



Directional Survey

30-025-42257

Well Name: RAGIN CAJUN 12 FED 3H

Sub-Division DELAWARE BASIN		Region DELAWARE BASIN EAST		Field Name RATTLESNAKE (NM)		County LEA		State/Province NM					
Surface Legal Location SEC 12 26S 34E		API/UWI 3002542257		Latitude (°) 32° 3' 1.983" N		Longitude (°) 103° 25' 41.534" W		Orig KB Elevation (ft) 3,301.50		Ground Elev MSL (ft) 3,277.90		KB - GL (ft) 23.60	
Wellbores													
Wellbore Name OH		Parent Wellbore OH				SAP Well ID 38333				Vertical Section Direction (°) 355.90			
Kick Offs & Key Depths													
Date 4/30/2015				Type Kick Off				Top Depth (ftKB) 8,642.0					
Actual Deviation Survey FLO DRIFT , Proposed? No				Definitive? Yes		Proposed? No		Proposed Deviation Survey					
Deviation Survey													
Date 4/30/2015		Description FLO DRIFT											
MD Tie In (ftKB) 0.00		TVD Tie In (ftKB) 0.00		Inclination Tie In (°) 0.00		Azimuth Tie In (°) 0.00		NSTie In (ft) 0.00		EWTie In (ft) 0.00			
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
4/30/2015	198.00	0.65	247.02	198.00	-0.36	-0.44	-1.03	0.33	INC	FLODRIFT			
4/30/2015	321.00	0.82	246.29	320.99	-0.88	-1.06	-2.48	0.14	INC	FLODRIFT			
4/30/2015	416.00	0.78	244.48	415.98	-1.35	-1.62	-3.69	0.05	INC	FLODRIFT			
4/30/2015	510.00	0.73	244.91	509.97	-1.80	-2.15	-4.81	0.05	INC	FLODRIFT			
4/30/2015	602.00	0.54	239.48	601.96	-2.20	-2.61	-5.71	0.22	INC	FLODRIFT			
4/30/2015	699.00	0.54	249.36	698.96	-2.53	-3.01	-6.53	0.10	INC	FLODRIFT			
4/30/2015	818.00	0.56	246.38	817.95	-2.89	-3.44	-7.59	0.03	INC	FLODRIFT			
4/30/2015	910.00	0.52	252.22	909.95	-3.14	-3.75	-8.40	0.07	INC	FLODRIFT			
4/30/2015	1,014.00	0.42	278.59	1,013.95	-3.16	-3.83	-9.23	0.23	INC	FLODRIFT			
4/30/2015	1,160.00	0.40	278.70	1,159.94	-2.93	-3.68	-10.26	0.01	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,253.00	0.30	267.80	1,252.94	-2.85	-3.64	-10.82	0.13	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,345.00	0.40	239.50	1,344.94	-2.99	-3.81	-11.34	0.21	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,437.00	0.20	186.50	1,436.94	-3.29	-4.13	-11.64	0.35	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,530.00	0.40	256.90	1,529.94	-3.50	-4.37	-11.97	0.41	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,625.00	0.40	251.20	1,624.93	-3.64	-4.55	-12.61	0.04	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,721.00	0.40	228.00	1,720.93	-3.93	-4.88	-13.17	0.17	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,816.00	0.50	192.50	1,815.93	-4.53	-5.51	-13.51	0.31	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	1,912.00	0.50	197.80	1,911.92	-5.32	-6.32	-13.73	0.05	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,007.00	0.40	123.80	2,006.92	-5.91	-6.89	-13.58	0.58	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,103.00	0.30	151.40	2,102.92	-6.34	-7.30	-13.18	0.20	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,199.00	0.40	143.50	2,198.92	-6.85	-7.79	-12.86	0.12	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,294.00	0.50	96.40	2,293.92	-7.21	-8.10	-12.25	0.39	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,390.00	0.30	340.90	2,389.92	-7.04	-7.91	-11.92	0.71	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,485.00	0.60	336.10	2,484.91	-6.33	-7.22	-12.20	0.32	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,581.00	0.60	334.60	2,580.91	-5.39	-6.31	-12.62	0.02	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,676.00	0.70	12.00	2,675.90	-4.37	-5.29	-12.71	0.45	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,772.00	0.60	330.20	2,771.90	-3.35	-4.28	-12.84	0.49	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,867.00	0.90	319.80	2,866.89	-2.30	-3.28	-13.57	0.35	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	2,963.00	0.60	328.60	2,962.88	-1.25	-2.28	-14.32	0.33	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,058.00	0.50	321.00	3,057.87	-0.47	-1.53	-14.84	0.13	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,154.00	0.70	358.10	3,153.87	0.46	-0.62	-15.12	0.44	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,249.00	0.90	3.20	3,248.86	1.78	0.71	-15.10	0.22	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,345.00	1.00	30.60	3,344.85	3.22	2.18	-14.63	0.48	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,440.00	1.00	7.00	3,439.83	4.72	3.72	-14.11	0.43	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,536.00	1.30	291.80	3,535.82	6.01	4.95	-15.02	1.48	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,631.00	1.60	287.80	3,630.79	6.98	5.76	-17.28	0.33	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,727.00	1.10	299.70	3,726.76	7.99	6.62	-19.36	0.59	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,822.00	1.00	291.70	3,821.75	8.86	7.38	-20.92	0.19	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	3,918.00	0.90	275.00	3,917.73	9.34	7.76	-22.45	0.31	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,013.00	0.60	257.40	4,012.72	9.39	7.71	-23.68	0.39	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,109.00	0.30	288.10	4,108.72	9.41	7.68	-24.41	0.39	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,204.00	0.30	109.90	4,203.72	9.40	7.68	-24.41	0.63	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,300.00	0.40	63.80	4,299.72	9.43	7.74	-23.87	0.30	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,396.00	0.70	103.40	4,395.72	9.37	7.75	-23.00	0.49	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,491.00	1.10	114.30	4,490.70	8.77	7.24	-21.61	0.46	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,587.00	1.40	141.20	4,586.68	7.36	5.95	-20.03	0.68	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,682.00	1.80	173.40	4,681.65	4.92	3.56	-19.13	1.02	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,778.00	1.90	178.60	4,777.60	1.82	0.47	-18.92	0.20	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,873.00	0.80	129.20	4,872.57	-0.20	-1.52	-18.37	1.59	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	4,969.00	1.20	94.10	4,968.56	-0.81	-2.02	-16.85	0.74	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,065.00	2.00	101.80	5,064.52	-1.41	-2.43	-14.20	0.86	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,160.00	1.00	141.70	5,159.49	-2.55	-3.42	-12.07	1.46	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,188.00	0.90	166.00	5,187.48	-2.97	-3.83	-11.86	1.47	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,282.00	1.10	159.60	5,281.47	-4.56	-5.39	-11.37	0.24	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,346.00	0.70	260.20	5,345.46	-5.19	-6.03	-11.54	2.20	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,441.00	1.50	271.30	5,440.45	-5.13	-6.10	-13.35	0.87	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,537.00	2.10	302.90	5,536.40	-3.95	-5.12	-16.09	1.18	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,632.00	2.60	306.30	5,631.32	-1.51	-2.90	-19.29	0.55	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,727.00	2.60	306.10	5,726.22	1.28	-0.35	-22.76	0.01	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,823.00	4.00	307.80	5,822.06	4.92	2.98	-27.17	1.46	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	5,918.00	6.50	304.50	5,916.65	10.49	8.06	-34.22	2.65	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	6,014.00	7.00	291.10	6,012.00	16.37	13.25	-44.16	1.72	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	6,109.00	6.70	280.80	6,106.32	20.26	16.37	-55.00	1.33	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	6,205.00	6.90	276.90	6,201.65	22.80	18.11	-66.23	0.52	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	6,300.00	5.20	276.00	6,296.11	24.64	19.25	-76.17	1.79	MWD	LEAM DRILLING SYSTEMS			
4/30/2015	6,396.00	4.70	272.50	6,391.75	25.86	19.87	-84.43	0.61	MWD	LEAM DRILLING SYSTEMS			



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Directional Survey

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Sub-Division DELAWARE BASIN		Region DELAWARE BASIN EAST		Field Name RATTLESNAKE (NM)			County LEA		State/Province NM	
Surface Legal Location SEC 12 26S 34E		API/UWI 3002542257	Latitude (°) 32° 3' 1.983" N	Longitude (°) 103° 25' 41.534" W		Orig KB Elevation (ft) 3,301.50		Ground Elev MSL (ft) 3,277.90		KB - GL (ft) 23.60
Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
4/30/2015	11,921.00	91.90	356.70	9,251.71	2,960.35	2,940.99	-376.07	1.28	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,017.00	91.90	356.50	9,248.53	3,056.29	3,036.77	-381.76	0.21	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,113.00	91.60	356.30	9,245.60	3,152.24	3,132.54	-387.78	0.38	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,208.00	89.30	356.20	9,244.85	3,247.23	3,227.32	-394.00	2.42	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,303.00	89.10	356.00	9,246.18	3,342.22	3,322.09	-400.46	0.30	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,399.00	90.00	355.80	9,246.93	3,438.22	3,417.84	-407.32	0.96	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,495.00	90.70	356.50	9,246.35	3,534.21	3,513.62	-413.77	1.03	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,590.00	91.50	356.30	9,244.52	3,629.19	3,608.42	-419.73	0.87	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,686.00	92.20	356.20	9,241.42	3,725.14	3,704.16	-426.01	0.74	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,781.00	90.40	356.50	9,239.27	3,820.11	3,798.94	-432.05	1.92	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,877.00	90.30	356.50	9,238.68	3,916.10	3,894.76	-437.91	0.10	MWD	LEAM DRILLING SYSTEMS
4/30/2015	12,972.00	88.70	356.90	9,239.51	4,011.09	3,989.60	-443.38	1.74	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,068.00	88.50	357.20	9,241.86	4,107.04	4,085.44	-448.32	0.38	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,163.00	88.30	357.80	9,244.51	4,201.96	4,180.31	-452.46	0.67	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,259.00	89.30	358.10	9,246.52	4,297.88	4,276.23	-455.90	1.09	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,354.00	90.00	358.10	9,247.10	4,392.81	4,371.17	-459.05	0.74	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,450.00	91.50	358.30	9,245.84	4,488.72	4,467.11	-462.06	1.58	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,546.00	91.10	358.30	9,243.67	4,584.61	4,563.05	-464.91	0.42	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,641.00	91.50	357.90	9,241.51	4,679.51	4,657.97	-468.06	0.60	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,737.00	91.00	357.60	9,239.42	4,775.44	4,753.87	-471.82	0.61	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,833.00	91.00	357.60	9,237.74	4,871.38	4,849.77	-475.84	0.00	MWD	LEAM DRILLING SYSTEMS
4/30/2015	13,928.00	88.70	356.50	9,237.99	4,966.36	4,944.64	-480.73	2.68	MWD	LEAM DRILLING SYSTEMS
4/30/2015	14,000.00	88.70	356.50	9,239.62	5,038.33	5,016.49	-485.13	0.00	BIT	LEAM DRILLING SYSTEMS