



Directional Survey Certification

2948 I-70 Business Loop
Grand Junction, CO 81504
(970)-245-9447 Fax (970)-245-9454

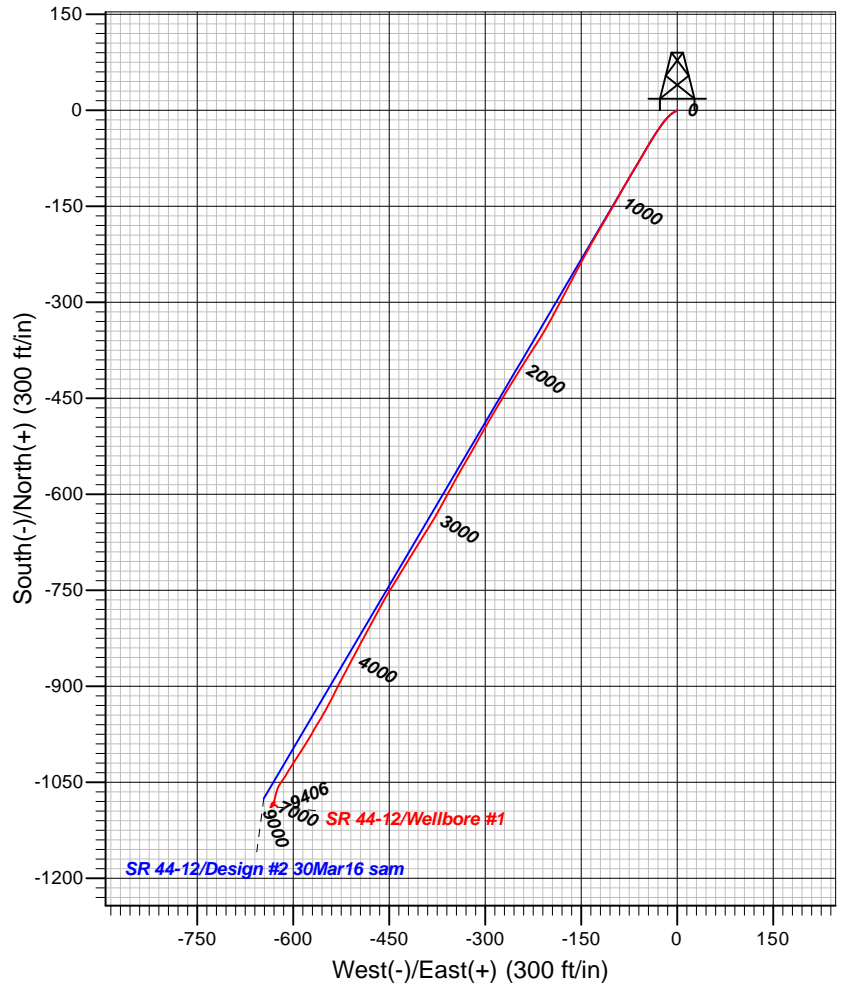
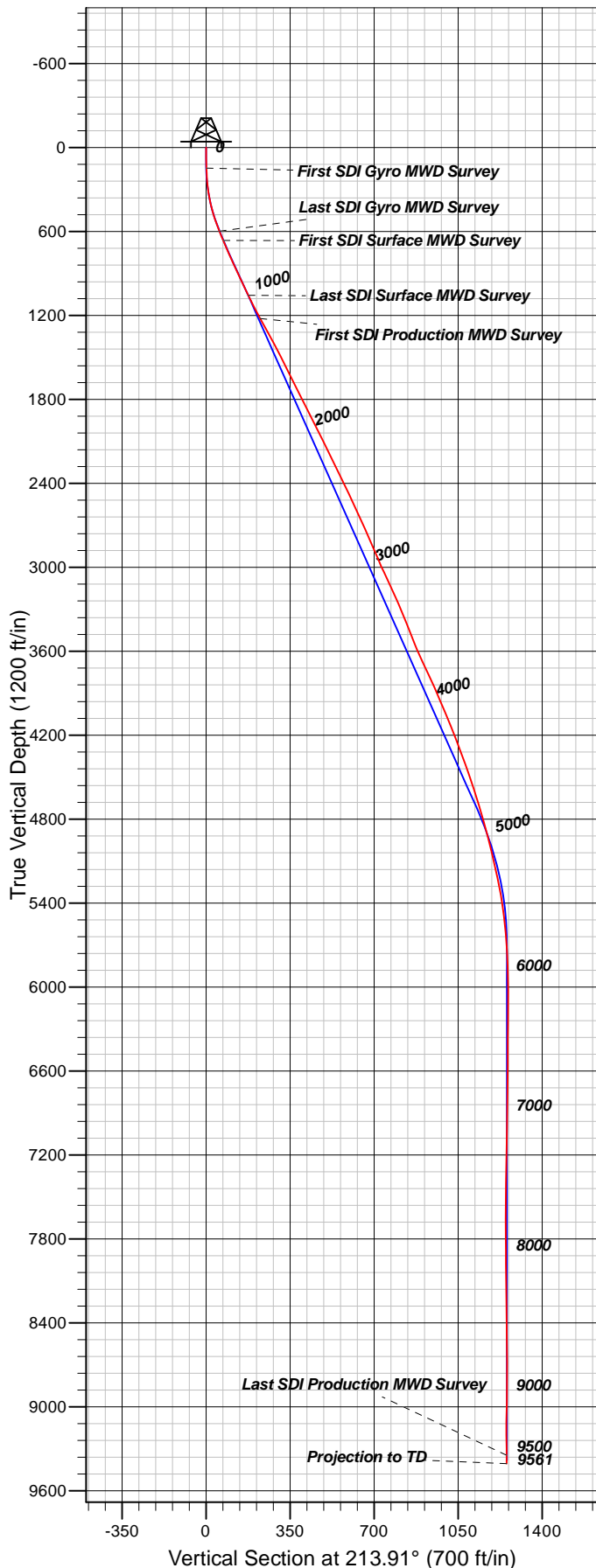
Operator	TEP Rocky Mountain, LLC.
Well Name & No.	SR 44-12
County & State	Garfield, CO
SDI Job No.	421216DEFK404095
Rig	H&P 318

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 147 feet to a measured depth of 9,561 feet is true and correct as determined from all available records.


Signature

28-Dec-16
Date

Mel Mireles Jr.
Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District



Well Details: SR 44-12

TVD Reference: GL 7357' & RKB 24' @ 7381.01ft (H&P 318)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1597984.49	2343310.00	39.4521575	-107.8258392

Slot SR 44-12 (B5)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 44-12 - Slot SR 44-12 (B5), True North
 Vertical (TVD) Reference: GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
 Section (VS) Reference: Slot - SR 44-12 (B5)(0.00N, 0.00E)
 Measured Depth Reference: GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
 Calculation Method: Minimum Curvature

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone

System Datum: Mean Sea Level

Plan: Wellbore #1

18:03, December 28 2016
 Created By: Janie Collins

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 44-12 - Slot SR 44-12 (B5)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Well:	SR 44-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		SR 43-12 Pad					
Site Position:		Northing:	1,598,022.09	usft	Latitude:	39.4522607	
From:	Map	Easting:	2,343,309.20	usft	Longitude:	-107.8258454	
Position Uncertainty:	0.00	ft	Slot Radius:	0.000	in	Grid Convergence:	-1.47 °

Well		SR 44-12 - Slot SR 44-12 (B5)				
Well Position	+N/-S	0.00 ft	Northing:	1,597,984.49 usft	Latitude:	39.4521576
	+E/-W	0.00 ft	Easting:	2,343,310.00 usft	Longitude:	-107.8258392
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	7,357.01 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/11/2016	9.32	65.67	51,754

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	213.91	

Survey Program	Date	12/28/2016			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
147.00	602.00	Survey #1 - Gyro MWD Survey (Wellbore)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
670.00	1,076.00	Survey #2 - Surface MWD Survey (Wellbo	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,249.00	9,561.00	Survey #3 - Production MWD Survey (Wel	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
147.00	1.14	239.41	146.99	-0.74	-1.26	1.32	0.78	0.78	0.00
First SDI Gyro MWD Survey									
238.00	3.17	243.72	237.92	-2.32	-4.29	4.32	2.24	2.23	4.74
329.00	5.45	231.42	328.66	-6.13	-9.93	10.63	2.69	2.51	-13.52
420.00	8.45	218.58	418.99	-14.05	-17.48	21.41	3.69	3.30	-14.11
511.00	11.09	216.39	508.66	-26.33	-26.84	36.82	2.93	2.90	-2.41
602.00	12.76	212.17	597.69	-41.88	-37.39	55.61	2.07	1.84	-4.64

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 44-12 - Slot SR 44-12 (B5)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Well:	SR 44-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Last SDI Gyro MWD Survey									
670.00	13.96	209.40	663.85	-55.38	-45.41	71.30	2.00	1.76	-4.07
First SDI Surface MWD Survey									
761.00	14.45	211.94	752.07	-74.58	-56.81	93.59	0.87	0.54	2.79
851.00	15.04	211.29	839.11	-94.09	-68.81	116.48	0.68	0.66	-0.72
942.00	15.03	208.22	926.99	-114.58	-80.52	140.01	0.88	-0.01	-3.37
1,033.00	15.56	209.64	1,014.77	-135.58	-92.14	163.93	0.71	0.58	1.56
1,076.00	15.92	210.06	1,056.16	-145.70	-97.95	175.56	0.88	0.84	0.98
Last SDI Surface MWD Survey									
1,249.00	17.70	209.99	1,221.76	-189.01	-122.98	225.47	1.03	1.03	-0.04
First SDI Production MWD Survey									
1,343.00	17.79	209.95	1,311.29	-213.83	-137.29	254.06	0.10	0.10	-0.04
1,438.00	17.35	207.56	1,401.85	-238.97	-151.09	282.61	0.89	-0.46	-2.52
1,532.00	16.83	207.87	1,491.70	-263.42	-163.94	310.07	0.56	-0.55	0.33
1,627.00	16.19	206.62	1,582.79	-287.42	-176.30	336.89	0.77	-0.67	-1.32
1,721.00	16.31	209.83	1,673.03	-310.59	-188.74	363.05	0.96	0.13	3.41
1,815.00	16.07	207.76	1,763.31	-333.55	-201.36	389.15	0.66	-0.26	-2.20
1,910.00	16.67	212.44	1,854.46	-356.68	-214.80	415.85	1.52	0.63	4.93
2,004.00	16.44	213.81	1,944.56	-379.12	-229.43	442.63	0.48	-0.24	1.46
2,098.00	16.59	211.82	2,034.69	-401.57	-243.91	469.34	0.62	0.16	-2.12
2,192.00	16.07	210.67	2,124.89	-424.16	-257.62	495.74	0.65	-0.55	-1.22
2,287.00	15.96	210.92	2,216.21	-446.68	-271.04	521.91	0.14	-0.12	0.26
2,382.00	15.76	211.82	2,307.59	-468.85	-284.55	547.85	0.33	-0.21	0.95
2,475.00	15.69	210.18	2,397.11	-490.45	-297.53	573.02	0.48	-0.08	-1.76
2,570.00	15.38	208.19	2,488.64	-512.66	-309.94	598.37	0.65	-0.33	-2.09
2,664.00	15.30	209.97	2,579.29	-534.39	-322.03	623.15	0.51	-0.09	1.89
2,759.00	14.91	211.07	2,671.01	-555.71	-334.59	647.86	0.51	-0.41	1.16
2,853.00	14.51	208.25	2,761.93	-576.44	-346.41	671.66	0.87	-0.43	-3.00
2,947.00	14.16	208.50	2,853.00	-596.92	-357.47	694.82	0.38	-0.37	0.27
3,041.00	13.78	208.17	2,944.22	-616.90	-368.24	717.41	0.41	-0.40	-0.35
3,136.00	15.37	210.84	3,036.16	-637.68	-380.04	741.24	1.82	1.67	2.81
3,230.00	15.23	212.26	3,126.83	-658.82	-393.01	766.02	0.43	-0.15	1.51
3,325.00	14.59	210.72	3,218.63	-679.66	-405.79	790.44	0.79	-0.67	-1.62
3,419.00	13.55	211.91	3,309.81	-699.18	-417.65	813.27	1.15	-1.11	1.27
3,514.00	13.22	213.28	3,402.23	-717.71	-429.50	835.25	0.48	-0.35	1.44
3,608.00	12.78	209.88	3,493.82	-735.71	-440.58	856.37	0.94	-0.47	-3.62
3,702.00	14.12	212.24	3,585.24	-754.43	-451.87	878.20	1.54	1.43	2.51
3,797.00	15.10	207.57	3,677.17	-775.20	-463.78	902.09	1.61	1.03	-4.92
3,891.00	15.43	207.46	3,767.86	-797.15	-475.22	926.68	0.35	0.35	-0.12
3,986.00	14.70	209.20	3,859.59	-818.88	-486.92	951.25	0.90	-0.77	1.83
4,080.00	14.29	208.98	3,950.60	-839.44	-498.36	974.70	0.44	-0.44	-0.23
4,174.00	13.66	206.71	4,041.82	-859.51	-508.97	997.27	0.89	-0.67	-2.41
4,269.00	13.38	208.97	4,134.19	-879.14	-519.34	1,019.35	0.63	-0.29	2.38
4,363.00	12.69	206.16	4,225.76	-897.93	-529.16	1,040.41	1.00	-0.73	-2.99

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 44-12 - Slot SR 44-12 (B5)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.01ft (H&P 318)
Well:	SR 44-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,458.00	12.12	206.68	4,318.55	-916.20	-538.24	1,060.65	0.61	-0.60	0.55	
4,552.00	11.89	209.63	4,410.49	-933.44	-547.46	1,080.09	0.70	-0.24	3.14	
4,647.00	11.33	209.73	4,503.55	-950.05	-556.92	1,099.16	0.59	-0.59	0.11	
4,741.00	10.60	212.03	4,595.83	-965.40	-566.09	1,117.01	0.91	-0.78	2.45	
4,835.00	10.17	209.02	4,688.29	-979.98	-574.70	1,133.92	0.74	-0.46	-3.20	
4,930.00	9.82	212.60	4,781.85	-994.14	-583.13	1,150.38	0.75	-0.37	3.77	
5,024.00	9.40	214.33	4,874.53	-1,007.23	-591.78	1,166.07	0.54	-0.45	1.84	
5,119.00	7.77	212.50	4,968.46	-1,019.06	-599.61	1,180.24	1.74	-1.72	-1.93	
5,213.00	7.40	209.74	5,061.64	-1,029.67	-606.02	1,192.63	0.55	-0.39	-2.94	
5,307.00	7.56	212.47	5,154.84	-1,040.15	-612.35	1,204.85	0.41	0.17	2.90	
5,401.00	7.06	215.35	5,248.08	-1,050.08	-619.01	1,216.81	0.66	-0.53	3.06	
5,496.00	6.18	201.86	5,342.45	-1,059.58	-624.29	1,227.65	1.87	-0.93	-14.20	
5,590.00	4.51	198.95	5,436.04	-1,067.78	-627.37	1,236.17	1.80	-1.78	-3.10	
5,684.00	4.41	186.38	5,529.75	-1,074.86	-628.98	1,242.94	1.04	-0.11	-13.37	
5,779.00	2.90	198.72	5,624.56	-1,080.77	-630.15	1,248.50	1.78	-1.59	12.99	
5,873.00	2.41	204.35	5,718.46	-1,084.82	-631.73	1,252.74	0.59	-0.52	5.99	
5,967.00	1.06	225.18	5,812.41	-1,087.24	-633.16	1,255.55	1.56	-1.44	22.16	
6,061.00	0.91	243.20	5,906.40	-1,088.18	-634.45	1,257.05	0.36	-0.16	19.17	
6,156.00	0.72	265.24	6,001.39	-1,088.57	-635.71	1,258.08	0.38	-0.20	23.20	
6,250.00	0.39	125.44	6,095.39	-1,088.81	-636.04	1,258.46	1.12	-0.35	-148.72	
6,344.00	0.85	70.58	6,189.38	-1,088.76	-635.12	1,257.91	0.75	0.49	-58.36	
6,439.00	0.60	72.05	6,284.38	-1,088.37	-633.99	1,256.95	0.26	-0.26	1.55	
6,533.00	0.21	289.31	6,378.37	-1,088.17	-633.68	1,256.61	0.83	-0.41	-151.85	
6,628.00	0.33	266.02	6,473.37	-1,088.13	-634.12	1,256.82	0.17	0.13	-24.52	
6,722.00	0.61	358.28	6,567.37	-1,087.65	-634.40	1,256.58	0.75	0.30	98.15	
6,817.00	0.20	18.86	6,662.37	-1,086.98	-634.36	1,256.01	0.45	-0.43	21.66	
6,904.00	0.77	356.42	6,749.37	-1,086.26	-634.35	1,255.40	0.68	0.66	-25.79	
6,998.00	0.48	354.81	6,843.36	-1,085.23	-634.43	1,254.59	0.31	-0.31	-1.71	
7,092.00	0.54	19.60	6,937.36	-1,084.42	-634.31	1,253.86	0.24	0.06	26.37	
7,187.00	0.53	25.84	7,032.35	-1,083.61	-633.97	1,252.99	0.06	-0.01	6.57	
7,281.00	0.55	39.50	7,126.35	-1,082.87	-633.50	1,252.11	0.14	0.02	14.53	
7,376.00	0.47	79.29	7,221.34	-1,082.44	-632.82	1,251.38	0.37	-0.08	41.88	
7,470.00	0.68	44.76	7,315.34	-1,081.98	-632.05	1,250.56	0.42	0.22	-36.73	
7,564.00	0.70	60.65	7,409.33	-1,081.30	-631.16	1,249.50	0.20	0.02	16.90	
7,659.00	0.53	47.64	7,504.33	-1,080.72	-630.33	1,248.56	0.23	-0.18	-13.69	
7,753.00	0.45	85.35	7,598.32	-1,080.40	-629.64	1,247.90	0.35	-0.09	40.12	
7,847.00	0.40	147.02	7,692.32	-1,080.64	-629.09	1,247.80	0.47	-0.05	65.61	
7,942.00	0.38	201.54	7,787.32	-1,081.21	-629.03	1,248.24	0.38	-0.02	57.39	
8,036.00	0.29	154.35	7,881.32	-1,081.72	-629.04	1,248.66	0.30	-0.10	-50.20	
8,131.00	0.53	213.67	7,976.32	-1,082.30	-629.18	1,249.23	0.48	0.25	62.44	
8,225.00	0.50	224.83	8,070.31	-1,082.95	-629.71	1,250.06	0.11	-0.03	11.87	
8,319.00	0.41	209.07	8,164.31	-1,083.54	-630.16	1,250.80	0.16	-0.10	-16.77	
8,414.00	0.36	166.77	8,259.31	-1,084.12	-630.26	1,251.34	0.30	-0.05	-44.53	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,508.00	0.20	238.60	8,353.31	-1,084.50	-630.33	1,251.69	0.38	-0.17	76.41
8,602.00	0.62	235.64	8,447.30	-1,084.87	-630.89	1,252.31	0.45	0.45	-3.15
8,696.00	0.62	250.17	8,541.30	-1,085.33	-631.79	1,253.20	0.17	0.00	15.46
8,791.00	0.33	254.96	8,636.30	-1,085.57	-632.54	1,253.82	0.31	-0.31	5.04
8,885.00	0.44	133.87	8,730.29	-1,085.89	-632.54	1,254.08	0.72	0.12	-128.82
8,980.00	0.72	102.34	8,825.29	-1,086.27	-631.69	1,253.93	0.44	0.29	-33.19
9,074.00	0.47	43.64	8,919.29	-1,086.12	-630.85	1,253.33	0.66	-0.27	-62.45
9,168.00	1.14	68.97	9,013.28	-1,085.51	-629.71	1,252.19	0.79	0.71	26.95
9,263.00	1.30	106.47	9,108.26	-1,085.47	-627.79	1,251.09	0.84	0.17	39.47
9,357.00	1.05	145.64	9,202.24	-1,086.49	-626.28	1,251.09	0.87	-0.27	41.67
9,452.00	0.53	130.53	9,297.23	-1,087.49	-625.46	1,251.46	0.59	-0.55	-15.91
9,500.00	0.62	155.66	9,345.23	-1,087.87	-625.18	1,251.62	0.55	0.19	52.35
Last SDI Production MWD Survey									
9,561.00	0.62	155.66	9,406.22	-1,088.47	-624.91	1,251.97	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
147.00	146.99	-0.74	-1.26	First SDI Gyro MWD Survey
602.00	597.69	-41.88	-37.39	Last SDI Gyro MWD Survey
670.00	663.85	-55.38	-45.41	First SDI Surface MWD Survey
1,076.00	1,056.16	-145.70	-97.95	Last SDI Surface MWD Survey
1,249.00	1,221.76	-189.01	-122.98	First SDI Production MWD Survey
9,500.00	9,345.23	-1,087.87	-625.18	Last SDI Production MWD Survey
9,561.00	9,406.22	-1,088.47	-624.91	Projection to TD

Checked By: _____ Approved By: _____ Date: _____