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HOBBS OCD

SEP 19 2017

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5D Survey Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Billiken 6 Federal 1,2H Pad*
Well Name: *Billiken 6 Federal 1H*
Survey: *Definitive survey*

14 September 2015





Billiken 6 Federal 1H

Field Name: Lea Co, NM Nad S3 NMEZ	Map Units: US ft Vertical Reference Datum (VRD): Mean Sea Level Projected Coordinate System: NAD83 / New Mexico East (ftUS) Comment:	Company Name: Devon Energy
Site: Billiken 6 Federal 1,2H Pad	Units: US ft North Reference: Grid Convergence Angle: 0.49 Position: Northing: 388914.98US ft Latitude: 32° 3' 57.06" Easting: 827067.07US ft Longitude: -103° 24' 39.41" Elevation above MSL: 3269.00 US ft Comment:	
Slot: Billiken 6 Federal 1H	Position (Relative to Site Centre) +N/-S: 0.00US ft Northing: 388914.98US ft Latitude: 32° 3' 57.06" +E/-W: 0.00US ft Easting: 827067.07US ft Longitude: -103° 24' 39.41" Slot TVD Reference: Ground Elevation Elevation above MSL: 3269.00US ft Comment:	
Well: Billiken 6 Federal 1H	Type: Main well UWI: File Number: Comment: Closure Distance: 4720.6US ft Closure Azimuth: 352.07° Vertical Section: Position of Origin (Relative to Slot centre) +N/-S: 0.00US ft +E/-W: 0.00US ft Az: 357.78°	

Drill floor: Survey Name: Definitive Survey			
Rig Height (Kelly Bushing): 30.00us ft	Elevation above MSL: 3299.00us ft	Inclination: 0.00°	Azimuth: 0.00°

Survey Name: Definitive Survey			
Date: 17/Sep/2014	Survey Tool: See Survey Tool Ranges below.	Comment:	Company:

Magnetic Model:				
Model Name: BGGM	Date: 29/Aug/2015	Field Strength: 48150.1nT	Declination: 7.15°	Dip: 60.03°

Tie Point:					
MD: 0.00 US ft	Inclination: 0.00°	Azimuth: 0.00°	TVD: 0.00 US ft	North Offset: 0.00 US ft	East Offset: 0.00 US ft

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
MWD	0.00	13708.00	Wit MWD Svy

Wellpath created using minimum curvature.

5D Survey Report

Survey 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 (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	388914.98	827067.07	
226.00	0.90	155.05	225.99	-1.61	0.75	-1.64	0.40	388913.37	827067.82	First Wft Svy
413.00	1.15	153.75	412.96	-4.62	2.20	-4.71	0.13	388910.36	827069.27	
598.00	0.82	152.55	597.93	-7.46	3.63	-7.60	0.18	388907.52	827070.70	
783.00	0.35	143.33	782.92	-9.09	4.58	-9.26	0.26	388905.89	827071.65	
969.00	0.16	135.87	968.92	-9.73	5.10	-9.92	0.10	388905.25	827072.17	
1095.00	0.29	110.46	1094.92	-9.97	5.52	-10.18	0.13	388905.01	827072.59	
1241.00	0.49	89.27	1240.92	-10.09	6.49	-10.34	0.17	388904.89	827073.56	
1431.00	0.56	95.91	1430.91	-10.18	8.22	-10.49	0.05	388904.80	827075.29	
1623.00	0.59	88.84	1622.90	-10.25	10.15	-10.64	0.04	388904.73	827077.22	
1813.00	0.60	102.87	1812.89	-10.46	12.09	-10.92	0.08	388904.52	827079.16	
2002.00	0.55	105.87	2001.88	-10.92	13.93	-11.46	0.03	388904.06	827081.00	
2192.00	0.63	104.56	2191.87	-11.44	15.82	-12.04	0.04	388903.54	827082.89	
2382.00	0.53	96.77	2381.86	-11.80	17.70	-12.48	0.07	388903.18	827084.77	
2572.00	0.58	93.66	2571.85	-11.97	19.54	-12.72	0.03	388903.01	827086.61	
2761.00	0.69	85.25	2760.84	-11.93	21.62	-12.76	0.08	388903.05	827088.69	
2951.00	0.64	69.68	2950.83	-11.47	23.76	-12.38	0.10	388903.51	827090.83	
3046.00	0.55	62.25	3045.82	-11.07	24.66	-12.02	0.12	388903.91	827091.73	
3141.00	0.25	62.57	3140.82	-10.77	25.25	-11.74	0.32	388904.21	827092.32	
3236.00	0.10	19.14	3235.82	-10.59	25.46	-11.57	0.20	388904.39	827092.53	
3331.00	0.16	27.02	3330.82	-10.40	25.55	-11.38	0.07	388904.58	827092.62	
3426.00	0.49	48.39	3425.82	-10.01	25.91	-11.01	0.36	388904.97	827092.98	
3521.00	0.51	47.07	3520.81	-9.45	26.52	-10.47	0.02	388905.53	827093.59	
3616.00	0.29	350.83	3615.81	-8.93	26.80	-9.96	0.45	388906.05	827093.87	
3711.00	0.31	347.51	3710.81	-8.44	26.70	-9.47	0.03	388906.54	827093.77	
3805.00	0.31	4.14	3804.81	-7.94	26.66	-8.96	0.10	388907.04	827093.73	
3900.00	0.35	14.23	3899.81	-7.40	26.75	-8.43	0.07	388907.58	827093.82	
3995.00	0.41	15.48	3994.80	-6.79	26.92	-7.83	0.06	388908.19	827093.99	
4090.00	0.47	10.11	4089.80	-6.08	27.08	-7.12	0.08	388908.90	827094.15	
4185.00	0.85	21.68	4184.80	-5.04	27.40	-6.10	0.42	388909.94	827094.47	
4280.00	1.05	40.64	4279.78	-3.72	28.23	-4.82	0.39	388911.26	827095.30	
4374.00	0.89	39.08	4373.77	-2.50	29.25	-3.64	0.17	388912.48	827096.32	
4469.00	1.05	36.36	4468.76	-1.23	30.23	-2.40	0.18	388913.75	827097.30	
4564.00	0.98	38.47	4563.74	0.11	31.26	-1.10	0.08	388915.09	827098.33	
4659.00	0.85	14.33	4658.73	1.43	31.94	0.19	0.42	388916.41	827099.01	
4754.00	1.13	54.05	4753.72	2.66	32.87	1.38	0.76	388917.64	827099.94	
4849.00	1.22	63.70	4848.70	3.66	34.53	2.32	0.23	388918.64	827101.60	
4944.00	1.00	69.34	4943.68	4.40	36.22	2.99	0.26	388919.38	827103.29	
5038.00	0.58	74.31	5037.67	4.81	37.44	3.36	0.45	388919.79	827104.51	
5133.00	0.00	0.00	5132.67	4.94	37.90	3.47	0.61	388919.92	827104.97	
5228.00	0.63	259.69	5227.66	4.85	37.39	3.40	0.66	388919.83	827104.46	
5293.00	0.63	265.74	5292.66	4.76	36.68	3.34	0.10	388919.74	827103.75	
5456.00	0.43	332.22	5455.66	5.24	35.50	3.86	0.37	388920.22	827102.57	
5551.00	0.90	282.56	5550.65	5.71	34.61	4.37	0.74	388920.69	827101.68	
5646.00	2.33	277.74	5645.61	6.14	31.97	4.89	1.51	388921.12	827099.04	
5740.00	3.22	280.56	5739.50	6.88	27.48	5.81	0.96	388921.86	827094.55	
5835.00	4.45	283.29	5834.28	8.21	21.27	7.38	1.31	388923.19	827088.34	
5930.00	5.44	286.99	5928.93	10.38	13.37	9.85	1.09	388925.36	827080.44	
6025.00	6.64	283.64	6023.40	12.99	3.73	12.83	1.32	388927.97	827070.80	
6120.00	7.45	274.16	6117.69	14.73	-7.75	15.02	1.49	388929.71	827059.32	
6214.00	7.10	265.72	6210.93	14.74	-19.62	15.49	1.20	388929.72	827047.45	
6309.00	6.68	266.69	6305.25	13.98	-30.99	15.17	0.46	388928.96	827036.08	
6404.00	6.15	266.23	6399.65	13.33	-41.59	14.93	0.56	388928.31	827025.48	
6499.00	6.51	269.75	6494.07	12.97	-52.05	14.98	0.56	388927.95	827015.02	
6594.00	7.67	270.58	6588.34	13.01	-63.78	15.47	1.23	388927.99	827003.29	
6689.00	7.61	270.04	6682.50	13.08	-76.40	16.03	0.10	388928.06	826990.67	
6784.00	7.35	268.80	6776.69	12.96	-88.77	16.38	0.32	388927.94	826978.30	
6878.00	6.93	268.65	6869.96	12.70	-100.45	16.58	0.45	388927.68	826966.62	

Survey 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 (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment
6973.00	6.68	269.39	6964.29	12.50	-111.71	16.82	0.28	388927.48	826955.36	
7068.00	6.47	267.43	7058.67	12.20	-122.58	16.94	0.32	388927.18	826944.49	
7163.00	7.10	263.39	7153.00	11.29	-133.76	16.46	0.83	388926.27	826933.31	
7258.00	6.10	261.75	7247.37	9.89	-144.59	15.48	1.07	388924.87	826922.48	
7353.00	6.84	261.89	7341.77	8.36	-155.18	14.37	0.78	388923.34	826911.89	
7448.00	6.71	266.78	7436.10	7.25	-166.32	13.69	0.62	388922.23	826900.75	
7543.00	6.15	261.02	7530.51	6.15	-176.89	13.00	0.90	388921.13	826890.18	
7638.00	5.69	259.24	7625.00	4.48	-186.54	11.70	0.52	388919.46	826880.53	
7733.00	5.36	257.83	7719.56	2.66	-195.51	10.23	0.38	388917.64	826871.56	
7828.00	5.32	257.20	7814.15	0.75	-204.14	8.66	0.07	388915.73	826862.93	
7922.00	4.47	253.82	7907.80	-1.24	-211.91	6.97	0.95	388913.74	826855.16	
8017.00	3.77	251.36	8002.56	-3.27	-218.42	5.20	0.76	388911.71	826848.65	
8112.00	3.15	249.69	8097.38	-5.17	-223.83	3.50	0.66	388909.81	826843.24	
8207.00	2.83	246.40	8192.25	-7.02	-228.43	1.84	0.38	388907.96	826838.64	
8301.00	2.43	245.60	8286.15	-8.77	-232.37	0.24	0.43	388906.21	826834.70	
8396.00	2.11	244.25	8381.08	-10.36	-235.78	-1.22	0.34	388904.62	826831.29	
8491.00	1.89	241.58	8476.02	-11.87	-238.73	-2.61	0.25	388903.11	826828.34	
8553.00	1.69	242.02	8537.99	-12.78	-240.44	-3.46	0.32	388902.20	826826.63	
8617.00	1.67	265.96	8601.96	-13.29	-242.20	-3.90	1.09	388901.69	826824.87	
8649.00	3.59	311.05	8633.93	-12.66	-243.42	-3.23	8.39	388902.32	826823.65	
8680.00	7.33	322.84	8664.79	-10.45	-245.35	-0.94	12.53	388904.53	826821.72	
8727.00	14.79	321.42	8710.88	-3.36	-250.91	6.36	15.88	388911.62	826816.16	
8775.00	21.78	317.84	8756.43	8.04	-260.72	18.14	14.74	388923.02	826806.35	
8822.00	26.62	315.29	8799.29	22.00	-273.99	32.60	10.53	388936.98	826793.08	
8870.00	31.45	313.97	8841.24	38.35	-290.58	49.57	10.15	388953.33	826776.49	
8917.00	36.61	313.69	8880.18	56.55	-309.55	68.50	10.98	388971.53	826757.52	
8964.00	42.02	313.66	8916.53	77.11	-331.08	89.87	11.51	388992.09	826735.99	
9011.00	45.40	314.13	8950.50	99.63	-354.47	113.28	7.22	389014.61	826712.60	
9059.00	50.84	316.41	8982.53	125.02	-379.59	139.63	11.87	389040.00	826687.48	
9106.00	55.41	320.04	9010.74	153.07	-404.60	168.63	11.52	389068.05	826662.47	
9154.00	59.83	325.05	9036.45	185.25	-429.20	201.74	12.74	389100.23	826637.87	
9201.00	64.06	326.70	9058.55	219.58	-452.45	236.95	9.52	389134.56	826614.62	
9249.00	68.20	328.45	9077.97	256.63	-475.97	274.88	9.25	389171.61	826591.10	
9296.00	73.39	332.90	9093.43	295.32	-492.67	314.37	14.21	389210.30	826569.40	
9327.00	76.89	334.26	9101.38	322.15	-511.00	341.70	12.06	389237.13	826556.07	
9349.00	80.15	335.33	9105.76	341.65	-520.18	361.54	15.57	389256.63	826546.89	
9381.00	83.55	336.13	9110.30	370.52	-533.19	390.90	10.91	389285.50	826533.88	
9412.00	85.73	336.42	9113.19	398.78	-545.61	419.61	7.09	389313.76	826521.46	
9444.00	86.36	337.47	9115.40	428.15	-558.11	449.45	3.82	389343.13	826508.96	
9476.00	87.97	338.34	9116.98	457.76	-570.13	479.51	5.72	389372.74	826496.94	
9508.00	89.37	340.13	9117.72	487.68	-581.47	509.83	7.10	389402.66	826485.60	
9539.00	90.35	342.43	9117.80	517.03	-591.42	539.56	8.06	389432.01	826475.65	
9571.00	90.21	344.09	9117.64	547.68	-600.64	570.53	5.21	389462.66	826466.43	
9634.00	88.74	348.18	9118.22	608.82	-615.73	632.22	6.90	389523.80	826451.34	
9729.00	88.67	351.12	9120.37	702.24	-632.79	726.23	3.09	389617.22	826434.28	
9824.00	89.44	352.39	9121.93	796.25	-646.42	820.69	1.56	389711.23	826420.65	
9919.00	90.77	354.66	9121.76	890.63	-657.13	915.42	2.77	389805.61	826409.94	
10013.00	91.12	356.58	9120.21	984.34	-664.31	1009.33	2.08	389899.32	826402.76	
10108.00	90.00	356.59	9119.28	1079.16	-669.96	1104.31	1.18	389994.14	826397.11	
10203.00	91.05	356.98	9118.41	1174.01	-675.29	1199.29	1.18	390088.99	826391.78	
10298.00	88.04	357.23	9119.17	1268.87	-680.09	1294.27	3.18	390183.85	826386.98	
10393.00	88.25	357.42	9122.24	1363.72	-684.52	1389.21	0.30	390278.70	826382.55	
10488.00	90.07	357.78	9123.63	1458.62	-688.50	1484.20	1.95	390373.60	826378.57	
10582.00	90.56	357.55	9123.12	1552.54	-692.33	1578.20	0.58	390467.52	826374.74	
10677.00	91.26	357.35	9121.61	1647.44	-696.55	1673.18	0.77	390562.42	826370.52	
10772.00	92.66	357.79	9118.36	1742.29	-700.58	1768.12	1.54	390657.27	826366.49	
10867.00	91.96	358.81	9114.53	1837.17	-703.40	1863.04	1.30	390752.15	826363.67	
10962.00	92.17	358.72	9111.11	1932.09	-705.44	1957.97	0.24	390847.07	826361.63	
11057.00	90.56	359.71	9108.84	2027.05	-706.74	2052.90	1.99	390942.03	826360.33	

Survey Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
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11151.00	89.93	0.68	9108.44	2121.05	-706.42	2146.82	1.23	391036.03	826360.65	
11246.00	90.56	3.04	9108.03	2215.99	-703.34	2241.57	2.57	391130.97	826363.73	
11341.00	88.46	2.16	9108.85	2310.88	-699.03	2336.22	2.40	391225.86	826368.04	
11436.00	88.39	2.48	9111.46	2405.77	-695.19	2430.89	0.34	391320.75	826371.88	
11531.00	88.95	2.62	9113.66	2500.65	-690.96	2525.53	0.61	391415.63	826376.11	
11626.00	89.79	3.12	9114.71	2595.52	-686.20	2620.15	1.03	391510.50	826380.87	
11720.00	88.88	1.79	9115.80	2689.42	-682.18	2713.83	1.71	391604.40	826384.89	
11815.00	87.69	0.49	9118.64	2784.36	-680.29	2808.62	1.85	391699.34	826386.78	
11910.00	87.97	0.38	9122.24	2879.29	-679.57	2903.45	0.32	391794.27	826387.50	
12005.00	89.02	0.01	9124.73	2974.25	-679.24	2998.33	1.17	391889.23	826387.83	
12100.00	89.93	1.03	9125.60	3069.24	-678.38	3093.22	1.44	391984.22	826388.69	
12195.00	92.03	2.47	9123.98	3164.18	-675.48	3187.97	2.68	392079.16	826391.59	
12290.00	93.50	3.50	9119.40	3258.93	-670.54	3282.46	1.89	392173.91	826396.53	
12385.00	93.15	2.82	9113.89	3353.63	-665.31	3376.88	0.80	392268.61	826401.76	
12480.00	92.59	2.15	9109.13	3448.42	-661.20	3471.44	0.92	392363.40	826405.87	
12575.00	90.56	1.73	9106.52	3543.32	-657.99	3566.15	2.18	392458.30	826409.08	
12669.00	87.97	0.76	9107.73	3637.29	-655.94	3659.96	2.94	392552.27	826411.13	
12764.00	87.69	0.88	9111.32	3732.21	-654.58	3754.76	0.32	392647.19	826412.49	
12859.00	88.25	0.15	9114.69	3827.14	-653.73	3849.59	0.97	392742.12	826413.34	
12954.00	87.48	359.72	9118.23	3922.08	-653.84	3944.46	0.93	392837.06	826413.23	
13049.00	89.65	359.12	9120.61	4017.04	-654.80	4039.39	2.37	392932.02	826412.27	
13144.00	90.35	358.80	9120.61	4112.02	-656.52	4134.36	0.81	393027.00	826410.55	
13238.00	91.75	359.16	9118.88	4205.99	-658.20	4228.33	1.54	393120.97	826408.87	
13333.00	91.40	359.84	9116.27	4300.95	-659.03	4323.25	0.80	393215.93	826408.04	
13428.00	91.96	1.20	9113.49	4395.90	-658.16	4418.09	1.55	393310.88	826408.91	
13522.00	93.15	1.70	9109.30	4489.77	-655.79	4511.81	1.37	393404.75	826411.28	
13637.00	92.52	1.38	9103.61	4604.59	-652.70	4626.42	0.61	393519.57	826414.37	Last Wft Swy
13708.00	92.52	1.38	9100.49	4675.50	-650.99	4697.21	0.00	393590.48	826416.08	Proj to Bit





