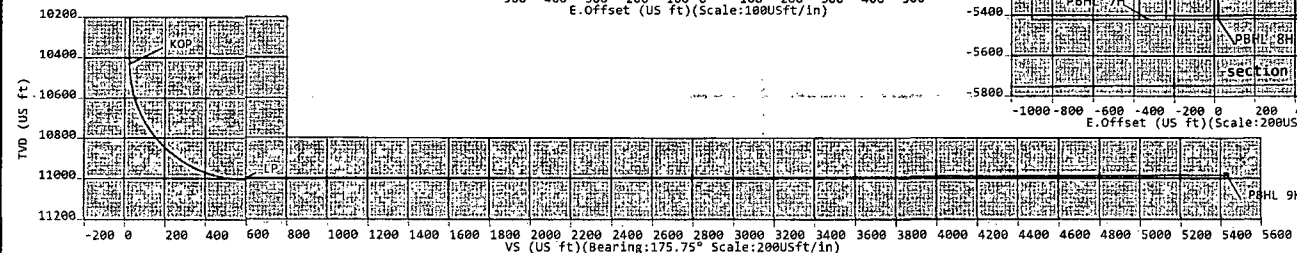
Black Mamba 15 State Com 9H
Black Mamba 15 State Com 7H
Black Mamba 15 State Com 8H



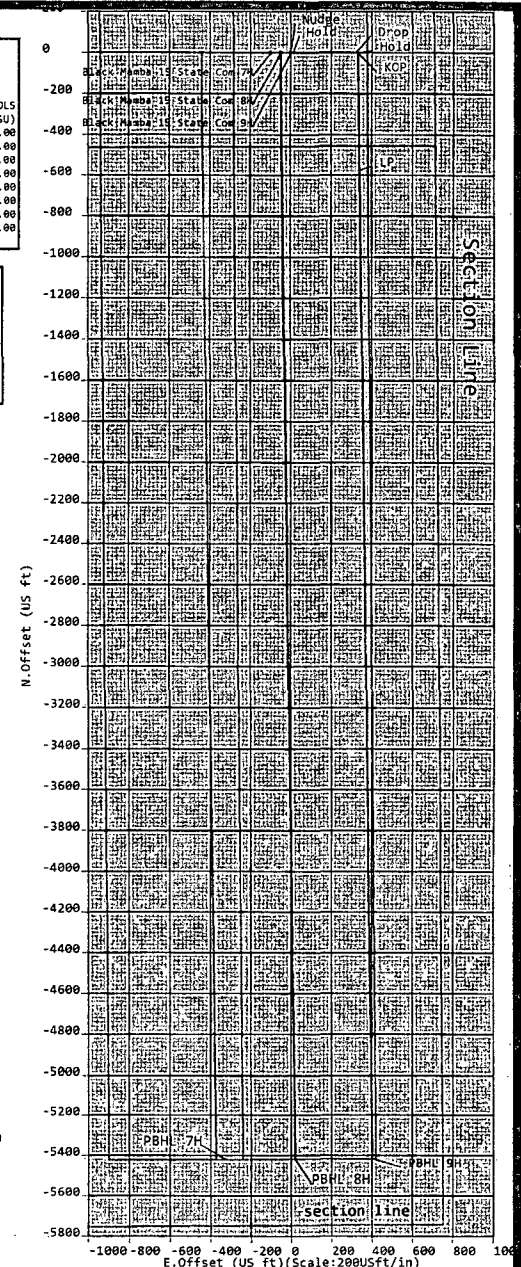
VS (US ft)(Bearing:175.75° Scale:500USft/in)



E-Offset (US ft)(Scale:100USft/in)



VS (US ft)(Bearing:175.75° Scale:200USft/in)



E-Offset (US ft)(Scale:200USft/in)

Sign Off: Russell Joyner

JUN 12 2015

5D Plan Report**Devon Energy****Field Name:** *Lea Co, NM Nad 83 NMEZ***Site Name:** *Black Mamba 15 State Com 7H,8H,9H Pad***Well Name:** *Black Mamba 15 State Com 9H***Plan:** *P1:V1*

03 June 2015

**Weatherford®**

Black Mamba 15 State Com 9H

Field Name	Map Units : US ft Vertical Reference Datum (VRD) : Mean Sea Level Projected Coordinate System : NAD83 / New Mexico East (ftUS) Comment :		
Site Name	Units : US ft	North Reference : Grid	Convergence Angle : 0.42
Black Mamba 15 State Com 7H, 8H, 9H Pad	Position	Northing : 478570.71 US ft	Latitude : 32° 18' 47.73"
		Easting : 782005.33 US ft	Longitude : -103° 33' 15.50"
	Elevation above Mean Sea Level: 3653.00 US ft		
	Comment :		
Slot Name	Position (Offsets relative to Site Centre)		
Black Mamba 15 State Com 9H	+N / -S : 0.82 US ft	Northing : 478571.53 US ft	Latitude : 32° 18' 47.73"
	+E / -W : 99.99 US ft	Easting : 782105.32 US ft	Longitude : -103° 33' 14.34"
	Slot TVD Reference : Ground Elevation		
	Elevation above Mean Sea Level : 3650.00 US ft		
	Comment :		
Well Name	Type : Main well	UWI :	Plan : P1:V1
Black Mamba 15 State Com 9H	Rig Height <i>Kelly Bushing</i> : 27.00 US ft	Comment :	
	Relative to Mean Sea Level: 3677.00 US ft		
	Closure Distance : 5432.2 US ft	Closure Azimuth : 175.753°	
	Vertical Section (Position of Origin Relative to Slot)		
	+N / -S : 0.00 US ft	+E / -W : 0.00 US ft	Az : 175.75°
	Magnetic Parameters		
	Model : BGGM	Field Strength : 48259.0nT	Dec : 7.21°
		Dip : 60.22°	Date : 15/Nov/2015

Target Set
Name : Black Mamba 15 Number of Targets : 1
State Com 9H

Comment :

Target Name	Position (Relative to Slot centre)		
PBHL 9H	+N / -S : -5417.29 US ft	Northing : 473154.24 US ft	Latitude : 32° 17' 54.10"
	+E / -W : 402.26 US ft	Easting : 782507.58 US ft	Longitude : -103° 33' 10.11"
Shape:	TVD (Kelly Bushing) : 10985.00 US ft		
Cuboid	Orientation Azimuth : 0.00°	Inclination : 0.00°	
	Dimensions Length : 20.00 US ft	Breadth : 20.00 US ft	Height : 20.00 US ft

Casing Points (Relative to Slot centre, TVD relative to Kelly Bushing)								
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N Offset (US ft)	E Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
5200.00	0.00	0.00	5200.00	0.00	0.00	478571.53	782105.32	9 5/8 in

5D Plan Report

Well path created using minimum curvature

Salient Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
ID (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	B. Rate (%/100 US ft)	T. Rate (%/100 US ft)	T. Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	
5200.00	0.00	0.00	5200.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	9 5/8 in
5300.00	0.00	0.00	5300.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	Nudge
5550.00	5.00	90.00	5549.68	0.00	10.90	0.81	2.00	2.00	0.00	90.00	Hold
9113.50	5.00	90.00	9099.62	0.00	321.48	23.82	0.00	0.00	0.00	0.00	Drop
9363.50	0.00	0.00	9349.31	0.00	332.38	24.63	2.00	-2.00	0.00	180.00	Hold
10446.24	0.00	0.00	10432.05	0.00	332.38	24.63	0.00	0.00	0.00	0.00	KOP
11348.61	90.24	179.26	11005.00	-575.28	339.80	598.88	10.00	10.00	0.00	179.26	LP
16191.07	90.24	179.26	10985.00	-5417.29	402.26	5432.20	0.00	0.00	0.00	0.00	PBHL 9H

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
ID (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)		Comment
5200.00	0.00	0.00	5200.00	0.00	0.00	-0.00	0.00	478571.53	782105.32		9 5/8 in
5300.00	0.00	0.00	5300.00	0.00	0.00	-0.00	0.00	478571.53	782105.32		Nudge
5400.00	2.00	90.00	5399.98	0.00	1.75	0.13	2.00	478571.53	782107.07		
5500.00	4.00	90.00	5499.84	0.00	6.98	0.52	2.00	478571.53	782112.30		
5550.00	5.00	90.00	5549.68	0.00	10.90	0.81	2.00	478571.53	782116.22		Hold
5600.00	5.00	90.00	5599.49	0.00	15.26	1.13	0.00	478571.53	782120.58		
5700.00	5.00	90.00	5699.11	0.00	23.97	1.78	0.00	478571.53	782129.29		
5800.00	5.00	90.00	5798.73	0.00	32.69	2.42	0.00	478571.53	782138.01		
5900.00	5.00	90.00	5898.35	0.00	41.41	3.07	0.00	478571.53	782146.73		
6000.00	5.00	90.00	5997.97	0.00	50.12	3.71	0.00	478571.53	782155.44		
6100.00	5.00	90.00	6097.59	0.00	58.84	4.36	0.00	478571.53	782164.16		
6200.00	5.00	90.00	6197.21	0.00	67.55	5.01	0.00	478571.53	782172.87		
6300.00	5.00	90.00	6296.83	0.00	76.27	5.65	0.00	478571.53	782181.59		
6400.00	5.00	90.00	6396.45	0.00	84.98	6.30	0.00	478571.53	782190.30		
6500.00	5.00	90.00	6496.07	0.00	93.70	6.94	0.00	478571.53	782199.02		
6600.00	5.00	90.00	6595.69	0.00	102.41	7.59	0.00	478571.53	782207.73		
6700.00	5.00	90.00	6695.31	0.00	111.13	8.24	0.00	478571.53	782216.45		
6800.00	5.00	90.00	6794.93	0.00	119.85	8.88	0.00	478571.53	782225.17		
6900.00	5.00	90.00	6894.55	0.00	128.56	9.53	0.00	478571.53	782233.88		
7000.00	5.00	90.00	6994.17	0.00	137.28	10.17	0.00	478571.53	782242.60		
7100.00	5.00	90.00	7093.78	0.00	145.99	10.82	0.00	478571.53	782251.31		
7200.00	5.00	90.00	7193.40	0.00	154.71	11.47	0.00	478571.53	782260.03		
7300.00	5.00	90.00	7293.02	0.00	163.42	12.11	0.00	478571.53	782268.74		
7400.00	5.00	90.00	7392.64	0.00	172.14	12.76	0.00	478571.53	782277.46		
7500.00	5.00	90.00	7492.26	0.00	180.86	13.40	0.00	478571.53	782286.18		
7600.00	5.00	90.00	7591.88	0.00	189.57	14.05	0.00	478571.53	782294.89		
7700.00	5.00	90.00	7691.50	0.00	198.29	14.69	0.00	478571.53	782303.61		
7800.00	5.00	90.00	7791.12	0.00	207.00	15.34	0.00	478571.53	782312.32		
7900.00	5.00	90.00	7890.74	0.00	215.72	15.99	0.00	478571.53	782321.04		
8000.00	5.00	90.00	7990.36	0.00	224.43	16.63	0.00	478571.53	782329.75		
8100.00	5.00	90.00	8089.98	0.00	233.15	17.28	0.00	478571.53	782338.47		
8200.00	5.00	90.00	8189.60	0.00	241.86	17.92	0.00	478571.53	782347.18		
8300.00	5.00	90.00	8289.22	0.00	250.58	18.57	0.00	478571.53	782355.90		
8400.00	5.00	90.00	8388.84	0.00	259.30	19.22	0.00	478571.53	782364.62		
8500.00	5.00	90.00	8488.46	0.00	268.01	19.86	0.00	478571.53	782373.33		
8600.00	5.00	90.00	8588.08	0.00	276.73	20.51	0.00	478571.53	782382.05		
8700.00	5.00	90.00	8687.70	0.00	285.44	21.15	0.00	478571.53	782390.76		
8800.00	5.00	90.00	8787.32	0.00	294.16	21.80	0.00	478571.53	782399.48		
8900.00	5.00	90.00	8886.94	0.00	302.87	22.45	0.00	478571.53	782408.19		
9000.00	5.00	90.00	8986.55	0.00	311.59	23.09	0.00	478571.53	782416.91		
9100.00	5.00	90.00	9086.17	0.00	320.30	23.74	0.00	478571.53	782425.62		
9113.50	5.00	90.00	9099.62	0.00	321.48	23.82	0.00	478571.53	782426.80		Drop
9200.00	3.27	90.00	9185.89	0.00	327.72	24.29	2.00	478571.53	782433.04		

SD Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
9300.00	1.27	90.00	9285.81	0.00	331.68	24.58	2.00	478571.53	782437.00	
9363.50	0.00	0.00	9349.31	0.00	332.38	24.63	2.00	478571.53	782437.70	Hold
9400.00	0.00	0.00	9385.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
9500.00	0.00	0.00	9485.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
9600.00	0.00	0.00	9585.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
9700.00	0.00	0.00	9685.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
9800.00	0.00	0.00	9785.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
9900.00	0.00	0.00	9885.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10000.00	0.00	0.00	9985.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10100.00	0.00	0.00	10085.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10200.00	0.00	0.00	10185.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10300.00	0.00	0.00	10285.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10400.00	0.00	0.00	10385.81	0.00	332.38	24.63	0.00	478571.53	782437.70	
10446.24	0.00	0.00	10432.05	0.00	332.38	24.63	0.00	478571.53	782437.70	KOP
10500.00	5.38	179.26	10485.73	-2.52	332.41	27.15	10.00	478569.01	782437.73	
10600.00	15.38	179.26	10583.97	-20.51	332.65	45.10	10.00	478551.02	782437.97	
10700.00	25.38	179.26	10677.59	-55.28	333.10	79.81	10.00	478516.25	782438.42	
10800.00	35.38	179.26	10763.75	-105.77	333.75	130.22	10.00	478465.76	782439.07	
10900.00	45.38	179.26	10839.84	-170.47	334.58	194.79	10.00	478401.06	782439.90	
11000.00	55.38	179.26	10903.53	-247.39	335.57	271.57	10.00	478324.14	782440.89	
11100.00	65.38	179.26	10952.90	-334.20	336.69	358.23	10.00	478237.33	782442.01	
11200.00	75.38	179.26	10986.44	-428.26	337.91	452.12	10.00	478143.27	782443.23	
11300.00	85.38	179.26	11003.14	-526.72	339.18	550.41	10.00	478044.81	782444.50	
11348.61	90.24	179.26	11005.00	-575.28	339.80	598.88	10.00	477996.25	782445.12	LP
11400.00	90.24	179.26	11004.79	-626.66	340.47	650.17	0.00	477944.87	782445.79	
11500.00	90.24	179.26	11004.38	-726.65	341.76	749.98	0.00	477844.88	782447.08	
11600.00	90.24	179.26	11003.96	-826.64	343.05	849.79	0.00	477744.89	782448.37	
11700.00	90.24	179.26	11003.55	-926.63	344.33	949.60	0.00	477644.90	782449.65	
11800.00	90.24	179.26	11003.14	-1026.62	345.62	1049.41	0.00	477544.91	782450.94	
11900.00	90.24	179.26	11002.73	-1126.61	346.91	1149.23	0.00	477444.92	782452.23	
12000.00	90.24	179.26	11002.31	-1226.61	348.20	1249.04	0.00	477344.92	782453.52	
12100.00	90.24	179.26	11001.90	-1326.60	349.49	1348.85	0.00	477244.93	782454.81	
12200.00	90.24	179.26	11001.49	-1426.59	350.78	1448.66	0.00	477144.94	782456.10	
12300.00	90.24	179.26	11001.07	-1526.58	352.07	1548.47	0.00	477044.95	782457.39	
12400.00	90.24	179.26	11000.66	-1626.57	353.36	1648.28	0.00	476944.96	782458.68	
12500.00	90.24	179.26	11000.25	-1726.56	354.65	1748.09	0.00	476844.97	782459.97	
12600.00	90.24	179.26	10999.83	-1826.55	355.94	1847.91	0.00	476744.98	782461.26	
12700.00	90.24	179.26	10999.42	-1926.54	357.23	1947.72	0.00	476644.99	782462.55	
12800.00	90.24	179.26	10999.01	-2026.53	358.52	2047.53	0.00	476545.00	782463.84	
12900.00	90.24	179.26	10998.59	-2126.52	359.81	2147.34	0.00	476445.01	782465.13	
13000.00	90.24	179.26	10998.18	-2226.51	361.10	2247.15	0.00	476345.02	782466.42	
13100.00	90.24	179.26	10997.77	-2326.50	362.39	2346.96	0.00	476245.03	782467.71	
13200.00	90.24	179.26	10997.36	-2426.50	363.68	2446.78	0.00	476145.03	782469.00	
13300.00	90.24	179.26	10996.94	-2526.49	364.97	2546.59	0.00	476045.04	782470.29	
13400.00	90.24	179.26	10996.53	-2626.48	366.26	2646.40	0.00	475945.05	782471.58	
13500.00	90.24	179.26	10996.12	-2726.47	367.55	2746.21	0.00	475845.06	782472.87	
13600.00	90.24	179.26	10995.70	-2826.46	368.84	2846.02	0.00	475745.07	782474.16	
13700.00	90.24	179.26	10995.29	-2926.45	370.13	2945.83	0.00	475645.08	782475.45	
13800.00	90.24	179.26	10994.88	-3026.44	371.42	3045.64	0.00	475545.09	782476.74	
13900.00	90.24	179.26	10994.46	-3126.43	372.71	3145.46	0.00	475445.10	782478.03	
14000.00	90.24	179.26	10994.05	-3226.42	374.00	3245.27	0.00	475345.11	782479.32	
14100.00	90.24	179.26	10993.64	-3326.41	375.29	3345.08	0.00	475245.12	782480.61	
14200.00	90.24	179.26	10993.22	-3426.40	376.58	3444.89	0.00	475145.13	782481.90	
14300.00	90.24	179.26	10992.81	-3526.39	377.87	3544.70	0.00	475045.14	782483.19	
14400.00	90.24	179.26	10992.40	-3626.39	379.16	3644.51	0.00	474945.14	782484.48	
14500.00	90.24	179.26	10991.99	-3726.38	380.45	3744.32	0.00	474845.15	782485.77	
14600.00	90.24	179.26	10991.57	-3826.37	381.74	3844.14	0.00	474745.16	782487.06	
14700.00	90.24	179.26	10991.16	-3926.36	383.03	3943.95	0.00	474645.17	782488.35	
14800.00	90.24	179.26	10990.75	-4026.35	384.32	4043.76	0.00	474545.18	782489.64	

5D Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
14900.00	90.24	179.26	10990.33	-4126.34	385.61	4143.57	0.00	474445.19	782490.93	
15000.00	90.24	179.26	10989.92	-4226.33	386.90	4243.38	0.00	474345.20	782492.22	
15100.00	90.24	179.26	10989.51	-4326.32	388.19	4343.19	0.00	474245.21	782493.51	
15200.00	90.24	179.26	10989.09	-4426.31	389.48	4443.00	0.00	474145.22	782494.80	
15300.00	90.24	179.26	10988.68	-4526.30	390.77	4542.82	0.00	474045.23	782496.09	
15400.00	90.24	179.26	10988.27	-4626.29	392.06	4642.63	0.00	473945.24	782497.38	
15500.00	90.24	179.26	10987.85	-4726.28	393.35	4742.44	0.00	473845.25	782498.67	
15600.00	90.24	179.26	10987.44	-4826.28	394.64	4842.25	0.00	473745.25	782499.96	
15700.00	90.24	179.26	10987.03	-4926.27	395.93	4942.06	0.00	473645.26	782501.25	
15800.00	90.24	179.26	10986.62	-5026.26	397.22	5041.87	0.00	473545.27	782502.54	
15900.00	90.24	179.26	10986.20	-5126.25	398.51	5141.68	0.00	473445.28	782503.83	
16000.00	90.24	179.26	10985.79	-5226.24	399.80	5241.50	0.00	473345.29	782505.12	
16100.00	90.24	179.26	10985.38	-5326.23	401.09	5341.31	0.00	473245.30	782506.41	
16191.07	90.24	179.26	10985.00	-5417.29	402.26	5432.20	0.00	473154.24	782507.58	PBHL 9H

5D Anti-Collision Report**Devon Energy****Field Name:** *Lea Co, NM Nad 83 NMEZ***Site Name:** *Black Mamba 15 State Com 7H,8H,9H Pad***Well Name:** *Black Mamba 15 State Com 9H*

03 June 2015

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Black Mamba 15 State Com 9H

Field Name Lea Co. NM Nad 83 NMEZ	Map Units : US ft		Company Name : Devon Energy	
	Vertical Reference Datum (VRD) : Mean Sea Level			
	Projected Coordinate System : NAD83 / New Mexico East (ftUS)			
	Comment :			
Site Name Black Mamba-15 State Com 7H-8H-9H Pad	Units : US ft	North Reference : Grid	Convergence Angle : 0.42	
	Position	Northing : 478570.71 US ft	Latitude : 32° 18' 47.73"	
		Easting : 782005.33 US ft	Longitude : 103° 33' 15.50"	
	Elevation above Mean Sea Level: 3653.00 US ft			
Comment :				
Slot Name Black Mamba-15 State Com 9H	Position (Offsets relative to Site Centre)			
	+N / -S : 0.82 US ft	Northing : 478571.53 US ft	Latitude : 32° 18' 47.73"	
	+E / -W : 99.99 US ft	Easting : 782105.32 US ft	Longitude : 103° 33' 14.34"	
	Slot TVD Reference : Ground Elevation			
Elevation above Mean Sea Level : 3650.00 US ft				
Comment :				
Well Name Black Mamba 15 State Com 9H	Type : Main well		UWI :	Plan : Working Plan
	Rig Height : Kelly Bushing : 27.00 US ft		Comment :	
	Relative to Mean Sea Level: 3677.00 US ft			
	Closure Distance : 5432.2 US ft		Closure Azimuth : 175.753°	
	Vertical Section (Position of Origin Relative to Slot)			
	+N / -S : 0.00 US ft		+E / -W : 0.00 US ft	Az : 175.75°
	Magnetic Parameters			
	Model : BGGM	Field Strength : 48259.0nT	Dec : 7.21°	Dip : 60.22° Date : 15/Nov/2015

Collision / Uncertainty Analysis				
Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
Black Mamba 15 State Com 9H (p)	0.00	16191.07	100.00	2

Secondary Well Names
Black Mamba 15 State Com 7H (p)
Black Mamba 15 State Com 8H (p)

Anti-Collision Report Terminology
S.Minor, S.Major : Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.
PHI : Angle between high-side vector and semi-minor axis
TVD Spread : Total TVD range of the ellipsoid of uncertainty at the current location
ES : Distance between the extremities of the primary and secondary uncertainty ellipsoids in the direction Cr-Cr
T.Face to Sec : Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells

Separation factors calculated using Pedall Curve (Independent Uncertainty). Well path created using minimum curvature.

SD Anti-Collision Report

Anti-Collision Proximity Summary (TVD Relative to Kelly Bushing)

Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Black Mamba 15 State Com 8H (p)	16191.07	16031.74	10985.00	391.93	193.30	1.97	SF (Lo)
Black Mamba 15 State Com 7H (p)	16191.07	16215.03	10985.00	775.15	571.41	3.80	

Primary Well: Black Mamba 15 State Com 9H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	269.52	0.00	0.00	Black Mamba 15 State Com 8H (p)	49.99	49.18	61.30	
100.00	100.00	269.52	0.11	0.11	Black Mamba 15 State Com 8H (p)	49.99	48.96	48.48	
200.00	200.00	269.52	0.34	0.34	Black Mamba 15 State Com 8H (p)	49.99	48.51	33.79	
300.00	300.00	269.52	0.56	0.56	Black Mamba 15 State Com 8H (p)	49.99	48.06	25.92	
400.00	400.00	269.52	0.79	0.79	Black Mamba 15 State Com 8H (p)	49.99	47.61	21.02	
500.00	500.00	269.52	1.01	1.01	Black Mamba 15 State Com 8H (p)	49.99	47.16	17.68	
600.00	600.00	269.52	1.24	1.24	Black Mamba 15 State Com 8H (p)	49.99	46.71	15.25	
700.00	700.00	269.52	1.46	1.46	Black Mamba 15 State Com 8H (p)	49.99	46.27	13.41	
800.00	800.00	269.52	1.69	1.69	Black Mamba 15 State Com 8H (p)	49.99	45.82	11.97	
900.00	900.00	269.52	1.91	1.91	Black Mamba 15 State Com 8H (p)	49.99	45.37	10.81	
1000.00	1000.00	269.52	2.14	2.14	Black Mamba 15 State Com 8H (p)	49.99	44.92	9.85	
1100.00	1100.00	269.52	2.36	2.36	Black Mamba 15 State Com 8H (p)	49.99	44.47	9.05	
1200.00	1200.00	269.52	2.59	2.59	Black Mamba 15 State Com 8H (p)	49.99	44.02	8.37	
1300.00	1300.00	269.52	2.81	2.81	Black Mamba 15 State Com 8H (p)	49.99	43.57	7.78	
1400.00	1400.00	269.52	3.03	3.03	Black Mamba 15 State Com 8H (p)	49.99	43.12	7.27	
1500.00	1500.00	269.52	3.26	3.26	Black Mamba 15 State Com 8H (p)	49.99	42.67	6.83	
1600.00	1600.00	269.52	3.48	3.48	Black Mamba 15 State Com 8H (p)	49.99	42.22	6.43	
1700.00	1700.00	269.52	3.71	3.71	Black Mamba 15 State Com 8H (p)	49.99	41.77	6.08	
1800.00	1800.00	269.52	3.93	3.93	Black Mamba 15 State Com 8H (p)	49.99	41.32	5.76	
1900.00	1900.00	269.52	4.16	4.16	Black Mamba 15 State Com 8H (p)	49.99	40.87	5.48	
2000.00	2000.00	269.52	4.38	4.38	Black Mamba 15 State Com 8H (p)	49.99	40.42	5.22	
2100.00	2100.00	269.52	4.61	4.61	Black Mamba 15 State Com 8H (p)	49.99	39.97	4.99	

5D Anti-Collision Report

Primary Well: Black Mamba 15 State Corn 8H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
2200.00	2200.00	269.52	4.83	4.83	Black Mamba 15 State Corn 8H (p)	49.99	39.52	4.77	
2300.00	2300.00	269.52	5.06	5.06	Black Mamba 15 State Corn 8H (p)	49.99	39.07	4.58	
2400.00	2400.00	269.52	5.28	5.28	Black Mamba 15 State Corn 8H (p)	49.99	38.62	4.40	
2500.00	2500.00	269.52	5.51	5.51	Black Mamba 15 State Corn 8H (p)	49.99	38.17	4.23	
2600.00	2600.00	269.52	5.73	5.73	Black Mamba 15 State Corn 8H (p)	49.99	37.72	4.07	
2700.00	2700.00	269.52	5.96	5.96	Black Mamba 15 State Corn 8H (p)	49.99	37.27	3.93	
2800.00	2800.00	269.52	6.18	6.18	Black Mamba 15 State Corn 8H (p)	49.99	36.82	3.80	
2900.00	2900.00	269.52	6.41	6.41	Black Mamba 15 State Corn 8H (p)	49.99	36.38	3.67	
3000.00	3000.00	269.52	6.63	6.63	Black Mamba 15 State Corn 8H (p)	49.99	35.93	3.55	
3100.00	3100.00	269.52	6.86	6.86	Black Mamba 15 State Corn 8H (p)	49.99	35.48	3.44	
3200.00	3200.00	269.52	7.08	7.08	Black Mamba 15 State Corn 8H (p)	49.99	35.03	3.34	
3300.00	3300.00	269.52	7.31	7.31	Black Mamba 15 State Corn 8H (p)	49.99	34.58	3.24	
3400.00	3400.00	269.52	7.53	7.53	Black Mamba 15 State Corn 8H (p)	49.99	34.13	3.15	
3500.00	3500.00	269.52	7.76	7.76	Black Mamba 15 State Corn 8H (p)	49.99	33.68	3.06	
3600.00	3600.00	269.52	7.98	7.98	Black Mamba 15 State Corn 8H (p)	49.99	33.23	2.98	
3700.00	3700.00	269.52	8.20	8.20	Black Mamba 15 State Corn 8H (p)	49.99	32.78	2.90	
3800.00	3800.00	269.52	8.43	8.43	Black Mamba 15 State Corn 8H (p)	49.99	32.33	2.83	
3900.00	3900.00	269.52	8.65	8.65	Black Mamba 15 State Corn 8H (p)	49.99	31.88	2.76	
4000.00	4000.00	269.52	8.88	8.88	Black Mamba 15 State Corn 8H (p)	49.99	31.43	2.69	
4100.00	4100.00	269.52	9.10	9.10	Black Mamba 15 State Corn 8H (p)	49.99	30.98	2.63	
4200.00	4200.00	269.52	9.33	9.33	Black Mamba 15 State Corn 8H (p)	49.99	30.53	2.57	
4300.00	4300.00	269.52	9.55	9.55	Black Mamba 15 State Corn 8H (p)	49.99	30.08	2.51	
4400.00	4400.00	269.52	9.78	9.78	Black Mamba 15 State Corn 8H (p)	49.99	29.63	2.46	
4500.00	4500.00	269.52	10.00	10.00	Black Mamba 15 State Corn 8H (p)	49.99	29.18	2.40	
4600.00	4600.00	269.52	10.23	10.23	Black Mamba 15 State Corn 8H (p)	49.99	28.73	2.35	
4700.00	4700.00	269.52	10.45	10.45	Black Mamba 15 State Corn 8H (p)	49.99	28.28	2.30	

SD Anti-Collision Report

Primary Well	Black Mamba 15 State Corn 8H (p)	TVD Relative to Kelly Bushing	All Azimuth Relative to GRID NORTH							
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk	
4800.00	4800.00	269.52	10.68	10.68	Black Mamba 15 State Corn 8H (p)	49.99	27.83	2.26		
4900.00	4900.00	269.52	10.90	10.90	Black Mamba 15 State Corn 8H (p)	49.99	27.38	2.21		
5000.00	5000.00	269.52	11.13	11.13	Black Mamba 15 State Corn 8H (p)	49.99	26.93	2.17		
5100.00	5100.00	269.52	11.35	11.35	Black Mamba 15 State Corn 8H (p)	49.99	26.48	2.13		
5200.00	5200.00	269.52	11.58	11.58	Black Mamba 15 State Corn 8H (p)	49.99	26.27	2.11		
5300.00	5300.00	269.52	11.80	11.80	Black Mamba 15 State Corn 8H (p)	49.99	25.83	2.07		
5400.00	5399.98	179.53	12.01	12.00	Black Mamba 15 State Corn 8H (p)	51.74	27.17	2.11		
5500.00	5499.84	179.58	12.21	12.18	Black Mamba 15 State Corn 8H (p)	56.97	31.98	2.28		
5600.00	5599.49	179.63	12.41	12.36	Black Mamba 15 State Corn 8H (p)	65.25	39.84	2.57		
5700.00	5699.11	179.67	12.62	12.55	Black Mamba 15 State Corn 8H (p)	73.97	48.13	2.86		
5800.00	5798.73	179.71	12.83	12.75	Black Mamba 15 State Corn 8H (p)	82.68	56.42	3.15		
5900.00	5898.35	179.74	13.04	12.95	Black Mamba 15 State Corn 8H (p)	91.40	64.71	3.42		
6000.00	5997.97	179.76	13.25	13.15	Black Mamba 15 State Corn 8H (p)	100.11	73.00	3.69		
6100.00	6097.59	179.78	13.47	13.36	Black Mamba 15 State Corn 8H (p)	108.83	81.29	3.95		
6200.00	6197.21	179.79	13.68	13.56	Black Mamba 15 State Corn 8H (p)	117.54	89.58	4.20		
6300.00	6296.83	179.81	13.90	13.76	Black Mamba 15 State Corn 8H (p)	126.26	97.87	4.45		
6400.00	6396.45	179.82	14.12	13.97	Black Mamba 15 State Corn 8H (p)	134.97	106.16	4.68		
6500.00	6496.07	179.83	14.35	14.17	Black Mamba 15 State Corn 8H (p)	143.69	114.44	4.91		
6600.00	6595.69	179.84	14.57	14.38	Black Mamba 15 State Corn 8H (p)	152.41	122.73	5.14		
6700.00	6695.31	179.85	14.80	14.59	Black Mamba 15 State Corn 8H (p)	161.12	131.01	5.35		
6800.00	6794.93	179.86	15.03	14.80	Black Mamba 15 State Corn 8H (p)	169.84	139.30	5.56		
6900.00	6894.55	179.86	15.26	15.01	Black Mamba 15 State Corn 8H (p)	178.55	147.58	5.77		
7000.00	6994.17	179.87	15.49	15.21	Black Mamba 15 State Corn 8H (p)	187.27	155.86	5.96		
7100.00	7093.78	179.88	15.72	15.43	Black Mamba 15 State Corn 8H (p)	195.98	164.15	6.16		
7200.00	7193.40	179.88	15.95	15.64	Black Mamba 15 State Corn 8H (p)	204.70	172.43	6.34		
7300.00	7293.02	179.89	16.19	15.85	Black Mamba 15 State Corn 8H (p)	213.41	180.71	6.53		

5D Anti-Collision Report

Primary Well ID (US ft)	Black Mamba 15 State Com 9H (p) (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well Black Mamba 15 State Com 8H (p)	CC (US ft)	ES (US-ft)	SF	Risk
7400.00	7392.64	179.89	16.42	16.06	Black Mamba 15 State Com 8H (p)	222.13	188.99	6.70	
7500.00	7492.26	179.90	16.66	16.27	Black Mamba 15 State Com 8H (p)	230.85	197.27	6.88	
7600.00	7591.88	179.90	16.90	16.49	Black Mamba 15 State Com 8H (p)	239.56	205.55	7.04	
7700.00	7691.50	179.90	17.14	16.70	Black Mamba 15 State Com 8H (p)	248.28	213.83	7.21	
7800.00	7791.12	179.91	17.38	16.91	Black Mamba 15 State Com 8H (p)	256.99	222.11	7.37	
7900.00	7890.74	179.91	17.62	17.13	Black Mamba 15 State Com 8H (p)	265.71	230.38	7.52	
8000.00	7990.36	179.91	17.86	17.34	Black Mamba 15 State Com 8H (p)	274.42	238.66	7.67	
8100.00	8089.98	179.91	18.11	17.56	Black Mamba 15 State Com 8H (p)	283.14	246.94	7.82	
8200.00	8189.60	179.92	18.35	17.78	Black Mamba 15 State Com 8H (p)	291.85	255.21	7.97	
8300.00	8289.22	179.92	18.60	17.99	Black Mamba 15 State Com 8H (p)	300.57	263.49	8.11	
8400.00	8388.84	179.92	18.84	18.21	Black Mamba 15 State Com 8H (p)	309.29	271.76	8.24	
8500.00	8488.46	179.92	19.09	18.43	Black Mamba 15 State Com 8H (p)	318.00	280.04	8.38	
8600.00	8588.08	179.93	19.34	18.64	Black Mamba 15 State Com 8H (p)	326.72	288.31	8.51	
8700.00	8687.70	179.93	19.58	18.86	Black Mamba 15 State Com 8H (p)	335.43	296.59	8.64	
8800.00	8787.32	179.93	19.83	19.08	Black Mamba 15 State Com 8H (p)	344.15	304.86	8.76	
8900.00	8886.94	179.93	20.08	19.30	Black Mamba 15 State Com 8H (p)	352.86	313.14	8.88	
9000.00	8986.55	179.93	20.33	19.52	Black Mamba 15 State Com 8H (p)	361.58	321.41	9.00	
9100.00	9086.17	179.93	20.58	19.74	Black Mamba 15 State Com 8H (p)	370.29	329.68	9.12	
9200.00	9185.89	179.94	20.81	19.97	Black Mamba 15 State Com 8H (p)	377.71	336.66	9.20	
9300.00	9285.81	179.94	21.01	20.17	Black Mamba 15 State Com 8H (p)	381.67	340.21	9.20	
9400.00	9385.81	269.94	21.20	20.36	Black Mamba 15 State Com 8H (p)	382.37	340.49	9.13	
9500.00	9485.81	269.94	21.41	20.58	Black Mamba 15 State Com 8H (p)	382.37	340.05	9.03	
9600.00	9585.81	269.94	21.62	20.80	Black Mamba 15 State Com 8H (p)	382.37	339.60	8.94	
9700.00	9685.81	269.94	21.83	21.02	Black Mamba 15 State Com 8H (p)	382.37	339.16	8.85	
9800.00	9785.81	269.94	22.05	21.24	Black Mamba 15 State Com 8H (p)	382.37	338.72	8.76	
9900.00	9885.81	269.94	22.26	21.45	Black Mamba 15 State Com 8H (p)	382.37	338.27	8.67	

5D Anti-Collision Report

Primary Well	Black Mamba 15 State Com 9H (p)	TVD Relative to Kelly Bushing	All Azimuth Relative to GRID (NORTH)	MD (US ft)	TVD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
10000.00	9985.81	269.94	22.47	21.67	Black Mamba 15 State Com 8H (p)	382.37	337.83	8.58					
10100.00	10085.81	269.94	22.69	21.89	Black Mamba 15 State Com 8H (p)	382.37	337.39	8.50					
10200.00	10185.81	269.94	22.90	22.11	Black Mamba 15 State Com 8H (p)	382.37	336.94	8.42					
10300.00	10285.81	269.94	23.11	22.33	Black Mamba 15 State Com 8H (p)	382.37	336.53	8.34					
10400.00	10385.81	268.59	23.33	22.55	Black Mamba 15 State Com 8H (p)	382.37	336.24	8.29					
10500.00	10485.73	85.96	23.41	22.76	Black Mamba 15 State Com 8H (p)	383.35	336.74	8.22					
10600.00	10583.97	82.51	23.24	22.94	Black Mamba 15 State Com 8H (p)	385.82	339.01	8.24					
10700.00	10677.59	79.32	23.12	22.66	Black Mamba 15 State Com 8H (p)	389.38	342.35	8.28					
10800.00	10763.75	76.49	23.32	21.77	Black Mamba 15 State Com 8H (p)	393.60	346.25	8.31					
10900.00	10839.84	74.05	23.56	20.71	Black Mamba 15 State Com 8H (p)	398.01	350.42	8.36					
11000.00	10903.53	72.06	23.86	19.62	Black Mamba 15 State Com 8H (p)	402.16	354.35	8.41					
11100.00	10952.90	70.53	24.27	18.65	Black Mamba 15 State Com 8H (p)	405.69	357.52	8.42					
11200.00	10986.44	69.49	24.79	17.95	Black Mamba 15 State Com 8H (p)	408.27	359.49	8.37					
11300.00	11003.14	68.93	25.49	17.59	Black Mamba 15 State Com 8H (p)	409.71	360.08	8.26					
11400.00	11004.79	68.93	26.17	17.72	Black Mamba 15 State Com 8H (p)	409.68	358.85	8.06					
11500.00	11004.38	69.10	27.06	17.89	Black Mamba 15 State Com 8H (p)	409.23	356.83	7.81					
11600.00	11003.96	69.26	27.95	18.10	Black Mamba 15 State Com 8H (p)	408.78	354.70	7.56					
11700.00	11003.55	69.42	28.89	18.32	Black Mamba 15 State Com 8H (p)	408.34	352.45	7.31					
11800.00	11003.14	69.58	30.05	18.58	Black Mamba 15 State Com 8H (p)	407.90	349.89	7.03					
11900.00	11002.73	69.74	31.24	18.85	Black Mamba 15 State Com 8H (p)	407.46	347.22	6.76					
12000.00	11002.31	69.91	32.47	19.15	Black Mamba 15 State Com 8H (p)	407.03	344.46	6.51					
12100.00	11001.90	70.07	33.74	19.48	Black Mamba 15 State Com 8H (p)	406.59	341.59	6.26					
12200.00	11001.49	70.23	35.05	19.82	Black Mamba 15 State Com 8H (p)	406.17	338.64	6.02					
12300.00	11001.07	70.40	36.39	20.17	Black Mamba 15 State Com 8H (p)	405.74	335.61	5.79					
12400.00	11000.66	70.56	37.77	20.55	Black Mamba 15 State Com 8H (p)	405.32	332.50	5.57					
12500.00	11000.25	70.73	39.19	20.94	Black Mamba 15 State Com 8H (p)	404.90	329.33	5.36					

5D Anti-Collision Report

Primary Well: Black Mamba 15 State Com 9H (p) (TVD Relative to Kelly Bushing: All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
12600.00	10999.83	70.89	40.63	21.40	Black Mamba 15 State Com 8H (p)	404.49	326.09	5.16	
12700.00	10999.42	71.06	42.11	21.87	Black Mamba 15 State Com 8H (p)	404.08	322.79	4.97	
12800.00	10999.01	71.22	43.66	22.34	Black Mamba 15 State Com 8H (p)	403.67	319.45	4.79	
12900.00	10998.59	71.39	45.23	22.75	Black Mamba 15 State Com 8H (p)	403.27	316.05	4.62	
13000.00	10998.18	71.56	46.81	23.29	Black Mamba 15 State Com 8H (p)	402.87	312.61	4.46	
13100.00	10997.77	71.72	48.41	23.76	Black Mamba 15 State Com 8H (p)	402.47	309.19	4.31	
13200.00	10997.36	71.89	50.03	24.30	Black Mamba 15 State Com 8H (p)	402.07	305.80	4.18	
13300.00	10996.94	72.06	51.66	24.73	Black Mamba 15 State Com 8H (p)	401.68	302.18	4.04	
13400.00	10996.53	72.23	53.30	25.32	Black Mamba 15 State Com 8H (p)	401.30	298.55	3.91	
13500.00	10996.12	72.39	54.95	25.86	Black Mamba 15 State Com 8H (p)	400.91	294.87	3.78	
13600.00	10995.70	72.56	56.61	26.45	Black Mamba 15 State Com 8H (p)	400.53	291.21	3.66	
13700.00	10995.29	72.73	58.29	27.00	Black Mamba 15 State Com 8H (p)	400.16	287.55	3.55	
13800.00	10994.88	72.90	59.97	27.54	Black Mamba 15 State Com 8H (p)	399.78	283.88	3.45	
13900.00	10994.46	73.07	61.66	28.09	Black Mamba 15 State Com 8H (p)	399.41	280.19	3.35	
14000.00	10994.05	73.24	63.36	28.65	Black Mamba 15 State Com 8H (p)	399.05	276.49	3.26	
14100.00	10993.64	73.41	65.06	29.21	Black Mamba 15 State Com 8H (p)	398.68	272.78	3.17	
14200.00	10993.22	73.58	66.77	29.82	Black Mamba 15 State Com 8H (p)	398.32	269.05	3.08	
14300.00	10992.81	73.75	68.49	30.44	Black Mamba 15 State Com 8H (p)	397.97	265.31	3.00	
14400.00	10992.40	73.92	70.21	31.06	Black Mamba 15 State Com 8H (p)	397.62	261.56	2.92	
14500.00	10991.99	74.09	71.94	31.68	Black Mamba 15 State Com 8H (p)	397.27	257.80	2.85	
14600.00	10991.57	74.26	73.68	32.30	Black Mamba 15 State Com 8H (p)	396.92	254.03	2.78	
14700.00	10991.16	74.43	75.41	32.93	Black Mamba 15 State Com 8H (p)	396.58	250.25	2.71	
14800.00	10990.75	74.61	77.16	33.56	Black Mamba 15 State Com 8H (p)	396.24	246.46	2.65	
14900.00	10990.33	74.78	78.90	34.20	Black Mamba 15 State Com 8H (p)	395.91	242.66	2.58	
15000.00	10989.92	74.95	80.65	34.84	Black Mamba 15 State Com 8H (p)	395.58	238.86	2.52	
15100.00	10989.51	75.12	82.40	35.48	Black Mamba 15 State Com 8H (p)	395.25	235.05	2.47	

5D Anti-Collision Report

Primary Well - Black Mamba 15 State Com 9H (p) (TVD Relative to Kelly Bushing - All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
15200.00	10989.09	75.30	84.16	36.13	Black Mamba 15 State Com 8H (p)	394.93	231.23	2.41	
15300.00	10988.68	75.47	85.92	36.77	Black Mamba 15 State Com 8H (p)	394.61	227.41	2.36	
15400.00	10988.27	75.64	87.68	37.43	Black Mamba 15 State Com 8H (p)	394.29	223.58	2.31	
15500.00	10987.85	75.82	89.45	38.08	Black Mamba 15 State Com 8H (p)	393.98	219.75	2.26	
15600.00	10987.44	75.99	91.22	38.74	Black Mamba 15 State Com 8H (p)	393.67	215.91	2.21	
15700.00	10987.03	76.17	92.99	39.40	Black Mamba 15 State Com 8H (p)	393.36	212.07	2.17	
15800.00	10986.62	76.34	94.76	40.06	Black Mamba 15 State Com 8H (p)	393.06	208.23	2.13	
15900.00	10986.20	76.52	96.53	40.72	Black Mamba 15 State Com 8H (p)	392.76	204.39	2.08	
16000.00	10985.79	76.69	98.31	41.39	Black Mamba 15 State Com 8H (p)	392.47	200.54	2.04	
16100.00	10985.38	76.87	100.09	42.06	Black Mamba 15 State Com 8H (p)	392.18	196.69	2.01	
16191.07	10985.00	77.02	101.71	42.67	Black Mamba 15 State Com 8H (p)	391.93	193.30	1.97	SF (Lo)

Secondary Well - Black Mamba 15 State Com 7H (p) (TVD Relative to Kelly Bushing (Primary) - All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	3.00	269.53	0.02	0.02	99.99	99.17	121.39	
100.00	100.00	103.00	269.53	0.13	0.13	99.99	98.95	96.18	
200.00	200.00	203.00	269.53	0.35	0.35	99.99	98.51	67.32	
300.00	300.00	303.00	269.53	0.57	0.57	99.99	98.06	51.70	
400.00	400.00	403.00	269.53	0.79	0.79	99.99	97.61	41.96	
500.00	500.00	503.00	269.53	1.02	1.02	99.99	97.16	35.30	
600.00	600.00	603.00	269.53	1.24	1.24	99.99	96.71	30.47	
700.00	700.00	703.00	269.53	1.47	1.47	99.99	96.26	26.80	
800.00	800.00	803.00	269.53	1.69	1.69	99.99	95.81	23.92	
900.00	900.00	903.00	269.53	1.92	1.92	99.99	95.36	21.59	
1000.00	1000.00	1003.00	269.53	2.14	2.14	99.99	94.91	19.68	
1100.00	1100.00	1103.00	269.53	2.37	2.37	99.99	94.46	18.08	
1200.00	1200.00	1203.00	269.53	2.59	2.59	99.99	94.01	16.72	
1300.00	1300.00	1303.00	269.53	2.82	2.82	99.99	93.56	15.55	
1400.00	1400.00	1403.00	269.53	3.04	3.04	99.99	93.12	14.54	
1500.00	1500.00	1503.00	269.53	3.27	3.27	99.99	92.67	13.65	
1600.00	1600.00	1603.00	269.53	3.49	3.49	99.99	92.22	12.86	
1700.00	1700.00	1703.00	269.53	3.72	3.72	99.99	91.77	12.15	
1800.00	1800.00	1803.00	269.53	3.94	3.94	99.99	91.32	11.52	
1900.00	1900.00	1903.00	269.53	4.17	4.17	99.99	90.87	10.96	
2000.00	2000.00	2003.00	269.53	4.39	4.39	99.99	90.42	10.44	
2100.00	2100.00	2103.00	269.53	4.62	4.62	99.99	89.97	9.97	
2200.00	2200.00	2203.00	269.53	4.84	4.84	99.99	89.52	9.55	
2300.00	2300.00	2303.00	269.53	5.06	5.06	99.99	89.07	9.15	
2400.00	2400.00	2403.00	269.53	5.29	5.29	99.99	88.62	8.79	
2500.00	2500.00	2503.00	269.53	5.51	5.51	99.99	88.17	8.46	
2600.00	2600.00	2603.00	269.53	5.74	5.74	99.99	87.72	8.15	
2700.00	2700.00	2703.00	269.53	5.96	5.96	99.99	87.27	7.86	
2800.00	2800.00	2803.00	269.53	6.19	6.19	99.99	86.82	7.59	
2900.00	2900.00	2903.00	269.53	6.41	6.41	99.99	86.37	7.34	

5D Anti-Collision Report

Secondary Well: Black Mamba 15 State Comp 2H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
3000.00	3000.00	3003.00	269.53	6.64	6.64	99.99	85.92	7.11	
3100.00	3100.00	3103.00	269.53	6.86	6.86	99.99	85.47	6.89	
3200.00	3200.00	3203.00	269.53	7.09	7.09	99.99	85.02	6.68	
3300.00	3300.00	3303.00	269.53	7.31	7.31	99.99	84.57	6.48	
3400.00	3400.00	3403.00	269.53	7.54	7.54	99.99	84.12	6.30	
3500.00	3500.00	3503.00	269.53	7.76	7.76	99.99	83.67	6.13	
3600.00	3600.00	3603.00	269.53	7.99	7.99	99.99	83.23	5.96	
3700.00	3700.00	3703.00	269.53	8.21	8.21	99.99	82.78	5.81	
3800.00	3800.00	3803.00	269.53	8.44	8.44	99.99	82.33	5.66	
3900.00	3900.00	3903.00	269.53	8.66	8.66	99.99	81.88	5.52	
4000.00	4000.00	4003.00	269.53	8.89	8.89	99.99	81.43	5.39	
4100.00	4100.00	4103.00	269.53	9.11	9.11	99.99	80.98	5.26	
4200.00	4200.00	4203.00	269.53	9.34	9.34	99.99	80.53	5.14	
4300.00	4300.00	4303.00	269.53	9.56	9.56	99.99	80.08	5.02	
4400.00	4400.00	4403.00	269.53	9.79	9.79	99.99	79.63	4.91	
4500.00	4500.00	4503.00	269.53	10.01	10.01	99.99	79.18	4.80	
4600.00	4600.00	4603.00	269.53	10.23	10.23	99.99	78.73	4.70	
4700.00	4700.00	4703.00	269.53	10.46	10.46	99.99	78.28	4.61	
4800.00	4800.00	4803.00	269.53	10.68	10.68	99.99	77.83	4.51	
4900.00	4900.00	4903.00	269.53	10.91	10.91	99.99	77.38	4.42	
5000.00	5000.00	5003.00	269.53	11.13	11.13	99.99	76.93	4.34	
5100.00	5100.00	5103.00	269.53	11.36	11.36	99.99	76.48	4.25	
5200.00	5200.00	5203.00	269.53	11.58	11.58	99.99	76.27	4.22	
5300.00	5299.90	5302.90	269.53	11.81	11.81	99.99	75.86	4.14	
5400.00	5396.39	5399.41	179.55	12.01	12.00	103.53	79.02	4.22	
5500.00	5492.08	5495.23	179.58	12.20	12.17	113.89	89.04	4.58	
5600.00	5588.14	5591.61	179.63	12.40	12.34	130.28	105.06	5.17	
5700.00	5686.24	5690.09	179.68	12.60	12.54	147.64	122.02	5.76	
5800.00	5784.35	5788.58	179.71	12.81	12.73	165.00	138.99	6.34	
5900.00	5882.46	5887.06	179.74	13.01	12.93	182.37	155.96	6.90	
6000.00	5980.56	5985.54	179.76	13.22	13.13	199.73	172.92	7.45	
6100.00	6078.67	6084.02	179.78	13.44	13.33	217.10	189.89	7.98	
6200.00	6176.77	6182.50	179.80	13.65	13.53	234.46	206.85	8.49	
6300.00	6274.88	6280.98	179.81	13.87	13.73	251.83	223.82	8.99	
6400.00	6372.99	6379.46	179.82	14.08	13.93	269.19	240.78	9.47	
6500.00	6471.09	6477.94	179.83	14.30	14.13	286.56	257.73	9.94	
6600.00	6569.20	6576.42	179.84	14.53	14.34	303.92	274.69	10.40	
6700.00	6667.30	6674.90	179.85	14.75	14.54	321.29	291.65	10.84	
6800.00	6765.41	6773.38	179.86	14.97	14.75	338.65	308.60	11.27	
6900.00	6863.52	6871.86	179.87	15.20	14.95	356.02	325.56	11.69	
7000.00	6961.62	6970.34	179.87	15.43	15.16	373.38	342.51	12.09	
7100.00	7059.73	7068.83	179.88	15.66	15.37	390.75	359.46	12.49	
7200.00	7157.83	7167.31	179.88	15.89	15.57	408.11	376.41	12.87	
7300.00	7255.94	7265.79	179.89	16.12	15.78	425.48	393.36	13.25	
7400.00	7354.05	7364.27	179.89	16.35	15.99	442.84	410.30	13.61	
7500.00	7452.15	7462.75	179.90	16.59	16.20	460.21	427.25	13.96	
7600.00	7550.26	7561.23	179.90	16.82	16.41	477.57	444.19	14.31	
7700.00	7648.37	7659.71	179.90	17.06	16.62	494.94	461.14	14.64	
7800.00	7746.47	7758.19	179.91	17.29	16.83	512.30	478.08	14.97	
7900.00	7844.58	7856.67	179.91	17.53	17.04	529.66	495.02	15.29	
8000.00	7942.68	7955.15	179.91	17.77	17.26	547.03	511.96	15.60	
8100.00	8040.79	8053.63	179.92	18.01	17.47	564.39	528.90	15.90	
8200.00	8138.90	8152.11	179.92	18.25	17.68	581.76	545.84	16.20	
8300.00	8237.00	8250.59	179.92	18.49	17.89	599.12	562.78	16.48	
8400.00	8335.11	8349.08	179.92	18.74	18.11	616.49	579.72	16.77	
8500.00	8433.21	8447.56	179.92	18.98	18.32	633.85	596.65	17.04	
8600.00	8531.32	8546.04	179.93	19.22	18.54	651.22	613.59	17.31	
8700.00	8629.43	8644.52	179.93	19.47	18.75	668.58	630.52	17.57	

SD Anti-Collision Report

Secondary Well: Black Mamba 15 State Com 7H (p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
8800.00	8727.53	8743.00	179.93	19.71	18.97	685.95	647.46	17.82	
8900.00	8825.64	8841.48	179.93	19.96	19.18	703.31	664.39	18.07	
9000.00	8923.74	8939.96	179.93	20.21	19.40	720.68	681.33	18.31	
9100.00	9021.85	9038.44	179.94	20.45	19.61	738.04	698.26	18.55	
9200.00	9120.17	9137.14	179.94	20.70	19.83	754.12	713.91	18.76	
9300.00	9221.29	9238.64	179.94	20.96	20.06	766.76	726.13	18.87	
9400.00	9357.49	9375.10	269.94	21.24	20.36	773.51	732.29	18.77	
9500.00	9485.81	9503.44	269.94	21.49	20.60	774.91	733.20	18.58	
9600.00	9585.81	9603.44	269.94	21.70	20.82	774.91	732.77	18.39	
9700.00	9685.81	9703.44	269.94	21.91	21.04	774.91	732.33	18.20	
9800.00	9785.81	9803.44	269.94	22.12	21.25	774.91	731.89	18.01	
9900.00	9885.81	9903.44	269.94	22.33	21.47	774.91	731.46	17.83	
10000.00	9985.81	10003.44	269.94	22.55	21.69	774.91	731.02	17.66	
10100.00	10085.81	10103.44	269.94	22.76	21.91	774.91	730.58	17.48	
10200.00	10185.81	10203.44	269.94	22.97	22.13	774.91	730.14	17.31	
10300.00	10285.81	10303.44	269.94	23.18	22.35	774.91	729.70	17.14	
10400.00	10385.81	10403.44	269.94	23.40	22.57	774.91	729.27	16.98	
10500.00	10486.41	10504.08	90.78	23.54	22.78	774.93	728.87	16.83	
10600.00	10587.14	10606.16	90.97	23.39	22.96	774.97	728.62	16.72	
10700.00	10683.93	10708.70	91.14	23.13	22.82	775.01	728.20	16.56	
10800.00	10773.53	10811.63	91.28	23.33	21.95	775.05	727.93	16.45	
10900.00	10852.89	10914.85	91.37	23.58	20.85	775.07	727.47	16.28	
11000.00	10919.29	11018.26	91.42	23.89	19.72	775.09	726.85	16.07	
11100.00	10970.44	11121.74	91.42	24.30	18.71	775.09	726.03	15.80	
11200.00	11004.61	11225.18	91.39	24.84	17.97	775.08	724.93	15.46	
11300.00	11020.72	11328.46	91.30	25.50	17.60	775.05	723.54	15.05	
11400.00	11021.81	11429.67	91.26	26.15	17.79	775.04	722.22	14.67	
11500.00	11021.50	11529.67	91.27	27.07	17.97	775.04	720.41	14.19	
11600.00	11021.19	11629.67	91.27	27.98	18.17	775.04	718.61	13.73	
11700.00	11020.88	11729.67	91.28	28.92	18.40	775.04	716.73	13.29	
11800.00	11020.57	11829.67	91.29	30.03	18.65	775.04	714.47	12.80	
11900.00	11020.26	11929.66	91.30	31.23	18.93	775.05	712.09	12.31	
12000.00	11019.95	12029.66	91.30	32.46	19.23	775.05	709.62	11.85	
12100.00	11019.64	12129.66	91.31	33.74	19.55	775.05	707.07	11.40	
12200.00	11019.33	12229.66	91.32	35.05	19.90	775.05	704.45	10.98	
12300.00	11019.02	12329.66	91.33	36.40	20.25	775.05	701.75	10.57	
12400.00	11018.71	12429.66	91.33	37.79	20.62	775.05	698.98	10.19	
12500.00	11018.40	12529.66	91.34	39.20	21.04	775.06	696.15	9.82	
12600.00	11018.09	12629.66	91.35	40.64	21.50	775.06	693.27	9.48	
12700.00	11017.78	12729.66	91.36	42.11	21.97	775.06	690.31	9.15	
12800.00	11017.47	12829.66	91.37	43.61	22.42	775.06	687.27	8.83	
12900.00	11017.16	12929.66	91.37	45.17	22.82	775.06	684.17	8.53	
13000.00	11016.86	13029.66	91.38	46.76	23.37	775.07	681.00	8.24	
13100.00	11016.55	13129.66	91.39	48.36	23.82	775.07	677.80	7.97	
13200.00	11016.24	13229.66	91.40	49.98	24.39	775.07	674.57	7.71	
13300.00	11015.93	13329.66	91.40	51.61	24.84	775.07	671.31	7.47	
13400.00	11015.62	13429.66	91.41	53.25	25.43	775.07	668.03	7.24	
13500.00	11015.31	13529.66	91.42	54.90	25.94	775.08	664.73	7.02	
13600.00	11015.00	13629.66	91.43	56.57	26.54	775.08	661.40	6.82	
13700.00	11014.69	13729.66	91.43	58.24	27.10	775.08	658.06	6.62	
13800.00	11014.38	13829.66	91.44	59.92	27.65	775.08	654.70	6.44	
13900.00	11014.07	13929.66	91.45	61.61	28.20	775.08	651.32	6.26	
14000.00	11013.76	14029.66	91.46	63.31	28.76	775.09	647.92	6.10	
14100.00	11013.45	14129.66	91.46	65.02	29.32	775.09	644.52	5.94	
14200.00	11013.14	14229.66	91.47	66.73	29.90	775.09	641.10	5.78	
14300.00	11012.83	14329.66	91.48	68.44	30.52	775.09	637.66	5.64	
14400.00	11012.52	14429.66	91.49	70.17	31.14	775.09	634.22	5.50	
14500.00	11012.21	14529.66	91.50	71.90	31.77	775.10	630.77	5.37	

5D Anti-Collision Report

Secondary Well: Black Mamba 15 State Com 7H (p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID (North)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
14600.00	11011.91	14629.66	91.50	73.63	32.39	775.10	627.30	5.24	
14700.00	11011.60	14729.66	91.51	75.37	33.02	775.10	623.83	5.12	
14800.00	11011.29	14829.66	91.52	77.11	33.65	775.10	620.35	5.01	
14900.00	11010.98	14929.66	91.53	78.86	34.29	775.10	616.86	4.90	
15000.00	11010.67	15029.66	91.53	80.61	34.93	775.11	613.37	4.79	
15100.00	11010.36	15129.66	91.54	82.36	35.57	775.11	609.86	4.69	
15200.00	11010.05	15229.66	91.55	84.12	36.22	775.11	606.35	4.59	
15300.00	11009.74	15329.66	91.56	85.88	36.87	775.11	602.84	4.50	
15400.00	11009.43	15429.66	91.56	87.64	37.52	775.12	599.32	4.41	
15500.00	11009.12	15529.66	91.57	89.40	38.17	775.12	595.79	4.32	
15600.00	11008.81	15629.66	91.58	91.17	38.83	775.12	592.26	4.24	
15700.00	11008.50	15729.66	91.59	92.94	39.49	775.12	588.72	4.16	
15800.00	11008.19	15829.66	91.60	94.71	40.15	775.12	585.18	4.08	
15900.00	11007.88	15929.66	91.60	96.49	40.81	775.13	581.63	4.01	
16000.00	11007.57	16029.66	91.61	98.27	41.48	775.13	578.08	3.93	
16100.00	11007.26	16129.66	91.62	100.04	42.15	775.13	574.53	3.86	
16191.07	11007.00	16215.03	91.62	101.56	42.72	775.15	571.41	3.80	

Secondary Well: Black Mamba 15 State Com 8H (p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID (North)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	1.00	269.52	0.01	0.01	49.99	49.18	61.30	
100.00	100.00	101.00	269.52	0.12	0.12	49.99	48.96	48.48	
200.00	200.00	201.00	269.52	0.34	0.34	49.99	48.51	33.79	
300.00	300.00	301.00	269.52	0.56	0.56	49.99	48.06	25.92	
400.00	400.00	401.00	269.52	0.79	0.79	49.99	47.61	21.02	
500.00	500.00	501.00	269.52	1.01	1.01	49.99	47.16	17.68	
600.00	600.00	601.00	269.52	1.24	1.24	49.99	46.71	15.25	
700.00	700.00	701.00	269.52	1.46	1.46	49.99	46.27	13.41	
800.00	800.00	801.00	269.52	1.69	1.69	49.99	45.82	11.97	
900.00	900.00	901.00	269.52	1.91	1.91	49.99	45.37	10.81	
1000.00	1000.00	1001.00	269.52	2.14	2.14	49.99	44.92	9.85	
1100.00	1100.00	1101.00	269.52	2.36	2.36	49.99	44.47	9.05	
1200.00	1200.00	1201.00	269.52	2.59	2.59	49.99	44.02	8.37	
1300.00	1300.00	1301.00	269.52	2.81	2.81	49.99	43.57	7.78	
1400.00	1400.00	1401.00	269.52	3.04	3.04	49.99	43.12	7.27	
1500.00	1500.00	1501.00	269.52	3.26	3.26	49.99	42.67	6.83	
1600.00	1600.00	1601.00	269.52	3.49	3.49	49.99	42.22	6.43	
1700.00	1700.00	1701.00	269.52	3.71	3.71	49.99	41.77	6.08	
1800.00	1800.00	1801.00	269.52	3.94	3.94	49.99	41.32	5.76	
1900.00	1900.00	1901.00	269.52	4.16	4.16	49.99	40.87	5.48	
2000.00	2000.00	2001.00	269.52	4.39	4.39	49.99	40.42	5.22	
2100.00	2100.00	2101.00	269.52	4.61	4.61	49.99	39.97	4.99	
2200.00	2200.00	2201.00	269.52	4.84	4.84	49.99	39.52	4.77	
2300.00	2300.00	2301.00	269.52	5.06	5.06	49.99	39.07	4.58	
2400.00	2400.00	2401.00	269.52	5.28	5.28	49.99	38.62	4.40	
2500.00	2500.00	2501.00	269.52	5.51	5.51	49.99	38.17	4.23	
2600.00	2600.00	2601.00	269.52	5.73	5.73	49.99	37.72	4.07	
2700.00	2700.00	2701.00	269.52	5.96	5.96	49.99	37.27	3.93	
2800.00	2800.00	2801.00	269.52	6.18	6.18	49.99	36.82	3.80	
2900.00	2900.00	2901.00	269.52	6.41	6.41	49.99	36.38	3.67	
3000.00	3000.00	3001.00	269.52	6.63	6.63	49.99	35.93	3.55	
3100.00	3100.00	3101.00	269.52	6.86	6.86	49.99	35.48	3.44	
3200.00	3200.00	3201.00	269.52	7.08	7.08	49.99	35.03	3.34	
3300.00	3300.00	3301.00	269.52	7.31	7.31	49.99	34.58	3.24	
3400.00	3400.00	3401.00	269.52	7.53	7.53	49.99	34.13	3.15	
3500.00	3500.00	3501.00	269.52	7.76	7.76	49.99	33.68	3.06	
3600.00	3600.00	3601.00	269.52	7.98	7.98	49.99	33.23	2.98	
3700.00	3700.00	3701.00	269.52	8.21	8.21	49.99	32.78	2.90	

SD Anti-Collision Report

Secondary Well: Black Mamba 15 State Com 8H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
PT MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
3800.00	3800.00	3801.00	269.52	8.43	8.43	49.99	32.33	2.83	
3900.00	3900.00	3901.00	269.52	8.66	8.66	49.99	31.88	2.76	
4000.00	4000.00	4001.00	269.52	8.88	8.88	49.99	31.43	2.69	
4100.00	4100.00	4101.00	269.52	9.11	9.11	49.99	30.98	2.63	
4200.00	4200.00	4201.00	269.52	9.33	9.33	49.99	30.53	2.57	
4300.00	4300.00	4301.00	269.52	9.56	9.56	49.99	30.08	2.51	
4400.00	4400.00	4401.00	269.52	9.78	9.78	49.99	29.63	2.46	
4500.00	4500.00	4501.00	269.52	10.01	10.01	49.99	29.18	2.40	
4600.00	4600.00	4601.00	269.52	10.23	10.23	49.99	28.73	2.35	
4700.00	4700.00	4701.00	269.52	10.45	10.45	49.99	28.28	2.30	
4800.00	4800.00	4801.00	269.52	10.68	10.68	49.99	27.83	2.26	
4900.00	4900.00	4901.00	269.52	10.90	10.90	49.99	27.38	2.21	
5000.00	5000.00	5001.00	269.52	11.13	11.13	49.99	26.93	2.17	
5100.00	5100.00	5101.00	269.52	11.35	11.35	49.99	26.48	2.13	
5200.00	5200.00	5201.00	269.52	11.58	11.58	49.99	26.27	2.11	
5300.00	5300.00	5301.00	269.52	11.80	11.80	49.99	25.83	2.07	
5400.00	5399.98	5400.98	179.53	12.03	12.03	51.74	27.17	2.11	
5500.00	5499.84	5500.84	179.58	12.25	12.25	56.97	31.98	2.28	
5600.00	5599.49	5600.49	179.63	12.48	12.48	65.25	39.84	2.57	
5700.00	5699.11	5700.11	179.67	12.70	12.70	73.97	48.13	2.86	
5800.00	5798.73	5799.73	179.71	12.92	12.92	82.68	56.42	3.15	
5900.00	5898.35	5899.35	179.74	13.15	13.15	91.40	64.71	3.42	
6000.00	5997.97	5998.97	179.76	13.37	13.37	100.11	73.00	3.69	
6100.00	6097.59	6098.59	179.78	13.60	13.60	108.83	81.29	3.95	
6200.00	6197.21	6198.21	179.79	13.82	13.82	117.54	89.58	4.20	
6300.00	6296.83	6297.83	179.81	14.04	14.04	126.26	97.87	4.45	
6400.00	6396.45	6397.45	179.82	14.27	14.27	134.97	106.16	4.68	
6500.00	6496.07	6497.07	179.83	14.49	14.49	143.69	114.44	4.91	
6600.00	6595.69	6596.69	179.84	14.72	14.72	152.41	122.73	5.14	
6700.00	6695.31	6696.31	179.85	14.94	14.94	161.12	131.01	5.35	
6800.00	6794.93	6795.93	179.86	15.16	15.16	169.84	139.30	5.56	
6900.00	6894.55	6895.55	179.86	15.39	15.39	178.55	147.58	5.77	
7000.00	6994.17	6995.17	179.87	15.61	15.61	187.27	155.86	5.96	
7100.00	7093.78	7094.78	179.88	15.84	15.84	195.98	164.15	6.16	
7200.00	7193.40	7194.40	179.88	16.06	16.06	204.70	172.43	6.34	
7300.00	7293.02	7294.02	179.89	16.28	16.28	213.41	180.71	6.53	
7400.00	7392.64	7393.64	179.89	16.51	16.51	222.13	188.99	6.70	
7500.00	7492.26	7493.26	179.90	16.73	16.73	230.85	197.27	6.88	
7600.00	7591.88	7592.88	179.90	16.96	16.96	239.56	205.55	7.04	
7700.00	7691.50	7692.50	179.90	17.18	17.18	248.28	213.83	7.21	
7800.00	7791.12	7792.12	179.91	17.40	17.40	256.99	222.11	7.37	
7900.00	7890.74	7891.74	179.91	17.63	17.63	265.71	230.38	7.52	
8000.00	7990.36	7991.36	179.91	17.85	17.85	274.42	238.66	7.67	
8100.00	8089.98	8090.98	179.91	18.08	18.08	283.14	246.94	7.82	
8200.00	8189.60	8190.60	179.92	18.30	18.30	291.85	255.21	7.97	
8300.00	8289.22	8290.22	179.92	18.52	18.52	300.57	263.49	8.11	
8400.00	8388.84	8389.84	179.92	18.75	18.75	309.29	271.76	8.24	
8500.00	8488.46	8489.46	179.92	18.97	18.97	318.00	280.04	8.38	
8600.00	8588.08	8589.08	179.93	19.19	19.19	326.72	288.31	8.51	
8700.00	8687.70	8688.70	179.93	19.42	19.42	335.43	296.59	8.64	
8800.00	8787.32	8788.32	179.93	19.64	19.64	344.15	304.86	8.76	
8900.00	8886.94	8887.94	179.93	19.87	19.87	352.86	313.14	8.88	
9000.00	8986.55	8987.55	179.93	20.09	20.09	361.58	321.41	9.00	
9100.00	9086.17	9087.17	179.93	20.31	20.31	370.29	329.68	9.12	
9200.00	9185.79	9186.79	179.94	20.54	20.54	377.71	336.66	9.20	
9300.00	9285.41	9286.41	179.94	20.76	20.76	381.67	340.21	9.20	
9400.00	9385.03	9386.03	269.94	20.99	20.99	382.37	340.49	9.13	
9500.00	9485.01	9486.01	269.94	21.21	21.21	382.37	340.05	9.03	

5D Anti-Collision Report

Secondary Well: Black Mamba 1S State Com 8H (p) (TVD Relative to Kelly Bushing (Primary)) (All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S-Major (US ft)	S-Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
9600.00	9585.81	9586.81	269.94	21.44	21.44	382.37	339.60	8.94	
9700.00	9685.81	9686.81	269.94	21.66	21.66	382.37	339.16	8.85	
9800.00	9785.81	9786.81	269.94	21.89	21.89	382.37	338.72	8.76	
9900.00	9885.81	9886.81	269.94	22.11	22.11	382.37	338.27	8.67	
10000.00	9985.81	9986.81	269.94	22.34	22.34	382.37	337.83	8.58	
10100.00	10085.81	10086.81	269.94	22.56	22.56	382.37	337.39	8.50	
10200.00	10185.81	10186.81	269.94	22.79	22.79	382.37	336.94	8.42	
10300.00	10285.82	10286.82	269.94	23.01	23.01	382.37	336.53	8.34	
10400.00	10385.01	10386.54	268.59	23.17	22.96	382.37	336.24	8.29	
10500.00	10476.40	10481.20	85.96	23.31	22.57	383.35	336.74	8.22	
10600.00	10559.16	10572.01	82.51	23.45	22.00	385.82	339.01	8.24	
10700.00	10632.74	10659.91	79.32	23.62	21.19	389.38	342.35	8.28	
10800.00	10696.47	10745.43	76.49	23.83	20.25	393.60	346.25	8.31	
10900.00	10749.92	10829.03	74.05	24.08	19.29	398.01	350.42	8.36	
11000.00	10792.77	10911.13	72.06	24.38	18.45	402.16	354.35	8.41	
11100.00	10824.83	10992.09	70.53	24.74	17.76	405.69	357.52	8.42	
11200.00	10845.95	11072.24	69.49	25.18	17.29	408.27	359.49	8.37	
11300.00	10856.06	11151.91	68.93	25.68	17.14	409.71	360.08	8.26	
11400.00	10857.53	11244.57	68.93	26.34	17.30	409.68	358.85	8.06	
11500.00	10858.35	11344.57	69.10	27.15	17.48	409.23	356.83	7.81	
11600.00	10859.18	11444.56	69.26	28.06	17.68	408.78	354.70	7.56	
11700.00	10860.00	11544.55	69.42	29.05	17.91	408.34	352.45	7.31	
11800.00	10860.83	11644.54	69.58	30.12	18.16	407.90	349.89	7.03	
11900.00	10861.65	11744.54	69.74	31.27	18.44	407.46	347.22	6.76	
12000.00	10862.47	11844.53	69.91	32.47	18.75	407.03	344.46	6.51	
12100.00	10863.30	11944.52	70.07	33.74	19.07	406.59	341.59	6.26	
12200.00	10864.12	12044.51	70.23	35.05	19.41	406.17	338.64	6.02	
12300.00	10864.95	12144.50	70.40	36.41	19.77	405.74	335.61	5.79	
12400.00	10865.77	12244.50	70.56	37.80	20.15	405.32	332.50	5.57	
12500.00	10866.60	12344.49	70.73	39.24	20.54	404.90	329.33	5.36	
12600.00	10867.42	12444.48	70.89	40.70	21.00	404.49	326.09	5.16	
12700.00	10868.25	12544.47	71.06	42.19	21.47	404.08	322.79	4.97	
12800.00	10869.07	12644.47	71.22	43.71	21.95	403.67	319.45	4.79	
12900.00	10869.90	12744.46	71.39	45.26	22.42	403.27	316.05	4.62	
13000.00	10870.72	12844.45	71.56	46.82	22.84	402.87	312.61	4.46	
13100.00	10871.54	12944.44	71.72	48.40	23.41	402.47	309.19	4.31	
13200.00	10872.37	13044.44	71.89	50.00	23.91	402.07	305.80	4.18	
13300.00	10873.19	13144.43	72.06	51.62	24.45	401.68	302.18	4.04	
13400.00	10874.02	13244.42	72.23	53.24	24.97	401.30	298.55	3.91	
13500.00	10874.84	13344.41	72.39	54.89	25.54	400.91	294.87	3.78	
13600.00	10875.67	13444.41	72.56	56.54	26.02	400.53	291.21	3.66	
13700.00	10876.49	13544.40	72.73	58.20	26.65	400.16	287.55	3.55	
13800.00	10877.32	13644.39	72.90	59.88	27.23	399.78	283.88	3.45	
13900.00	10878.14	13744.38	73.07	61.56	27.79	399.41	280.19	3.35	
14000.00	10878.96	13844.37	73.24	63.25	28.36	399.05	276.49	3.26	
14100.00	10879.79	13944.37	73.41	64.95	28.92	398.68	272.78	3.17	
14200.00	10880.61	14044.36	73.58	66.65	29.50	398.32	269.05	3.08	
14300.00	10881.44	14144.35	73.75	68.37	30.08	397.97	265.31	3.00	
14400.00	10882.26	14244.34	73.92	70.08	30.71	397.62	261.56	2.92	
14500.00	10883.09	14344.34	74.09	71.81	31.34	397.27	257.80	2.85	
14600.00	10883.91	14444.33	74.26	73.54	31.97	396.92	254.03	2.78	
14700.00	10884.74	14544.32	74.43	75.27	32.60	396.58	250.25	2.71	
14800.00	10885.56	14644.31	74.61	77.01	33.24	396.24	246.46	2.65	
14900.00	10886.38	14744.31	74.78	78.75	33.88	395.91	242.66	2.58	
15000.00	10887.21	14844.30	74.95	80.50	34.52	395.58	238.86	2.52	
15100.00	10888.03	14944.29	75.12	82.25	35.17	395.25	235.05	2.47	
15200.00	10888.86	15044.28	75.30	84.00	35.82	394.93	231.23	2.41	
15300.00	10889.68	15144.27	75.47	85.76	36.47	394.61	227.41	2.36	

5D Anti-Collision Report

Secondary Well: Black Mamba 15 State Com 8H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
15400.00	10890.51	15244.27	75.64	87.52	37.12	394.29	223.58	2.31	
15500.00	10891.33	15344.26	75.82	89.28	37.78	393.98	219.75	2.26	
15600.00	10892.16	15444.25	75.99	91.05	38.44	393.67	215.91	2.21	
15700.00	10892.98	15544.24	76.17	92.82	39.10	393.36	212.07	2.17	
15800.00	10893.80	15644.24	76.34	94.59	39.77	393.06	208.23	2.13	
15900.00	10894.63	15744.23	76.52	96.36	40.43	392.76	204.39	2.08	
16000.00	10895.45	15844.22	76.69	98.13	41.10	392.47	200.54	2.04	
16100.00	10896.28	15944.21	76.87	99.91	41.77	392.18	196.69	2.01	
16191.07	10897.00	16031.74	77.02	101.46	42.36	391.93	193.30	1.97	SF (Lo)



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Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date: June 03, 2015
Job Number: _____
Customer: Devon Energy
Well Name: Black Mamba 15 State Com 9H
API Number: _____
Rig Name: _____
Location: Lea Co, NM Nad83 NME
Block: _____
Engineer: RWJ

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 478571.53 US Survey Foot	Latitude: 32.31326 Degree
East: 782105.32 US Survey Foot	Longitude: -103.553982 Degree
Convergence: 0.42°	
Declination: 7.21°	
Total Correction: 6.79°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 18' 47.73" N
Longitude = 103° 33' 14.34" W

Magnetic Declination = 7.21 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6632
Local Field Strength = 48259 nT	Magnetic Vector X = 23777 nT
Magnetic Dip = 60.22 deg	Magnetic Vector Y = 3009 nT
Magnetic Model = bggm2015.dat	Magnetic Vector Z = 41887 nT
Run Date = November 15, 2015	Magnetic Vector H = 23966 nT

Signed: _____ Date: _____

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