



Directional Survey

Well Name: MEAN GREEN 27 FED 2H

Sub-Division DELAWARE BASIN EAST		Region BASIN EAST		Field Name RATTLESNAKE (NM)		North E		State NM					
Surface Legal Location Sec 22 26S 34E		BBLUM 3002542415		Latitude (°) 32° 1' 18.356" N		Longitude (°) 103° 27' 4.692" W		Orig KB Elevation (ft) 3,249.20		Ground Elev MSL (ft) 3,219.20		KB - GL (ft) 30.00	
Wellbore Name OH 1/2		Parent Wellbore OH		SAP Well ID 38576		Vertical Section Direction (°) 180.00							
Kick Off & Key Depths													
Date 7/28/2015		Type KICK OFF		Top Depth (ftKB) 12,098.0									
Actual Deviation Survey		Definitive?		Proposed?		Proposed Deviation Survey							
Deviation Survey													
Date 7/29/2015		Description MWD											
MD Tie In (ftKB) 12,054.00		TVD Tie In (ftKB) 12,049.37		Inclination Tie In (°) 4.00		Azimuth Tie In (°) 214.28		NSTie In (ft) -80.78		EW Tie In (ft) 80.42			
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
7/29/2015	12,176.00	14.45	181.80	12,169.68	99.57	99.57	77.54	9.24	MWD	WEATHERFORD			
7/29/2015	12,207.00	17.41	180.59	12,199.49	108.08	108.08	77.37	9.61	MWD	WEATHERFORD			
7/29/2015	12,239.00	20.88	176.61	12,229.71	118.56	118.56	77.65	11.58	MWD	WEATHERFORD			
7/29/2015	12,271.00	24.34	172.58	12,259.25	130.80	130.80	78.84	11.84	MWD	WEATHERFORD			
7/29/2015	12,302.00	28.45	170.40	12,287.01	144.42	144.42	80.90	13.62	MWD	WEATHERFORD			
7/29/2015	12,334.00	32.39	168.23	12,314.60	160.33	160.33	83.92	12.78	MWD	WEATHERFORD			
7/29/2015	12,365.00	36.69	168.38	12,340.13	177.54	177.54	87.48	13.87	MWD	WEATHERFORD			
7/29/2015	12,397.00	39.85	168.42	12,365.25	198.95	198.95	91.47	9.88	MWD	WEATHERFORD			
7/29/2015	12,429.00	42.29	167.81	12,389.38	217.52	217.52	95.80	7.73	MWD	WEATHERFORD			
7/29/2015	12,460.00	44.73	167.34	12,411.86	238.36	238.36	100.39	7.94	MWD	WEATHERFORD			
7/30/2015	12,492.00	47.72	167.59	12,433.99	260.91	260.91	105.41	9.38	MWD	WEATHERFORD			
7/30/2015	12,523.00	51.01	167.78	12,454.18	283.90	283.90	110.42	10.62	MWD	WEATHERFORD			
7/30/2015	12,555.00	54.23	168.24	12,473.61	308.77	308.77	115.70	10.13	MWD	WEATHERFORD			
7/30/2015	12,587.00	57.10	168.47	12,491.65	334.64	334.64	121.03	8.99	MWD	WEATHERFORD			
7/30/2015	12,618.00	59.82	168.44	12,507.87	360.53	360.53	126.32	8.77	MWD	WEATHERFORD			
7/30/2015	12,650.00	62.43	169.01	12,523.32	388.01	388.01	131.80	8.30	MWD	WEATHERFORD			
7/30/2015	12,682.00	65.47	169.77	12,537.37	416.26	416.26	137.09	8.74	MWD	WEATHERFORD			
7/30/2015	12,713.00	68.42	170.74	12,549.51	444.37	444.37	141.91	9.94	MWD	WEATHERFORD			
7/30/2015	12,745.00	71.34	172.20	12,560.52	474.08	474.08	146.37	10.08	MWD	WEATHERFORD			
7/30/2015	12,776.00	74.64	173.66	12,569.58	503.49	503.49	150.01	11.56	MWD	WEATHERFORD			
7/31/2015	12,808.00	77.60	174.61	12,577.26	534.39	534.39	153.18	9.69	MWD	WEATHERFORD			
8/1/2015	12,828.00	79.00	174.33	12,581.31	553.89	553.89	155.07	7.13	MWD	WEATHERFORD			
8/1/2015	12,860.00	80.78	174.98	12,586.93	585.25	585.25	158.00	5.91	MWD	WEATHERFORD			
8/1/2015	12,891.00	82.98	175.31	12,591.31	615.83	615.83	160.60	7.17	MWD	WEATHERFORD			
8/1/2015	12,923.00	85.32	175.98	12,594.57	647.57	647.57	163.02	7.60	MWD	WEATHERFORD			
8/1/2015	12,955.00	87.48	177.40	12,596.58	679.45	679.45	164.86	8.07	MWD	WEATHERFORD			
8/1/2015	12,986.00	88.46	178.81	12,597.68	710.41	710.41	165.89	5.54	MWD	WEATHERFORD			
8/1/2015	13,018.00	89.65	179.17	12,598.21	742.40	742.40	166.45	3.89	MWD	WEATHERFORD			
8/1/2015	13,049.00	90.70	179.71	12,598.11	773.40	773.40	166.75	3.81	MWD	WEATHERFORD			
8/1/2015	13,113.00	91.47	179.43	12,596.90	837.39	837.39	167.23	1.28	MWD	WEATHERFORD			
8/1/2015	13,207.00	91.54	179.70	12,594.43	931.35	931.35	167.95	0.30	MWD	WEATHERFORD			
8/1/2015	13,302.00	91.05	179.69	12,592.28	1,026.32	1,026.32	168.45	0.52	MWD	WEATHERFORD			
8/1/2015	13,397.00	91.68	179.92	12,590.02	1,121.30	1,121.30	168.77	0.71	MWD	WEATHERFORD			
8/1/2015	13,492.00	91.26	179.42	12,587.58	1,216.26	1,216.26	169.32	0.69	MWD	WEATHERFORD			
8/1/2015	13,586.00	91.89	180.07	12,585.00	1,310.23	1,310.23	169.74	0.96	MWD	WEATHERFORD			
8/1/2015	13,681.00	92.10	180.54	12,581.69	1,405.17	1,405.17	169.23	0.54	MWD	WEATHERFORD			
8/1/2015	13,776.00	92.17	180.92	12,578.15	1,500.09	1,500.09	168.02	0.41	MWD	WEATHERFORD			
8/1/2015	13,871.00	91.61	180.60	12,575.02	1,595.03	1,595.03	166.77	0.68	MWD	WEATHERFORD			
8/1/2015	13,966.00	91.82	181.27	12,572.18	1,689.98	1,689.98	165.22	0.74	MWD	WEATHERFORD			
8/1/2015	14,061.00	91.82	181.50	12,569.16	1,784.90	1,784.90	162.92	0.24	MWD	WEATHERFORD			
8/1/2015	14,155.00	90.07	181.00	12,567.61	1,878.86	1,878.86	160.87	1.94	MWD	WEATHERFORD			
8/1/2015	14,250.00	89.79	180.65	12,567.73	1,973.85	1,973.85	159.50	0.47	MWD	WEATHERFORD			
8/1/2015	14,345.00	90.49	180.94	12,567.49	2,068.84	2,068.84	158.19	0.80	MWD	WEATHERFORD			
8/1/2015	14,440.00	91.47	180.01	12,565.87	2,163.82	2,163.82	157.40	1.42	MWD	WEATHERFORD			
8/1/2015	14,535.00	90.84	180.25	12,563.95	2,258.80	2,258.80	157.18	0.71	MWD	WEATHERFORD			
8/1/2015	14,630.00	91.61	181.02	12,561.92	2,353.77	2,353.77	156.13	1.15	MWD	WEATHERFORD			
8/1/2015	14,724.00	92.24	180.39	12,558.77	2,447.71	2,447.71	154.97	0.95	MWD	WEATHERFORD			
8/1/2015	14,819.00	92.17	180.92	12,555.11	2,542.63	2,542.63	153.89	0.56	MWD	WEATHERFORD			
8/3/2015	14,914.00	91.33	180.00	12,552.21	2,637.59	2,637.59	153.13	1.31	MWD	WEATHERFORD			
8/3/2015	15,009.00	91.47	180.72	12,549.89	2,732.55	2,732.55	152.63	0.77	MWD	WEATHERFORD			
8/3/2015	15,104.00	90.70	180.52	12,548.09	2,827.53	2,827.53	151.50	0.84	MWD	WEATHERFORD			
8/3/2015	15,199.00	90.35	180.88	12,547.22	2,922.52	2,922.52	150.34	0.53	MWD	WEATHERFORD			
8/3/2015	15,293.00	90.00	180.51	12,546.93	3,016.51	3,016.51	149.20	0.54	MWD	WEATHERFORD			

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Sub-Division		Region		Field Name				County		State	
DELAWARE BASIN EAST		BASIN EAST		RATTLESNAKE (NM)				LEA		NM	
Surface Legal Location		APN/BLM		Latitude (°)		Longitude (°)		Orig KB Elevation (ft)		Ground Elev MSL (ft)	
Sec 22 26S 34E		3002642410		32° 1' 18.356" N		103° 27' 4.692" W		3,249.20		3,219.20	
								KB		GL (ft)	
										30.00	
Survey Data											
Date	MD (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	NIS (ft)	EW (ft)	DLS (ft/1000)	Survey Tool	Survey Company	
8/3/2015	15,388.00	90.56	178.41	12,548.47	3,111.50	3,111.50	150.10	2.29	MWD	WEATHERFORD	
8/3/2015	15,483.00	91.81	178.28	12,544.67	3,208.44	3,208.44	152.84	1.11	MWD	WEATHERFORD	
8/3/2015	15,578.00	91.96	178.34	12,541.71	3,301.36	3,301.36	155.84	0.37	MWD	WEATHERFORD	
8/3/2015	15,673.00	91.33	178.86	12,538.98	3,396.29	3,396.29	157.96	0.88	MWD	WEATHERFORD	
8/4/2015	15,768.00	90.98	179.02	12,537.07	3,491.25	3,491.25	159.72	0.41	MWD	WEATHERFORD	
8/4/2015	15,863.00	90.56	180.13	12,535.79	3,586.24	3,586.24	160.42	1.25	MWD	WEATHERFORD	
8/4/2015	15,958.00	90.00	180.55	12,535.33	3,681.23	3,681.23	159.88	0.74	MWD	WEATHERFORD	
8/4/2015	16,052.00	89.51	180.28	12,535.73	3,775.23	3,775.23	159.18	0.80	MWD	WEATHERFORD	
8/4/2015	16,147.00	90.14	179.08	12,536.02	3,870.23	3,870.23	159.71	1.43	MWD	WEATHERFORD	
8/4/2015	16,242.00	91.12	178.49	12,534.97	3,965.20	3,965.20	161.72	1.20	MWD	WEATHERFORD	
8/4/2015	16,337.00	90.77	179.22	12,533.41	4,060.17	4,060.17	163.62	0.85	MWD	WEATHERFORD	
8/4/2015	16,431.00	91.19	178.43	12,531.80	4,154.13	4,154.13	165.55	0.95	MWD	WEATHERFORD	
8/4/2015	16,526.00	90.91	179.40	12,530.06	4,249.10	4,249.10	167.35	1.06	MWD	WEATHERFORD	
8/4/2015	16,621.00	91.47	178.73	12,528.09	4,344.06	4,344.06	168.90	0.92	MWD	WEATHERFORD	
8/5/2015	16,716.00	90.98	177.79	12,526.06	4,439.00	4,439.00	171.78	1.12	MWD	WEATHERFORD	
8/5/2015	16,811.00	91.19	176.81	12,524.26	4,533.87	4,533.87	176.25	1.05	MWD	WEATHERFORD	
8/5/2015	16,906.00	91.19	177.05	12,522.28	4,628.72	4,628.72	181.34	0.25	MWD	WEATHERFORD	
8/5/2015	17,001.00	91.54	179.68	12,520.02	4,723.64	4,723.64	184.05	2.79	MWD	WEATHERFORD	
8/5/2015	17,095.00	91.82	181.45	12,517.26	4,817.59	4,817.59	183.12	1.91	MWD	WEATHERFORD	
8/5/2015	17,190.00	91.40	181.55	12,514.59	4,912.52	4,912.52	180.64	0.45	MWD	WEATHERFORD	
8/5/2015	17,259.00	91.33	181.73	12,512.95	4,981.47	4,981.47	178.66	0.28	MWD	WEATHERFORD	
8/5/2015	17,329.00	91.33	181.73	12,511.33	5,051.42	5,051.42	176.55	0.00	BIT	WEATHERFORD	