

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 7H*

03 June 2015





Weatherford®

Black Mamba 15 State Com 7H


Map Units : US ft

Company Name : Devon Energy

Vertical Reference Datum (VRD) : Mean Sea Level

Projected Coordinate System : NAD83 / New Mexico East (ftUS)

Comment :

Units : US ft

North Reference : Grid

Convergence Angle : 0.42

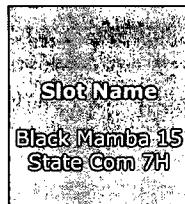
Position
Northing : 478570.71 US ft

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 :

Position (Offsets relative to Site Centre)
+N / -S : 0.00 US ft **Northing :** 478570.71 US ft

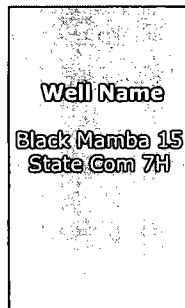
Latitude : 32°18'47.73"

+E / -W : 0.00 US ft **Easting :** 782005.33 US ft

Longitude : -103°33'15.50"

Slot TVD Reference : Ground Elevation

Elevation above Mean Sea Level : 3653.00 US ft

Comment :

Type : Main well

UWI :
Plan : Working Plan

Rig Height : Kelly Bushing : 27.00 US ft
Relative to Mean Sea Level: 3680.00 US ft

Comment :
Closure Distance : 5427.69 US ft

Closure Azimuth : 182.879°

Vertical Section (Position of Origin Relative to Slot)
+N / -S : 0.00 US ft

+E / -W : 0.00 US ft

Az : 182.88°

Magnetic Parameters
Model : BGGM

Field Strength :
 48267.8nT

Dec : 7.22°

Dip : 60.23°

Date :
 15/Oct/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 7H (p)	0.00	16215.03	100.00	2

Secondary Well Names

 Black Mamba 15 State Com 8H (p)
 Black Mamba 15 State Com 9H (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 Pedal Curve (Independent Uncertainty). Well path created using minimum curvature.

5D 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)	16215.03	16029.77	11010.00	408.02	211.17	2.07	
Black Mamba 15 State Com 9H (p)	16215.03	16185.35	11010.00	775.13	571.50	3.81	

Primary Well: Black Mamba 15 State Com 7H (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	89.54	0.00	0.00	Black Mamba 15 State Com 8H (p)	50.04	49.24	62.07	
100.00	100.00	89.54	0.11	0.11	Black Mamba 15 State Com 8H (p)	50.00	48.98	48.75	
200.00	200.00	89.54	0.34	0.34	Black Mamba 15 State Com 8H (p)	50.00	48.53	33.94	
300.00	300.00	89.54	0.56	0.56	Black Mamba 15 State Com 8H (p)	50.00	48.08	26.01	
400.00	400.00	89.54	0.79	0.79	Black Mamba 15 State Com 8H (p)	50.00	47.63	21.08	
500.00	500.00	89.54	1.01	1.01	Black Mamba 15 State Com 8H (p)	50.00	47.18	17.72	
600.00	600.00	89.54	1.24	1.24	Black Mamba 15 State Com 8H (p)	50.00	46.73	15.29	
700.00	700.00	89.54	1.46	1.46	Black Mamba 15 State Com 8H (p)	50.00	46.28	13.44	
800.00	800.00	89.54	1.69	1.69	Black Mamba 15 State Com 8H (p)	50.00	45.83	11.99	
900.00	900.00	89.54	1.91	1.91	Black Mamba 15 State Com 8H (p)	50.00	45.38	10.82	
1000.00	1000.00	89.54	2.14	2.14	Black Mamba 15 State Com 8H (p)	50.00	44.93	9.86	
1100.00	1100.00	89.54	2.36	2.36	Black Mamba 15 State Com 8H (p)	50.00	44.48	9.06	
1200.00	1200.00	89.54	2.59	2.59	Black Mamba 15 State Com 8H (p)	50.00	44.03	8.38	
1300.00	1300.00	89.54	2.81	2.81	Black Mamba 15 State Com 8H (p)	50.00	43.58	7.79	
1400.00	1400.00	89.54	3.03	3.03	Black Mamba 15 State Com 8H (p)	50.00	43.13	7.28	
1500.00	1500.00	89.54	3.26	3.26	Black Mamba 15 State Com 8H (p)	50.00	42.69	6.83	
1600.00	1600.00	89.54	3.48	3.48	Black Mamba 15 State Com 8H (p)	50.00	42.24	6.44	
1700.00	1700.00	89.54	3.71	3.71	Black Mamba 15 State Com 8H (p)	50.00	41.79	6.09	
1800.00	1800.00	89.54	3.93	3.93	Black Mamba 15 State Com 8H (p)	50.00	41.34	5.77	
1900.00	1900.00	89.54	4.16	4.16	Black Mamba 15 State Com 8H (p)	50.00	40.89	5.49	
2000.00	2000.00	89.54	4.38	4.38	Black Mamba 15 State Com 8H (p)	50.00	40.44	5.23	
2100.00	2100.00	89.54	4.61	4.61	Black Mamba 15 State Com 8H (p)	50.00	39.99	4.99	

5D Anti-Collision Report

Primary Well : Black Mamba 15 State Com 7H (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	89.54	4.83	4.83	Black Mamba 15 State Com 8H (p)	50.00	39.54	4.78	
2300.00	2300.00	89.54	5.06	5.06	Black Mamba 15 State Com 8H (p)	50.00	39.09	4.58	
2400.00	2400.00	89.54	5.28	5.28	Black Mamba 15 State Com 8H (p)	50.00	38.64	4.40	
2500.00	2500.00	89.54	5.51	5.51	Black Mamba 15 State Com 8H (p)	50.00	38.19	4.23	
2600.00	2600.00	89.54	5.73	5.73	Black Mamba 15 State Com 8H (p)	50.00	37.74	4.08	
2700.00	2700.00	89.54	5.96	5.96	Black Mamba 15 State Com 8H (p)	50.00	37.29	3.93	
2800.00	2800.00	89.54	6.18	6.18	Black Mamba 15 State Com 8H (p)	50.00	36.84	3.80	
2900.00	2900.00	89.54	6.41	6.41	Black Mamba 15 State Com 8H (p)	50.00	36.39	3.67	
3000.00	3000.00	89.54	6.63	6.63	Black Mamba 15 State Com 8H (p)	50.00	35.94	3.56	
3100.00	3100.00	89.54	6.86	6.86	Black Mamba 15 State Com 8H (p)	50.00	35.49	3.45	
3200.00	3200.00	89.54	7.08	7.08	Black Mamba 15 State Com 8H (p)	50.00	35.04	3.34	
3300.00	3300.00	89.54	7.31	7.31	Black Mamba 15 State Com 8H (p)	50.00	34.59	3.25	
3400.00	3400.00	89.54	7.53	7.53	Black Mamba 15 State Com 8H (p)	50.00	34.14	3.15	
3500.00	3500.00	89.54	7.76	7.76	Black Mamba 15 State Com 8H (p)	50.00	33.69	3.07	
3600.00	3600.00	89.54	7.98	7.98	Black Mamba 15 State Com 8H (p)	50.00	33.24	2.98	
3700.00	3700.00	89.54	8.20	8.20	Black Mamba 15 State Com 8H (p)	50.00	32.80	2.91	
3800.00	3800.00	89.54	8.43	8.43	Black Mamba 15 State Com 8H (p)	50.00	32.35	2.83	
3900.00	3900.00	89.54	8.65	8.65	Black Mamba 15 State Com 8H (p)	50.00	31.90	2.76	
4000.00	4000.00	89.54	8.88	8.88	Black Mamba 15 State Com 8H (p)	50.00	31.45	2.69	
4100.00	4100.00	89.54	9.10	9.10	Black Mamba 15 State Com 8H (p)	50.00	31.00	2.63	
4200.00	4200.00	89.54	9.33	9.33	Black Mamba 15 State Com 8H (p)	50.00	30.55	2.57	
4300.00	4300.00	89.54	9.55	9.55	Black Mamba 15 State Com 8H (p)	50.00	30.10	2.51	
4400.00	4400.00	89.54	9.78	9.78	Black Mamba 15 State Com 8H (p)	50.00	29.65	2.46	
4500.00	4500.00	89.54	10.00	10.00	Black Mamba 15 State Com 8H (p)	50.00	29.20	2.40	
4600.00	4600.00	89.54	10.23	10.23	Black Mamba 15 State Com 8H (p)	50.00	28.75	2.35	
4700.00	4700.00	89.54	10.45	10.45	Black Mamba 15 State Com 8H (p)	50.00	28.30	2.30	

SD Anti-Collision Report

Primary Well : Black Mamba 15 State Com 7H (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	89.54	10.68	10.68	Black Mamba 15 State Com 8H (p)	50.00	27.85	2.26	
4900.00	4900.00	89.54	10.90	10.90	Black Mamba 15 State Com 8H (p)	50.00	27.40	2.21	
5000.00	5000.00	89.54	11.13	11.13	Black Mamba 15 State Com 8H (p)	50.00	26.95	2.17	
5100.00	5100.00	89.54	11.35	11.35	Black Mamba 15 State Com 8H (p)	50.00	26.50	2.13	
5200.00	5200.00	89.54	11.58	11.58	Black Mamba 15 State Com 8H (p)	50.00	26.05	2.09	
5300.00	5300.00	89.54	11.80	11.80	Black Mamba 15 State Com 8H (p)	50.00	25.84	2.07	
5400.00	5399.98	179.56	12.01	12.00	Black Mamba 15 State Com 8H (p)	51.75	27.18	2.11	
5500.00	5499.84	179.60	12.21	12.18	Black Mamba 15 State Com 8H (p)	56.98	31.99	2.28	
5600.00	5599.49	179.65	12.41	12.36	Black Mamba 15 State Com 8H (p)	65.26	39.84	2.57	
5700.00	5699.11	179.69	12.62	12.55	Black Mamba 15 State Com 8H (p)	73.98	48.12	2.86	
5800.00	5798.73	179.72	12.83	12.75	Black Mamba 15 State Com 8H (p)	82.69	56.41	3.15	
5900.00	5898.35	179.75	13.04	12.95	Black Mamba 15 State Com 8H (p)	91.41	64.70	3.42	
6000.00	5997.97	179.77	13.25	13.16	Black Mamba 15 State Com 8H (p)	100.12	72.99	3.69	
6100.00	6097.59	179.79	13.47	13.36	Black Mamba 15 State Com 8H (p)	108.84	81.28	3.95	
6200.00	6197.21	179.80	13.69	13.56	Black Mamba 15 State Com 8H (p)	117.55	89.57	4.20	
6300.00	6296.83	179.82	13.91	13.77	Black Mamba 15 State Com 8H (p)	126.27	97.86	4.44	
6400.00	6396.45	179.83	14.13	13.97	Black Mamba 15 State Com 8H (p)	134.98	106.14	4.68	
6500.00	6496.07	179.84	14.35	14.18	Black Mamba 15 State Com 8H (p)	143.70	114.43	4.91	
6600.00	6595.69	179.85	14.58	14.39	Black Mamba 15 State Com 8H (p)	152.42	122.72	5.13	
6700.00	6695.31	179.86	14.81	14.59	Black Mamba 15 State Com 8H (p)	161.13	131.00	5.35	
6800.00	6794.93	179.86	15.03	14.80	Black Mamba 15 State Com 8H (p)	169.85	139.28	5.56	
6900.00	6894.55	179.87	15.26	15.01	Black Mamba 15 State Com 8H (p)	178.56	147.57	5.76	
7000.00	6994.17	179.88	15.50	15.22	Black Mamba 15 State Com 8H (p)	187.28	155.85	5.96	
7100.00	7093.78	179.88	15.73	15.43	Black Mamba 15 State Com 8H (p)	195.99	164.13	6.15	
7200.00	7193.40	179.89	15.96	15.64	Black Mamba 15 State Com 8H (p)	204.71	172.41	6.34	
7300.00	7293.02	179.89	16.20	15.85	Black Mamba 15 State Com 8H (p)	213.42	180.69	6.52	

5D Anti-Collision Report

Primary Well: Black Mamba 15 State Com 7H (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
7400.00	7392.64	179.90	16.44	16.07	Black Mamba 15 State Com 8H (p)	222.14	188.97	6.70	
7500.00	7492.26	179.90	16.67	16.28	Black Mamba 15 State Com 8H (p)	230.86	197.25	6.87	
7600.00	7591.88	179.90	16.91	16.49	Black Mamba 15 State Com 8H (p)	239.57	205.53	7.04	
7700.00	7691.50	179.91	17.15	16.71	Black Mamba 15 State Com 8H (p)	248.29	213.81	7.20	
7800.00	7791.12	179.91	17.39	16.92	Black Mamba 15 State Com 8H (p)	257.00	222.09	7.36	
7900.00	7890.74	179.91	17.64	17.14	Black Mamba 15 State Com 8H (p)	265.72	230.37	7.52	
8000.00	7990.36	179.92	17.88	17.35	Black Mamba 15 State Com 8H (p)	274.43	238.64	7.67	
8100.00	8089.98	179.92	18.12	17.57	Black Mamba 15 State Com 8H (p)	283.15	246.92	7.82	
8200.00	8189.60	179.92	18.37	17.78	Black Mamba 15 State Com 8H (p)	291.86	255.20	7.96	
8300.00	8289.22	179.92	18.62	18.00	Black Mamba 15 State Com 8H (p)	300.58	263.47	8.10	
8400.00	8388.84	179.93	18.86	18.22	Black Mamba 15 State Com 8H (p)	309.30	271.75	8.24	
8500.00	8488.46	179.93	19.11	18.44	Black Mamba 15 State Com 8H (p)	318.01	280.02	8.37	
8600.00	8588.08	179.93	19.36	18.65	Black Mamba 15 State Com 8H (p)	326.73	288.30	8.50	
8700.00	8687.70	179.93	19.61	18.87	Black Mamba 15 State Com 8H (p)	335.44	296.57	8.63	
8800.00	8787.32	179.93	19.86	19.09	Black Mamba 15 State Com 8H (p)	344.16	304.84	8.75	
8900.00	8886.94	179.93	20.11	19.31	Black Mamba 15 State Com 8H (p)	352.87	313.12	8.88	
9000.00	8986.55	179.94	20.36	19.53	Black Mamba 15 State Com 8H (p)	361.59	321.39	8.99	
9100.00	9086.17	179.94	20.61	19.75	Black Mamba 15 State Com 8H (p)	370.30	329.66	9.11	
9200.00	9185.79	179.94	20.86	19.97	Black Mamba 15 State Com 8H (p)	379.02	337.93	9.23	
9300.00	9285.48	179.94	21.10	20.20	Black Mamba 15 State Com 8H (p)	386.88	345.36	9.32	
9400.00	9385.37	179.94	21.29	20.41	Black Mamba 15 State Com 8H (p)	391.42	349.48	9.33	
9500.00	9485.36	89.94	21.48	20.59	Black Mamba 15 State Com 8H (p)	392.54	350.18	9.27	
9600.00	9585.36	89.94	21.69	20.81	Black Mamba 15 State Com 8H (p)	392.54	349.74	9.17	
9700.00	9685.36	89.94	21.90	21.03	Black Mamba 15 State Com 8H (p)	392.54	349.30	9.08	
9800.00	9785.36	89.94	22.11	21.25	Black Mamba 15 State Com 8H (p)	392.54	348.85	8.99	
9900.00	9885.36	89.94	22.33	21.46	Black Mamba 15 State Com 8H (p)	392.54	348.41	8.90	

5D Anti-Collision Report

Primary Well : Black Mamba 15 State Com 7H (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	9985.36	89.94	22.54	21.68	Black Mamba 15 State Com 8H (p)	392.54	347.97	8.81	
10100.00	10085.36	89.94	22.75	21.90	Black Mamba 15 State Com 8H (p)	392.54	347.52	8.72	
10200.00	10185.36	89.94	22.96	22.12	Black Mamba 15 State Com 8H (p)	392.54	347.08	8.64	
10300.00	10285.36	89.94	23.18	22.34	Black Mamba 15 State Com 8H (p)	392.54	346.64	8.55	
10400.00	10385.36	91.13	23.39	22.56	Black Mamba 15 State Com 8H (p)	392.72	346.48	8.49	
10500.00	10485.34	275.16	23.55	22.77	Black Mamba 15 State Com 8H (p)	394.24	347.68	8.47	
10600.00	10584.16	278.82	23.42	22.95	Black Mamba 15 State Com 8H (p)	397.52	350.77	8.50	
10700.00	10678.97	282.16	23.11	22.87	Black Mamba 15 State Com 8H (p)	402.00	355.07	8.56	
10800.00	10766.88	285.11	23.31	22.02	Black Mamba 15 State Com 8H (p)	407.14	359.95	8.63	
10900.00	10845.22	287.62	23.54	21.01	Black Mamba 15 State Com 8H (p)	412.38	364.96	8.70	
11000.00	10911.62	289.65	23.83	19.90	Black Mamba 15 State Com 8H (p)	417.23	369.65	8.77	
11100.00	10964.05	291.19	24.21	18.86	Black Mamba 15 State Com 8H (p)	421.26	373.41	8.80	
11200.00	11000.92	292.22	24.70	18.10	Black Mamba 15 State Com 8H (p)	424.14	375.91	8.79	
11300.00	11021.12	292.74	25.28	17.70	Black Mamba 15 State Com 8H (p)	425.64	376.53	8.67	
11400.00	11024.90	292.75	25.96	17.74	Black Mamba 15 State Com 8H (p)	425.67	375.54	8.49	
11500.00	11024.59	292.61	26.78	17.91	Black Mamba 15 State Com 8H (p)	425.24	373.66	8.24	
11600.00	11024.28	292.47	27.70	18.10	Black Mamba 15 State Com 8H (p)	424.81	371.59	7.98	
11700.00	11023.97	292.32	28.63	18.32	Black Mamba 15 State Com 8H (p)	424.39	369.40	7.72	
11800.00	11023.66	292.18	29.66	18.57	Black Mamba 15 State Com 8H (p)	423.97	367.06	7.45	
11900.00	11023.35	292.04	30.85	18.84	Black Mamba 15 State Com 8H (p)	423.55	364.50	7.17	
12000.00	11023.04	291.90	32.08	19.14	Black Mamba 15 State Com 8H (p)	423.13	361.82	6.90	
12100.00	11022.73	291.75	33.34	19.45	Black Mamba 15 State Com 8H (p)	422.71	359.02	6.64	
12200.00	11022.42	291.61	34.65	19.79	Black Mamba 15 State Com 8H (p)	422.30	356.13	6.38	
12300.00	11022.11	291.47	35.99	20.14	Black Mamba 15 State Com 8H (p)	421.89	353.16	6.14	
12400.00	11021.80	291.32	37.36	20.51	Black Mamba 15 State Com 8H (p)	421.49	350.11	5.91	
12500.00	11021.49	291.18	38.77	20.91	Black Mamba 15 State Com 8H (p)	421.08	346.99	5.68	

5D Anti-Collision Report

Primary Well: Black Mamba 15 State Com 7H (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	11021.18	291.04	40.20	21.36	Black Mamba 15 State Com 8H (p)	420.68	343.81	5.47	
12700.00	11020.88	290.89	41.67	21.83	Black Mamba 15 State Com 8H (p)	420.28	340.57	5.27	
12800.00	11020.57	290.75	43.15	22.29	Black Mamba 15 State Com 8H (p)	419.88	337.27	5.08	
12900.00	11020.26	290.60	44.70	22.71	Black Mamba 15 State Com 8H (p)	419.49	333.93	4.90	
13000.00	11019.95	290.46	46.28	23.24	Black Mamba 15 State Com 8H (p)	419.10	330.54	4.73	
13100.00	11019.64	290.31	47.88	23.73	Black Mamba 15 State Com 8H (p)	418.71	327.16	4.57	
13200.00	11019.33	290.16	49.49	24.18	Black Mamba 15 State Com 8H (p)	418.33	323.93	4.43	
13300.00	11019.02	290.02	51.12	24.75	Black Mamba 15 State Com 8H (p)	417.94	320.26	4.28	
13400.00	11018.71	289.87	52.75	25.29	Black Mamba 15 State Com 8H (p)	417.56	316.76	4.14	
13500.00	11018.40	289.72	54.40	25.74	Black Mamba 15 State Com 8H (p)	417.19	313.10	4.01	
13600.00	11018.09	289.58	56.07	26.37	Black Mamba 15 State Com 8H (p)	416.81	309.48	3.88	
13700.00	11017.78	289.43	57.74	26.93	Black Mamba 15 State Com 8H (p)	416.44	305.86	3.77	
13800.00	11017.47	289.28	59.42	27.48	Black Mamba 15 State Com 8H (p)	416.07	302.23	3.65	
13900.00	11017.16	289.13	61.10	28.03	Black Mamba 15 State Com 8H (p)	415.71	298.58	3.55	
14000.00	11016.85	288.99	62.80	28.59	Black Mamba 15 State Com 8H (p)	415.34	294.92	3.45	
14100.00	11016.54	288.84	64.50	29.15	Black Mamba 15 State Com 8H (p)	414.98	291.24	3.35	
14200.00	11016.23	288.69	66.21	29.72	Black Mamba 15 State Com 8H (p)	414.62	287.55	3.26	
14300.00	11015.93	288.54	67.93	30.34	Black Mamba 15 State Com 8H (p)	414.27	283.84	3.18	
14400.00	11015.62	288.39	69.65	30.96	Black Mamba 15 State Com 8H (p)	413.92	280.12	3.09	
14500.00	11015.31	288.24	71.38	31.58	Black Mamba 15 State Com 8H (p)	413.57	276.39	3.01	
14600.00	11015.00	288.09	73.11	32.20	Black Mamba 15 State Com 8H (p)	413.22	272.65	2.94	
14700.00	11014.69	287.94	74.85	32.83	Black Mamba 15 State Com 8H (p)	412.88	268.90	2.87	
14800.00	11014.38	287.79	76.59	33.46	Black Mamba 15 State Com 8H (p)	412.54	265.14	2.80	
14900.00	11014.07	287.64	78.33	34.10	Black Mamba 15 State Com 8H (p)	412.20	261.37	2.73	
15000.00	11013.76	287.49	80.08	34.74	Black Mamba 15 State Com 8H (p)	411.86	257.59	2.67	
15100.00	11013.45	287.34	81.83	35.38	Black Mamba 15 State Com 8H (p)	411.53	253.80	2.61	

5D Anti-Collision Report

Primary Well : Black Mamba 15 State Com 7H (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	11013.14	287.19	83.59	36.02	Black Mamba 15 State Com 8H (p)	411.20	250.01	2.55	
15300.00	11012.83	287.04	85.35	36.67	Black Mamba 15 State Com 8H (p)	410.87	246.20	2.50	
15400.00	11012.52	286.89	87.11	37.32	Black Mamba 15 State Com 8H (p)	410.55	242.40	2.44	
15500.00	11012.21	286.73	88.88	37.98	Black Mamba 15 State Com 8H (p)	410.23	238.58	2.39	
15600.00	11011.90	286.58	90.64	38.63	Black Mamba 15 State Com 8H (p)	409.91	234.76	2.34	
15700.00	11011.59	286.43	92.41	39.29	Black Mamba 15 State Com 8H (p)	409.60	230.94	2.29	
15800.00	11011.28	286.28	94.18	39.95	Black Mamba 15 State Com 8H (p)	409.28	227.11	2.25	
15900.00	11010.97	286.12	95.96	40.62	Black Mamba 15 State Com 8H (p)	408.97	223.27	2.20	
16000.00	11010.67	285.97	97.74	41.28	Black Mamba 15 State Com 8H (p)	408.67	219.43	2.16	
16100.00	11010.36	285.82	99.51	41.95	Black Mamba 15 State Com 8H (p)	408.36	215.59	2.12	
16200.00	11010.05	285.67	101.29	42.62	Black Mamba 15 State Com 8H (p)	408.06	211.75	2.08	
16215.03	11010.00	285.64	101.56	42.72	Black Mamba 15 State Com 8H (p)	408.02	211.17	2.07	

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	2.00	0.00	89.54	0.00	0.00	50.04	49.24	62.07	
100.00	100.00	98.00	89.54	0.11	0.11	50.00	48.98	48.75	
200.00	200.00	198.00	89.54	0.33	0.33	50.00	48.53	33.94	
300.00	300.00	298.00	89.54	0.56	0.56	50.00	48.08	26.01	
400.00	400.00	398.00	89.54	0.78	0.78	50.00	47.63	21.08	
500.00	500.00	498.00	89.54	1.01	1.01	50.00	47.18	17.72	
600.00	600.00	598.00	89.54	1.23	1.23	50.00	46.73	15.29	
700.00	700.00	698.00	89.54	1.46	1.46	50.00	46.28	13.44	
800.00	800.00	798.00	89.54	1.68	1.68	50.00	45.83	11.99	
900.00	900.00	898.00	89.54	1.91	1.91	50.00	45.38	10.82	
1000.00	1000.00	998.00	89.54	2.13	2.13	50.00	44.93	9.86	
1100.00	1100.00	1098.00	89.54	2.36	2.36	50.00	44.48	9.06	
1200.00	1200.00	1198.00	89.54	2.58	2.58	50.00	44.03	8.38	
1300.00	1300.00	1298.00	89.54	2.81	2.81	50.00	43.58	7.79	
1400.00	1400.00	1398.00	89.54	3.03	3.03	50.00	43.13	7.28	
1500.00	1500.00	1498.00	89.54	3.26	3.26	50.00	42.69	6.83	
1600.00	1600.00	1598.00	89.54	3.48	3.48	50.00	42.24	6.44	
1700.00	1700.00	1698.00	89.54	3.70	3.70	50.00	41.79	6.09	
1800.00	1800.00	1798.00	89.54	3.93	3.93	50.00	41.34	5.77	
1900.00	1900.00	1898.00	89.54	4.15	4.15	50.00	40.89	5.49	
2000.00	2000.00	1998.00	89.54	4.38	4.38	50.00	40.44	5.23	
2100.00	2100.00	2098.00	89.54	4.60	4.60	50.00	39.99	4.99	
2200.00	2200.00	2198.00	89.54	4.83	4.83	50.00	39.54	4.78	
2300.00	2300.00	2298.00	89.54	5.05	5.05	50.00	39.09	4.58	
2400.00	2400.00	2398.00	89.54	5.28	5.28	50.00	38.64	4.40	
2500.00	2500.00	2498.00	89.54	5.50	5.50	50.00	38.19	4.23	
2600.00	2600.00	2598.00	89.54	5.73	5.73	50.00	37.74	4.08	
2700.00	2700.00	2698.00	89.54	5.95	5.95	50.00	37.29	3.93	

5D Anti-Collision Report

Secondary Well: Black Mamba 15 State Com GH (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
2800.00	2800.00	2798.00	89.54	6.18	6.18	50.00	36.84	3.80	
2900.00	2900.00	2898.00	89.54	6.40	6.40	50.00	36.39	3.67	
3000.00	3000.00	2998.00	89.54	6.63	6.63	50.00	35.94	3.56	
3100.00	3100.00	3098.00	89.54	6.85	6.85	50.00	35.49	3.45	
3200.00	3200.00	3198.00	89.54	7.08	7.08	50.00	35.04	3.34	
3300.00	3300.00	3298.00	89.54	7.30	7.30	50.00	34.59	3.25	
3400.00	3400.00	3398.00	89.54	7.53	7.53	50.00	34.14	3.15	
3500.00	3500.00	3498.00	89.54	7.75	7.75	50.00	33.69	3.07	
3600.00	3600.00	3598.00	89.54	7.98	7.98	50.00	33.24	2.98	
3700.00	3700.00	3698.00	89.54	8.20	8.20	50.00	32.80	2.91	
3800.00	3800.00	3798.00	89.54	8.43	8.43	50.00	32.35	2.83	
3900.00	3900.00	3898.00	89.54	8.65	8.65	50.00	31.90	2.76	
4000.00	4000.00	3998.00	89.54	8.87	8.87	50.00	31.45	2.69	
4100.00	4100.00	4098.00	89.54	9.10	9.10	50.00	31.00	2.63	
4200.00	4200.00	4198.00	89.54	9.32	9.32	50.00	30.55	2.57	
4300.00	4300.00	4298.00	89.54	9.55	9.55	50.00	30.10	2.51	
4400.00	4400.00	4398.00	89.54	9.77	9.77	50.00	29.65	2.46	
4500.00	4500.00	4498.00	89.54	10.00	10.00	50.00	29.20	2.40	
4600.00	4600.00	4598.00	89.54	10.22	10.22	50.00	28.75	2.35	
4700.00	4700.00	4698.00	89.54	10.45	10.45	50.00	28.30	2.30	
4800.00	4800.00	4798.00	89.54	10.67	10.67	50.00	27.85	2.26	
4900.00	4900.00	4898.00	89.54	10.90	10.90	50.00	27.40	2.21	
5000.00	5000.00	4998.00	89.54	11.12	11.12	50.00	26.95	2.17	
5100.00	5100.00	5098.00	89.54	11.35	11.35	50.00	26.50	2.13	
5200.00	5200.00	5198.00	89.54	11.57	11.57	50.00	26.05	2.09	
5300.00	5300.00	5298.00	89.54	11.80	11.80	50.00	25.84	2.07	
5400.00	5399.98	5397.98	179.56	12.02	12.02	51.75	27.18	2.11	
5500.00	5499.84	5497.84	179.60	12.25	12.25	56.98	31.99	2.28	
5600.00	5599.49	5597.49	179.65	12.47	12.47	65.26	39.84	2.57	
5700.00	5699.11	5697.11	179.69	12.69	12.69	73.98	48.12	2.86	
5800.00	5798.73	5796.73	179.72	12.92	12.92	82.69	56.41	3.15	
5900.00	5898.35	5896.35	179.75	13.14	13.14	91.41	64.70	3.42	
6000.00	5997.97	5995.97	179.77	13.37	13.37	100.12	72.99	3.69	
6100.00	6097.59	6095.59	179.79	13.59	13.59	108.84	81.28	3.95	
6200.00	6197.21	6195.21	179.80	13.81	13.81	117.55	89.57	4.20	
6300.00	6296.83	6294.83	179.82	14.04	14.04	126.27	97.86	4.44	
6400.00	6396.45	6394.45	179.83	14.26	14.26	134.98	106.14	4.68	
6500.00	6496.07	6494.07	179.84	14.49	14.49	143.70	114.43	4.91	
6600.00	6595.69	6593.69	179.85	14.71	14.71	152.42	122.72	5.13	
6700.00	6695.31	6693.31	179.86	14.93	14.93	161.13	131.00	5.35	
6800.00	6794.93	6792.93	179.86	15.16	15.16	169.85	139.28	5.56	
6900.00	6894.55	6892.55	179.87	15.38	15.38	178.56	147.57	5.76	
7000.00	6994.17	6992.17	179.88	15.61	15.61	187.28	155.85	5.96	
7100.00	7093.78	7091.78	179.88	15.83	15.83	195.99	164.13	6.15	
7200.00	7193.40	7191.40	179.89	16.05	16.05	204.71	172.41	6.34	
7300.00	7293.02	7291.02	179.89	16.28	16.28	213.42	180.69	6.52	
7400.00	7392.64	7390.64	179.90	16.50	16.50	222.14	188.97	6.70	
7500.00	7492.26	7490.26	179.90	16.72	16.72	230.86	197.25	6.87	
7600.00	7591.88	7589.88	179.90	16.95	16.95	239.57	205.53	7.04	
7700.00	7691.50	7689.50	179.91	17.17	17.17	248.29	213.81	7.20	
7800.00	7791.12	7789.12	179.91	17.40	17.40	257.00	222.09	7.36	
7900.00	7890.74	7888.74	179.91	17.62	17.62	265.72	230.37	7.52	
8000.00	7990.36	7988.36	179.92	17.84	17.84	274.43	238.64	7.67	
8100.00	8089.98	8087.98	179.92	18.07	18.07	283.15	246.92	7.82	
8200.00	8189.60	8187.60	179.92	18.29	18.29	291.86	255.20	7.96	
8300.00	8289.22	8287.22	179.92	18.52	18.52	300.58	263.47	8.10	
8400.00	8388.84	8386.84	179.93	18.74	18.74	309.30	271.75	8.24	
8500.00	8488.46	8486.46	179.93	18.96	18.96	318.01	280.02	8.37	

5D Anti-Collision Report

Secondary Well # Black Mamba 15 State Com 6H (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
8600.00	8588.08	8586.08	179.93	19.19	19.19	326.73	288.30	8.50	
8700.00	8687.70	8685.70	179.93	19.41	19.41	335.44	296.57	8.63	
8800.00	8787.32	8785.32	179.93	19.64	19.64	344.16	304.84	8.75	
8900.00	8886.94	8884.94	179.93	19.86	19.86	352.87	313.12	8.88	
9000.00	8986.55	8984.55	179.94	20.08	20.08	361.59	321.39	8.99	
9100.00	9086.17	9084.17	179.94	20.31	20.31	370.30	329.66	9.11	
9200.00	9185.79	9183.79	179.94	20.53	20.53	379.02	337.93	9.23	
9300.00	9285.48	9283.48	179.94	20.76	20.76	386.88	345.36	9.32	
9400.00	9385.37	9383.37	179.94	20.98	20.98	391.42	349.48	9.33	
9500.00	9485.36	9483.36	89.94	21.21	21.21	392.54	350.18	9.27	
9600.00	9585.36	9583.36	89.94	21.43	21.43	392.54	349.74	9.17	
9700.00	9685.36	9683.36	89.94	21.65	21.65	392.54	349.30	9.08	
9800.00	9785.36	9783.36	89.94	21.88	21.88	392.54	348.85	8.99	
9900.00	9885.36	9883.36	89.94	22.10	22.10	392.54	348.41	8.90	
10000.00	9985.36	9983.36	89.94	22.33	22.33	392.54	347.97	8.81	
10100.00	10085.36	10083.36	89.94	22.55	22.55	392.54	347.52	8.72	
10200.00	10185.36	10183.36	89.94	22.78	22.78	392.54	347.08	8.64	
10300.00	10285.36	10283.36	89.94	23.00	23.00	392.54	346.64	8.55	
10400.00	10383.18	10381.64	91.13	23.16	22.96	392.72	346.48	8.49	
10500.00	10473.36	10474.81	275.16	23.30	22.62	394.24	347.68	8.47	
10600.00	10554.76	10563.60	278.82	23.45	22.07	397.52	350.77	8.50	
10700.00	10627.38	10649.46	282.16	23.61	21.28	402.00	355.07	8.56	
10800.00	10690.69	10732.93	285.11	23.80	20.36	407.14	359.95	8.63	
10900.00	10744.31	10814.50	287.62	24.03	19.48	412.38	364.96	8.70	
11000.00	10787.96	10894.60	289.65	24.31	18.65	417.23	369.65	8.77	
11100.00	10821.44	10973.60	291.19	24.66	17.94	421.26	373.41	8.80	
11200.00	10844.60	11051.85	292.22	25.07	17.43	424.14	375.91	8.79	
11300.00	10857.34	11129.64	292.74	25.53	17.18	425.64	376.53	8.67	
11400.00	10860.28	11215.05	292.75	26.12	17.26	425.67	375.54	8.49	
11500.00	10861.11	11315.04	292.61	26.90	17.42	425.24	373.66	8.24	
11600.00	10861.93	11415.03	292.47	27.78	17.62	424.81	371.59	7.98	
11700.00	10862.76	11515.03	292.32	28.74	17.84	424.39	369.40	7.72	
11800.00	10863.58	11615.02	292.18	29.79	18.08	423.97	367.06	7.45	
11900.00	10864.41	11715.01	292.04	30.92	18.36	423.55	364.50	7.17	
12000.00	10865.23	11815.01	291.90	32.10	18.65	423.13	361.82	6.90	
12100.00	10866.06	11915.00	291.75	33.35	18.97	422.71	359.02	6.64	
12200.00	10866.88	12014.99	291.61	34.65	19.31	422.30	356.13	6.38	
12300.00	10867.70	12114.99	291.47	35.99	19.66	421.89	353.16	6.14	
12400.00	10868.53	12214.98	291.32	37.38	20.04	421.49	350.11	5.91	
12500.00	10869.35	12314.98	291.18	38.80	20.42	421.08	346.99	5.68	
12600.00	10870.18	12414.97	291.04	40.26	20.86	420.68	343.81	5.47	
12700.00	10871.00	12514.96	290.89	41.75	21.33	420.28	340.57	5.27	
12800.00	10871.83	12614.96	290.75	43.26	21.81	419.88	337.27	5.08	
12900.00	10872.65	12714.95	290.60	44.79	22.29	419.49	333.93	4.90	
13000.00	10873.48	12814.94	290.46	46.35	22.72	419.10	330.54	4.73	
13100.00	10874.30	12914.94	290.31	47.93	23.27	418.71	327.16	4.57	
13200.00	10875.13	13014.93	290.16	49.52	23.77	418.33	323.93	4.43	
13300.00	10875.95	13114.92	290.02	51.13	24.26	417.94	320.26	4.28	
13400.00	10876.77	13214.92	289.87	52.76	24.83	417.56	316.76	4.14	
13500.00	10877.60	13314.91	289.72	54.40	25.37	417.19	313.10	4.01	
13600.00	10878.42	13414.90	289.58	56.05	25.85	416.81	309.48	3.88	
13700.00	10879.25	13514.90	289.43	57.71	26.47	416.44	305.86	3.77	
13800.00	10880.07	13614.89	289.28	59.38	27.06	416.07	302.23	3.65	
13900.00	10880.90	13714.89	289.13	61.06	27.63	415.71	298.58	3.55	
14000.00	10881.72	13814.88	288.99	62.75	28.19	415.34	294.92	3.45	
14100.00	10882.55	13914.87	288.84	64.44	28.75	414.98	291.24	3.35	
14200.00	10883.37	14014.87	288.69	66.15	29.33	414.62	287.55	3.26	
14300.00	10884.19	14114.86	288.54	67.86	29.90	414.27	283.84	3.18	

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									
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
14400.00	10885.02	14214.85	288.39	69.57	30.52	413.92	280.12	3.09	
14500.00	10885.84	14314.85	288.24	71.30	31.15	413.57	276.39	3.01	
14600.00	10886.67	14414.84	288.09	73.02	31.78	413.22	272.65	2.94	
14700.00	10887.49	14514.83	287.94	74.76	32.41	412.88	268.90	2.87	
14800.00	10888.32	14614.83	287.79	76.49	33.05	412.54	265.14	2.80	
14900.00	10889.14	14714.82	287.64	78.23	33.69	412.20	261.37	2.73	
15000.00	10889.97	14814.81	287.49	79.98	34.33	411.86	257.59	2.67	
15100.00	10890.79	14914.81	287.34	81.73	34.98	411.53	253.80	2.61	
15200.00	10891.61	15014.80	287.19	83.48	35.62	411.20	250.01	2.55	
15300.00	10892.44	15114.80	287.04	85.24	36.27	410.87	246.20	2.50	
15400.00	10893.26	15214.79	286.89	87.00	36.93	410.55	242.40	2.44	
15500.00	10894.09	15314.78	286.73	88.76	37.58	410.23	238.58	2.39	
15600.00	10894.91	15414.78	286.58	90.52	38.24	409.91	234.76	2.34	
15700.00	10895.74	15514.77	286.43	92.29	38.91	409.60	230.94	2.29	
15800.00	10896.56	15614.76	286.28	94.06	39.57	409.28	227.11	2.25	
15900.00	10897.39	15714.76	286.12	95.83	40.24	408.97	223.27	2.20	
16000.00	10898.21	15814.75	285.97	97.61	40.90	408.67	219.43	2.16	
16100.00	10899.04	15914.74	285.82	99.38	41.57	408.36	215.59	2.12	
16200.00	10899.86	16014.74	285.67	101.16	42.25	408.06	211.75	2.08	
16215.03	10899.98	16029.77	285.64	101.43	42.35	408.02	211.17	2.07	

Secondary Well : Black Mamba 15 State Com 9H (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	3.00	0.00	89.53	0.00	0.00	100.04	99.23	124.08	
100.00	100.00	97.00	89.53	0.11	0.11	99.99	98.97	97.54	
200.00	200.00	197.00	89.53	0.33	0.33	99.99	98.52	67.94	
300.00	300.00	297.00	89.53	0.56	0.56	99.99	98.07	52.06	
400.00	400.00	397.00	89.53	0.78	0.78	99.99	97.62	42.20	
500.00	500.00	497.00	89.53	1.01	1.01	99.99	97.17	35.47	
600.00	600.00	597.00	89.53	1.23	1.23	99.99	96.72	30.59	
700.00	700.00	697.00	89.53	1.45	1.45	99.99	96.28	26.89	
800.00	800.00	797.00	89.53	1.68	1.68	99.99	95.83	23.99	
900.00	900.00	897.00	89.53	1.90	1.90	99.99	95.38	21.66	
1000.00	1000.00	997.00	89.53	2.13	2.13	99.99	94.93	19.74	
1100.00	1100.00	1097.00	89.53	2.35	2.35	99.99	94.48	18.13	
1200.00	1200.00	1197.00	89.53	2.58	2.58	99.99	94.03	16.76	
1300.00	1300.00	1297.00	89.53	2.80	2.80	99.99	93.58	15.59	
1400.00	1400.00	1397.00	89.53	3.03	3.03	99.99	93.13	14.57	
1500.00	1500.00	1497.00	89.53	3.25	3.25	99.99	92.68	13.67	
1600.00	1600.00	1597.00	89.53	3.48	3.48	99.99	92.23	12.88	
1700.00	1700.00	1697.00	89.53	3.70	3.70	99.99	91.78	12.17	
1800.00	1800.00	1797.00	89.53	3.93	3.93	99.99	91.33	11.54	
1900.00	1900.00	1897.00	89.53	4.15	4.15	99.99	90.88	10.97	
2000.00	2000.00	1997.00	89.53	4.38	4.38	99.99	90.43	10.46	
2100.00	2100.00	2097.00	89.53	4.60	4.60	99.99	89.98	9.99	
2200.00	2200.00	2197.00	89.53	4.83	4.83	99.99	89.53	9.56	
2300.00	2300.00	2297.00	89.53	5.05	5.05	99.99	89.08	9.16	
2400.00	2400.00	2397.00	89.53	5.28	5.28	99.99	88.63	8.80	
2500.00	2500.00	2497.00	89.53	5.50	5.50	99.99	88.18	8.47	
2600.00	2600.00	2597.00	89.53	5.73	5.73	99.99	87.73	8.16	
2700.00	2700.00	2697.00	89.53	5.95	5.95	99.99	87.28	7.87	
2800.00	2800.00	2797.00	89.53	6.17	6.17	99.99	86.84	7.60	
2900.00	2900.00	2897.00	89.53	6.40	6.40	99.99	86.39	7.35	
3000.00	3000.00	2997.00	89.53	6.62	6.62	99.99	85.94	7.11	
3100.00	3100.00	3097.00	89.53	6.85	6.85	99.99	85.49	6.89	
3200.00	3200.00	3197.00	89.53	7.07	7.07	99.99	85.04	6.69	
3300.00	3300.00	3297.00	89.53	7.30	7.30	99.99	84.59	6.49	
3400.00	3400.00	3397.00	89.53	7.52	7.52	99.99	84.14	6.31	

5D Anti-Collision Report

Secondary Well # Black Mamba 15 State Com 9H (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
3500.00	3500.00	3497.00	89.53	7.75	7.75	99.99	83.69	6.13	
3600.00	3600.00	3597.00	89.53	7.97	7.97	99.99	83.24	5.97	
3700.00	3700.00	3697.00	89.53	8.20	8.20	99.99	82.79	5.81	
3800.00	3800.00	3797.00	89.53	8.42	8.42	99.99	82.34	5.66	
3900.00	3900.00	3897.00	89.53	8.65	8.65	99.99	81.89	5.52	
4000.00	4000.00	3997.00	89.53	8.87	8.87	99.99	81.44	5.39	
4100.00	4100.00	4097.00	89.53	9.10	9.10	99.99	80.99	5.26	
4200.00	4200.00	4197.00	89.53	9.32	9.32	99.99	80.54	5.14	
4300.00	4300.00	4297.00	89.53	9.55	9.55	99.99	80.09	5.02	
4400.00	4400.00	4397.00	89.53	9.77	9.77	99.99	79.64	4.91	
4500.00	4500.00	4497.00	89.53	10.00	10.00	99.99	79.19	4.81	
4600.00	4600.00	4597.00	89.53	10.22	10.22	99.99	78.74	4.71	
4700.00	4700.00	4697.00	89.53	10.45	10.45	99.99	78.29	4.61	
4800.00	4800.00	4797.00	89.53	10.67	10.67	99.99	77.84	4.51	
4900.00	4900.00	4897.00	89.53	10.90	10.90	99.99	77.39	4.42	
5000.00	5000.00	4997.00	89.53	11.12	11.12	99.99	76.94	4.34	
5100.00	5100.00	5097.00	89.53	11.35	11.35	99.99	76.50	4.26	
5200.00	5200.00	5197.00	89.53	11.57	11.57	99.99	76.05	4.18	
5300.00	5300.00	5297.00	89.53	11.79	11.79	99.99	75.84	4.14	
5400.00	5396.60	5393.62	179.54	12.00	11.99	103.32	78.83	4.22	
5500.00	5492.34	5489.48	179.58	12.19	12.16	113.48	88.64	4.57	
5600.00	5588.18	5585.64	179.63	12.38	12.33	129.75	104.55	5.15	
5700.00	5686.29	5684.12	179.68	12.59	12.52	147.12	121.51	5.75	
5800.00	5784.40	5782.60	179.71	12.79	12.72	164.48	138.48	6.33	
5900.00	5882.50	5881.08	179.74	13.00	12.91	181.85	155.45	6.89	
6000.00	5980.61	5979.56	179.76	13.21	13.11	199.21	172.41	7.43	
6100.00	6078.71	6078.04	179.78	13.42	13.31	216.58	189.38	7.96	
6200.00	6176.82	6176.52	179.80	13.63	13.51	233.94	206.34	8.48	
6300.00	6274.93	6275.00	179.81	13.85	13.71	251.31	223.30	8.97	
6400.00	6373.03	6373.48	179.82	14.07	13.91	268.67	240.27	9.46	
6500.00	6471.14	6471.96	179.83	14.28	14.12	286.03	257.22	9.93	
6600.00	6569.24	6570.44	179.84	14.51	14.32	303.40	274.18	10.38	
6700.00	6667.35	6668.93	179.85	14.73	14.52	320.76	291.14	10.83	
6800.00	6765.46	6767.41	179.86	14.95	14.73	338.13	308.09	11.26	
6900.00	6863.56	6865.89	179.87	15.18	14.93	355.49	325.05	11.68	
7000.00	6961.67	6964.37	179.87	15.40	15.14	372.86	342.00	12.08	
7100.00	7059.77	7062.85	179.88	15.63	15.35	390.22	358.95	12.48	
7200.00	7157.88	7161.33	179.88	15.86	15.55	407.59	375.90	12.86	
7300.00	7255.99	7259.81	179.89	16.09	15.76	424.95	392.85	13.24	
7400.00	7354.09	7358.29	179.89	16.33	15.97	442.32	409.79	13.60	
7500.00	7452.20	7456.77	179.90	16.56	16.18	459.68	426.74	13.95	
7600.00	7550.30	7555.25	179.90	16.79	16.39	477.05	443.68	14.30	
7700.00	7648.41	7653.73	179.90	17.03	16.60	494.41	460.63	14.63	
7800.00	7746.52	7752.21	179.91	17.26	16.81	511.78	477.57	14.96	
7900.00	7844.62	7850.69	179.91	17.50	17.02	529.14	494.51	15.28	
8000.00	7942.73	7949.18	179.91	17.74	17.23	546.51	511.45	15.59	
8100.00	8040.83	8047.66	179.92	17.98	17.45	563.87	528.39	15.89	
8200.00	8138.94	8146.14	179.92	18.22	17.66	581.24	545.33	16.19	
8300.00	8237.05	8244.62	179.92	18.46	17.87	598.60	562.27	16.48	
8400.00	8335.15	8343.10	179.92	18.70	18.09	615.97	579.21	16.76	
8500.00	8433.26	8441.58	179.92	18.94	18.30	633.33	596.14	17.03	
8600.00	8531.36	8540.06	179.93	19.19	18.51	650.70	613.08	17.30	
8700.00	8629.47	8638.54	179.93	19.43	18.73	668.06	630.02	17.56	
8800.00	8727.58	8737.02	179.93	19.68	18.94	685.42	646.95	17.81	
8900.00	8825.68	8835.50	179.93	19.92	19.16	702.79	663.88	18.06	
9000.00	8923.79	8933.98	179.93	20.17	19.37	720.15	680.82	18.31	
9100.00	9021.89	9032.46	179.94	20.41	19.59	737.52	697.75	18.54	
9200.00	9126.23	9137.19	179.94	20.67	19.83	754.81	714.57	18.76	

SD Anti-Collision Report

Secondary Well # Black Mamba 15 State Com 9H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									Risk
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	
9300.00	9261.00	9272.18	179.94	20.95	20.12	768.19	727.36	18.82	
9400.00	9385.37	9396.57	179.94	21.19	20.36	773.79	732.51	18.74	
9500.00	9485.36	9496.56	89.94	21.40	20.57	774.91	733.22	18.59	
9600.00	9585.36	9596.56	89.94	21.61	20.79	774.91	732.78	18.39	
9700.00	9685.36	9696.56	89.94	21.83	21.01	774.91	732.34	18.21	
9800.00	9785.36	9796.56	89.94	22.04	21.23	774.91	731.91	18.02	
9900.00	9885.36	9896.56	89.94	22.25	21.45	774.91	731.47	17.84	
10000.00	9985.36	9996.56	89.94	22.46	21.67	774.91	731.03	17.66	
10100.00	10085.36	10096.56	89.94	22.68	21.88	774.91	730.60	17.49	
10200.00	10185.36	10196.56	89.94	22.89	22.10	774.91	730.16	17.32	
10300.00	10285.36	10296.56	89.94	23.10	22.32	774.91	729.72	17.15	
10400.00	10385.36	10396.56	89.94	23.32	22.54	774.91	729.28	16.98	
10500.00	10484.45	10495.70	270.77	23.42	22.75	774.92	728.88	16.83	
10600.00	10580.85	10593.66	270.96	23.27	22.93	774.96	728.64	16.73	
10700.00	10672.63	10691.22	271.13	23.11	22.72	775.00	728.24	16.57	
10800.00	10757.27	10788.46	271.26	23.30	21.86	775.04	727.97	16.46	
10900.00	10832.48	10885.44	271.36	23.51	20.85	775.07	727.50	16.29	
11000.00	10896.23	10982.26	271.41	23.80	19.83	775.09	726.91	16.09	
11100.00	10946.81	11079.01	271.43	24.19	18.81	775.09	726.15	15.84	
11200.00	10982.83	11175.78	271.40	24.70	18.07	775.08	725.14	15.52	
11300.00	11003.29	11272.64	271.33	25.32	17.67	775.06	723.93	15.16	
11400.00	11007.91	11370.32	271.26	25.92	17.68	775.04	722.66	14.80	
11500.00	11007.50	11470.32	271.26	26.81	17.84	775.04	720.95	14.33	
11600.00	11007.09	11570.32	271.27	27.70	18.04	775.04	719.15	13.87	
11700.00	11006.67	11670.32	271.28	28.61	18.26	775.04	717.30	13.42	
11800.00	11006.26	11770.32	271.29	29.72	18.50	775.04	715.17	12.94	
11900.00	11005.85	11870.32	271.29	30.89	18.77	775.05	712.80	12.45	
12000.00	11005.43	11970.32	271.30	32.11	19.07	775.05	710.36	11.98	
12100.00	11005.02	12070.32	271.31	33.37	19.38	775.05	707.84	11.53	
12200.00	11004.61	12170.32	271.32	34.66	19.72	775.05	705.23	11.10	
12300.00	11004.20	12270.32	271.32	36.00	20.07	775.05	702.56	10.69	
12400.00	11003.78	12370.32	271.33	37.37	20.44	775.05	699.81	10.30	
12500.00	11003.37	12470.32	271.34	38.77	20.81	775.06	697.00	9.93	
12600.00	11002.96	12570.32	271.35	40.21	21.26	775.06	694.13	9.58	
12700.00	11002.54	12670.32	271.36	41.67	21.73	775.06	691.20	9.24	
12800.00	11002.13	12770.32	271.36	43.21	22.20	775.06	688.17	8.92	
12900.00	11001.72	12870.32	271.37	44.77	22.64	775.06	685.10	8.62	
13000.00	11001.30	12970.32	271.38	46.35	23.14	775.07	681.94	8.32	
13100.00	11000.89	13070.32	271.39	47.94	23.64	775.07	678.75	8.05	
13200.00	11000.48	13170.32	271.39	49.55	24.08	775.07	675.53	7.79	
13300.00	11000.06	13270.32	271.40	51.18	24.66	775.07	672.28	7.54	
13400.00	10999.65	13370.32	271.41	52.82	25.19	775.07	669.01	7.31	
13500.00	10999.24	13470.32	271.42	54.47	25.68	775.08	665.71	7.09	
13600.00	10998.83	13570.32	271.42	56.13	26.28	775.08	662.39	6.88	
13700.00	10998.41	13670.32	271.43	57.80	26.84	775.08	659.05	6.68	
13800.00	10998.00	13770.32	271.44	59.47	27.38	775.08	655.69	6.49	
13900.00	10997.59	13870.32	271.45	61.16	27.93	775.08	652.32	6.31	
14000.00	10997.17	13970.32	271.45	62.86	28.49	775.09	648.93	6.14	
14100.00	10996.76	14070.32	271.46	64.56	29.05	775.09	645.53	5.98	
14200.00	10996.35	14170.32	271.47	66.27	29.64	775.09	642.11	5.83	
14300.00	10995.93	14270.32	271.48	67.99	30.26	775.09	638.68	5.68	
14400.00	10995.52	14370.32	271.49	69.71	30.87	775.09	635.24	5.54	
14500.00	10995.11	14470.32	271.49	71.43	31.50	775.10	631.79	5.41	
14600.00	10994.69	14570.32	271.50	73.17	32.12	775.10	628.33	5.28	
14700.00	10994.28	14670.32	271.51	74.90	32.75	775.10	624.86	5.16	
14800.00	10993.87	14770.32	271.52	76.64	33.38	775.10	621.38	5.04	
14900.00	10993.46	14870.32	271.52	78.39	34.01	775.10	617.90	4.93	
15000.00	10993.04	14970.32	271.53	80.14	34.65	775.11	614.40	4.82	

5D Anti-Collision Report

Secondary Well : Black Mamba 13 State Com 9H (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
15100.00	10992.63	15070.32	271.54	81.89	35.29	775.11	610.90	4.72	
15200.00	10992.22	15170.32	271.55	83.64	35.94	775.11	607.40	4.62	
15300.00	10991.80	15270.32	271.55	85.40	36.58	775.11	603.88	4.53	
15400.00	10991.39	15370.32	271.56	87.16	37.23	775.11	600.36	4.44	
15500.00	10990.98	15470.32	271.57	88.93	37.89	775.12	596.84	4.35	
15600.00	10990.56	15570.32	271.58	90.69	38.54	775.12	593.31	4.26	
15700.00	10990.15	15670.32	271.59	92.46	39.20	775.12	589.77	4.18	
15800.00	10989.74	15770.32	271.59	94.24	39.86	775.12	586.23	4.10	
15900.00	10989.32	15870.32	271.60	96.01	40.53	775.13	582.69	4.03	
16000.00	10988.91	15970.32	271.61	97.79	41.19	775.13	579.14	3.95	
16100.00	10988.50	16070.32	271.62	99.56	41.86	775.13	575.58	3.88	
16200.00	10988.09	16170.32	271.62	101.34	42.53	775.13	572.03	3.82	
16215.03	10988.02	16185.35	271.62	101.61	42.63	775.13	571.50	3.81	

**Weatherford**

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 7H
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: 478570.71 US Survey Foot	Latitude: 32.313259 Degree
East: 782005.33 US Survey Foot	Longitude: -103.554306 Degree
Convergence: 0.42°	
Declination: 7.22°	
Total Correction: 6.80°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 18' 47.73" N
Longitude = 103° 33' 15.50" W

Magnetic Declination = 7.22 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6566
Local Field Strength = 48268 nT	Magnetic Vector X = 23779 nT
Magnetic Dip = 60.23 deg	Magnetic Vector Y = 3013 nT
Magnetic Model = bggm2015.dat	Magnetic Vector Z = 41896 nT
Run Date = October 15, 2015	Magnetic Vector H = 23970 nT

Signed: _____ Date: _____

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