



123 Robert S. Kerr Ave.  
Oklahoma City, OK 73102

## Survey MARIAH 3120 2-36H

Step #1 - Create a Deviation Survey

Step

#2 - Attach the survey "Description" to the Wellbore - Deviation Survey

**Wellbores - Step #2**

Actual Deviation Survey Survey, Proposed? <proposed>	Wellbore Name Original Hole
---	--------------------------------

**Deviation Surveys - Step #1**

Description Survey	Date 7/28/2012	VS Dir (°) 179.24	Comment
-----------------------	-------------------	----------------------	---------

**Tie-in Data**

Azimuth North Type Grid	Convergence (°) 0.59	Declination (°) 6.07	MD Tie In (ftKB) 0.00	Azimuth Tie In (°) 0.00	Inclination Tie In (°) 0.00	TVDTie In (ftKB) 0.00	NSTie In (ft) 0.00	EWTie In (ft) 0.00
----------------------------	-------------------------	-------------------------	--------------------------	----------------------------	--------------------------------	--------------------------	-----------------------	-----------------------

**Survey Data**

MD (ftKB)	Incl (°)	Azim (°)	Survey Company	Method	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
250	0.1			Incl					
500	0.4			Incl					
750	0.5			Incl					
1,064	1.1	4.80	Drill Right	MWD	1,064	-10	10.18	0.85	0.10
1,435	0.5	315.40	Drill Right	MWD	1,435	-15	14.88	0.02	0.23
1,912	0.3	72.50	Drill Right	MWD	1,912	-17	16.74	-0.25	0.14
2,388	0.5	79.90	Drill Right	MWD	2,388	-17	17.48	2.98	0.04
2,864	0.6	94.80	Drill Right	MWD	2,864	-18	17.63	7.51	0.04
3,342	0.9	84.10	Drill Right	MWD	3,342	-18	17.81	13.74	0.07
3,519	0.8	62.10	Drill Right	MWD	3,519	-18	18.53	16.21	0.19
3,945	8.9	190.10	Drill Right	MWD	3,943	13	-12.59	13.05	2.21
4,008	8.8	186.30	Drill Right	MWD	4,005	22	-22.18	11.67	0.94
4,104	8.5	183.70	Drill Right	MWD	4,100	37	-36.56	10.41	0.51
4,200	7.6	182.10	Drill Right	MWD	4,195	50	-49.98	9.71	0.97
4,262	7.1	180.00	Drill Right	MWD	4,257	58	-57.91	9.56	0.92
4,291	7.2	179.80	Drill Right	MWD	4,286	62	-61.52	9.57	0.36
4,325	8.1	179.90	Drill Right	MWD	4,319	66	-66.05	9.58	2.65
4,356	9.1	178.90	Drill Right	MWD	4,350	71	-70.68	9.63	3.26
4,384	9.9	179.90	Drill Right	MWD	4,378	75	-75.30	9.68	2.92
4,419	12.2	182.10	Drill Right	MWD	4,412	82	-82.01	9.55	6.68
4,450	14.6	182.00	Drill Right	MWD	4,442	89	-89.19	9.29	7.74
4,479	16.9	181.70	Drill Right	MWD	4,470	97	-97.06	9.04	7.94
4,511	19.5	183.20	Drill Right	MWD	4,500	107	-107.04	8.60	8.26
4,545	21.6	183.50	Drill Right	MWD	4,532	119	-118.95	7.91	6.18
4,574	22.8	183.80	Drill Right	MWD	4,559	130	-129.89	7.21	4.16
4,608	24.9	185.40	Drill Right	MWD	4,590	144	-143.59	6.10	6.46
4,640	27.5	185.10	Drill Right	MWD	4,619	158	-157.66	4.81	8.14
4,668	29.7	184.20	Drill Right	MWD	4,643	171	-171.02	3.72	8.01
4,703	32.0	183.30	Drill Right	MWD	4,674	189	-188.92	2.55	6.70
4,734	33.6	183.10	Drill Right	MWD	4,700	206	-205.69	1.62	5.17
4,763	35.5	182.50	Drill Right	MWD	4,723	222	-222.12	0.82	6.66
4,798	37.3	181.90	Drill Right	MWD	4,752	243	-242.87	0.02	5.24
4,829	39.1	182.40	Drill Right	MWD	4,776	262	-262.03	-0.70	5.89
4,858	40.8	182.50	Drill Right	MWD	4,798	281	-280.63	-1.50	5.87
4,893	43.4	181.90	Drill Right	MWD	4,824	304	-304.07	-2.39	7.52
4,925	45.2	180.90	Drill Right	MWD	4,847	326	-326.42	-2.94	6.03
4,953	46.9	180.60	Drill Right	MWD	4,867	346	-346.57	-3.20	6.12
4,989	48.8	179.40	Drill Right	MWD	4,891	373	-373.26	-3.20	5.83
5,020	49.7	179.40	Drill Right	MWD	4,911	397	-396.74	-2.95	2.90
5,048	49.8	179.00	Drill Right	MWD	4,929	418	-418.11	-2.65	1.15
5,083	50.1	178.80	Drill Right	MWD	4,952	445	-444.90	-2.14	0.96
5,115	50.1	178.00	Drill Right	MWD	4,972	469	-469.44	-1.45	1.92
5,144	50.4	177.60	Drill Right	MWD	4,991	492	-491.72	-0.60	1.48
5,178	50.2	177.00	Drill Right	MWD	5,012	518	-517.85	0.64	1.48
5,210	52.1	177.20	Drill Right	MWD	5,032	543	-542.74	1.90	5.96



123 Robert S. Kerr Ave.  
Oklahoma City, OK 73102

## Survey MARIAH 3120 2-36H

Step #1 - Create a Deviation Survey

Step

#2 - Attach the survey "Description" to the Wellbore - Deviation Survey

**Survey Data**

MD (ftKB)	Incl (°)	Azm (°)	Survey Company	Method	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
5,239	55.8	178.00	Drill Right	MWD	5,049	566	-566.16	2.88	12.95
5,272	59.9	179.30	Drill Right	MWD	5,067	594	-594.08	3.53	12.86
5,303	62.1	180.20	Drill Right	MWD	5,082	621	-621.19	3.64	7.54
5,332	63.7	180.50	Drill Right	MWD	5,095	647	-647.01	3.48	5.59
5,367	66.4	179.70	Drill Right	MWD	5,110	679	-678.74	3.43	7.99
5,398	69.7	179.50	Drill Right	MWD	5,122	707	-707.49	3.63	10.66
5,427	72.3	179.60	Drill Right	MWD	5,131	735	-734.90	3.85	8.97
5,461	75.0	179.60	Drill Right	MWD	5,141	768	-767.52	4.08	7.94
5,493	76.9	180.00	Drill Right	MWD	5,148	799	-798.57	4.18	6.06
5,507	77.5	179.90	Drill Right	MWD	5,151	812	-812.22	4.19	4.34
5,564	79.9	179.90	Drill Right	MWD	5,163	868	-868.11	4.29	4.21
5,594	81.9	178.00	Drill Right	MWD	5,167	898	-897.72	4.84	9.14
5,622	84.0	177.50	Drill Right	MWD	5,171	925	-925.49	5.93	7.71
5,656	85.2	178.00	Drill Right	MWD	5,174	959	-959.31	7.26	3.82
5,687	86.2	179.10	Drill Right	MWD	5,176	990	-990.21	8.04	4.79
5,715	88.7	179.40	Drill Right	MWD	5,178	1,018	-1,018.18	8.40	8.99
5,749	89.9	179.40	Drill Right	MWD	5,178	1,052	-1,052.18	8.76	3.53
5,780	89.9	179.80	Drill Right	MWD	5,178	1,083	-1,083.17	8.98	1.29
5,808	90.2	179.80	Drill Right	MWD	5,178	1,111	-1,111.17	9.07	1.07
5,843	90.3	179.50	Drill Right	MWD	5,178	1,146	-1,146.17	9.29	0.90
5,875	90.0	179.70	Drill Right	MWD	5,178	1,178	-1,178.17	9.51	1.13
5,903	90.3	179.10	Drill Right	MWD	5,178	1,206	-1,206.17	9.81	2.40
5,938	90.2	179.30	Drill Right	MWD	5,178	1,241	-1,241.17	10.29	0.64
5,970	90.2	179.20	Drill Right	MWD	5,177	1,273	-1,273.16	10.71	0.31
5,998	90.1	179.30	Drill Right	MWD	5,177	1,301	-1,301.16	11.08	0.51
6,093	90.2	178.60	Drill Right	MWD	5,177	1,396	-1,396.14	12.82	0.74
6,190	90.3	178.70	Drill Right	MWD	5,177	1,493	-1,493.12	15.11	0.15
6,284	90.7	178.50	Drill Right	MWD	5,176	1,587	-1,587.08	17.40	0.48
6,380	90.9	179.80	Drill Right	MWD	5,175	1,683	-1,683.06	18.83	1.37
6,476	90.8	179.90	Drill Right	MWD	5,173	1,779	-1,779.05	19.08	0.15
6,571	88.9	181.80	Drill Right	MWD	5,173	1,874	-1,874.03	17.67	2.83
6,666	88.5	180.90	Drill Right	MWD	5,176	1,969	-1,968.98	15.43	1.04
6,764	88.2	179.90	Drill Right	MWD	5,178	2,067	-2,066.94	14.75	1.06
6,856	89.2	178.30	Drill Right	MWD	5,180	2,159	-2,158.90	16.19	2.05
6,951	89.2	178.20	Drill Right	MWD	5,182	2,254	-2,253.84	19.09	0.11
7,045	89.5	178.10	Drill Right	MWD	5,183	2,348	-2,347.79	22.13	0.34
7,140	89.9	178.30	Drill Right	MWD	5,183	2,443	-2,442.74	25.11	0.47
7,234	89.7	178.60	Drill Right	MWD	5,184	2,537	-2,536.70	27.65	0.38
7,330	89.7	178.50	Drill Right	MWD	5,184	2,633	-2,632.67	30.08	0.10
7,425	88.6	179.50	Drill Right	MWD	5,186	2,728	-2,727.64	31.74	1.56
7,515	87.8	179.30	Drill Right	MWD	5,188	2,818	-2,817.59	32.68	0.92
7,617	88.2	178.70	Drill Right	MWD	5,192	2,920	-2,919.52	34.46	0.71
7,713	87.9	178.60	Drill Right	MWD	5,195	3,016	-3,015.43	36.72	0.33
7,807	88.5	178.40	Drill Right	MWD	5,198	3,110	-3,109.35	39.18	0.67
7,902	89.9	178.20	Drill Right	MWD	5,200	3,205	-3,204.30	42.00	1.49
7,997	90.8	178.20	Drill Right	MWD	5,199	3,300	-3,299.25	44.98	0.95
8,093	90.4	179.80	Drill Right	MWD	5,198	3,396	-3,395.23	46.66	1.72
8,187	90.9	180.50	Drill Right	MWD	5,197	3,490	-3,489.22	46.41	0.92
8,281	90.6	180.00	Drill Right	MWD	5,196	3,584	-3,583.21	46.00	0.62
8,373	88.5	181.50	Drill Right	MWD	5,196	3,675	-3,675.19	44.80	2.81
8,408	87.6	181.60	Drill Right	MWD	5,198	3,710	-3,710.16	43.85	2.59
8,439	87.8	181.40	Drill Right	MWD	5,199	3,741	-3,741.12	43.04	0.91



123 Robert S. Kerr Ave.  
Oklahoma City, OK 73102

## Survey MARIAH 3120 2-36H

Step #1 - Create a Deviation Survey

Step

#2 - Attach the survey "Description" to the Wellbore - Deviation Survey

**Survey Data**

MD (ftKB)	Incl (°)	Azm (°)	Survey Company	Method	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
8,468	87.2	181.40	Drill Right	MWD	5,200	3,770	-3,770.09	42.33	2.07
8,502	87.0	181.70	Drill Right	MWD	5,202	3,804	-3,804.03	41.41	1.06
8,534	86.9	181.70	Drill Right	MWD	5,203	3,836	-3,835.97	40.47	0.31
8,563	87.3	181.40	Drill Right	MWD	5,205	3,865	-3,864.92	39.68	1.72
8,597	88.0	181.90	Drill Right	MWD	5,206	3,899	-3,898.88	38.71	2.53
8,658	88.4	181.30	Drill Right	MWD	5,208	3,960	-3,959.83	37.00	1.18
8,757	87.9	180.00	Drill Right	MWD	5,211	4,059	-4,058.77	35.88	1.41
8,852	88.8	180.50	Drill Right	MWD	5,214	4,154	-4,153.73	35.47	1.08
8,947	89.6	181.40	Drill Right	MWD	5,216	4,249	-4,248.70	33.89	1.27
9,041	88.5	181.90	Drill Right	MWD	5,217	4,343	-4,342.65	31.18	1.29
9,132	88.6	181.80	Drill Right	MWD	5,219	4,434	-4,433.57	28.25	0.16
9,228	89.3	180.40	Drill Right	MWD	5,221	4,529	-4,529.53	26.41	1.63
9,324	89.9	180.10	Drill Right	MWD	5,222	4,625	-4,625.53	25.99	0.70
9,418	90.4	178.90	Drill Right	MWD	5,222	4,719	-4,719.52	26.81	1.38
9,514	90.2	178.20	Drill Right	MWD	5,221	4,815	-4,815.49	29.24	0.76
9,608	90.9	177.60	Drill Right	MWD	5,220	4,909	-4,909.42	32.68	0.98
9,704	90.1	177.20	Drill Right	MWD	5,219	5,005	-5,005.32	37.04	0.93
9,784	90.1	177.00	Drill Right	MWD	5,219	5,085	-5,085.22	41.08	0.25
9,829	90.1	177.00	Drill Right	MWD	5,219	5,130	-5,130.16	43.44	0.00