



Directional Survey Certification

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

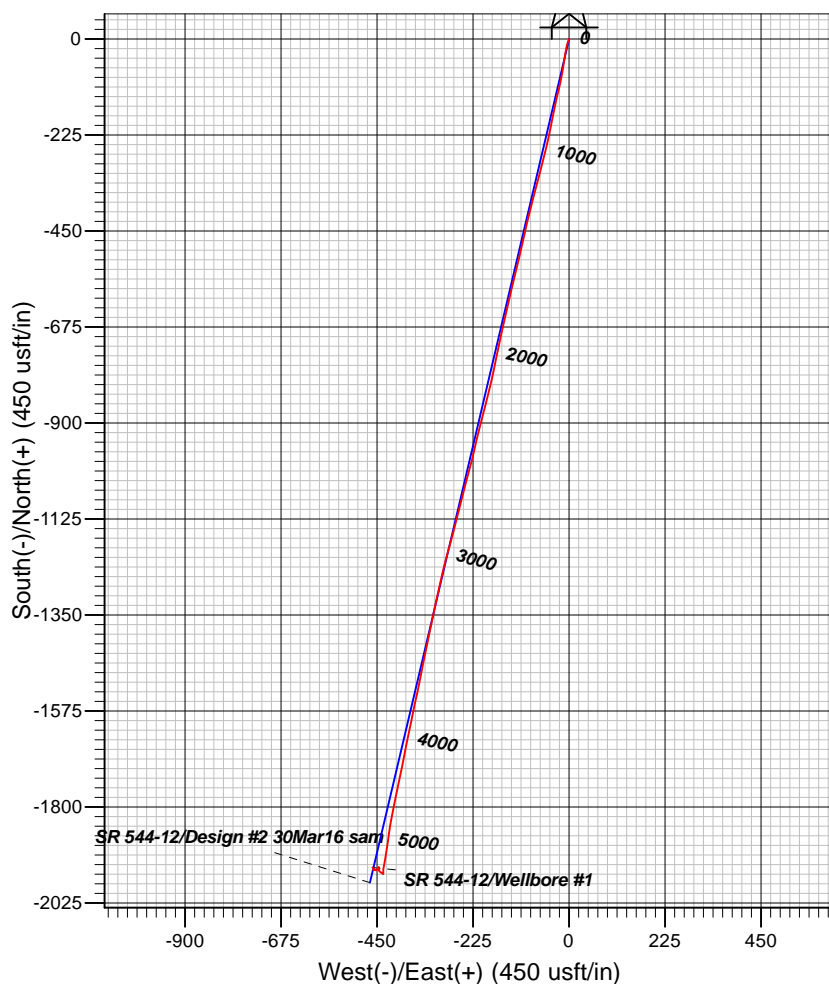
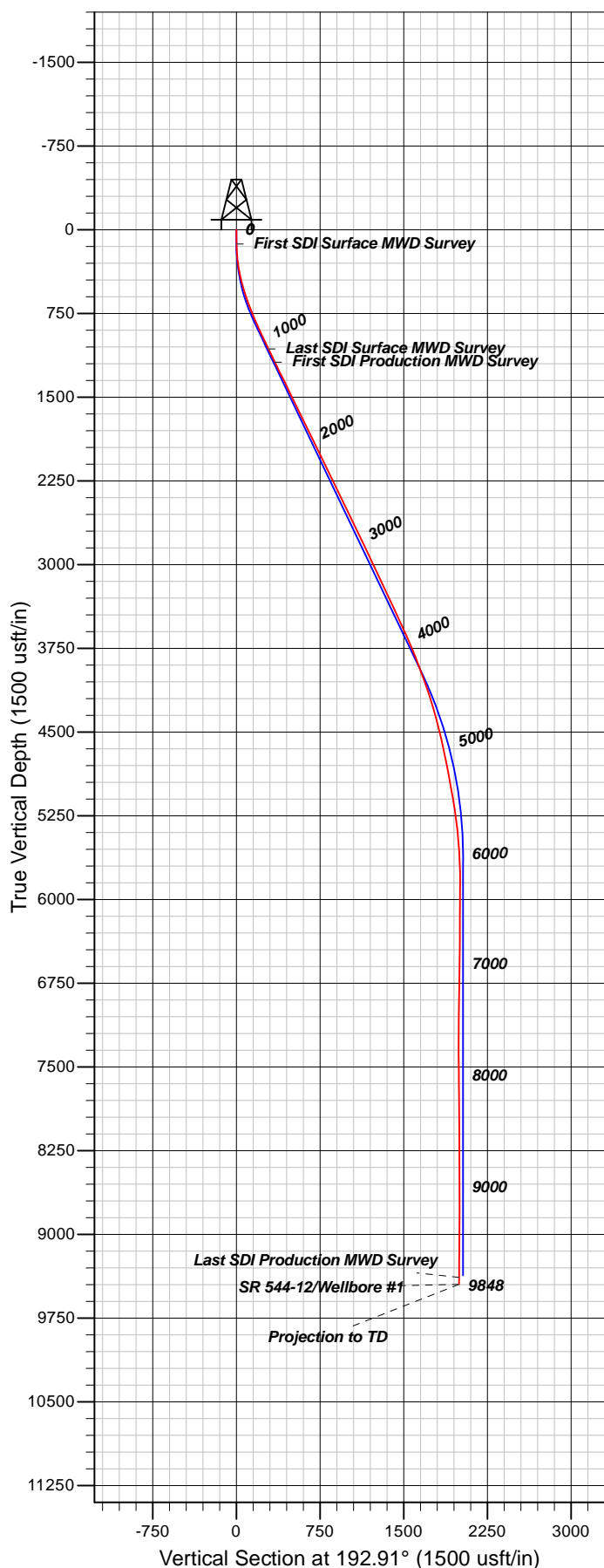
Operator	TEP Rocky Mountain, LLC
Well Name & No.	SR 544-12
County & State	Garfield, CO
SDI Job No.	421016DEF392753
Rig	H&P 318

I, Janie Collins, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 127 feet to a measured depth of 9,848 feet is true and correct as determined from all available records.


Signature

7-Nov-16
Date

Janie Collins
Colorado District Well Planner
Scientific Drilling International



Well Details: SR 544-12

TVD Reference: GL 7357' & RKB 24' @ 7381.00usft (H&P 318) Level: 7357.00
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 1597954.49 2343310.60 39.4520752 -107.8258343SR 544-12 (B1)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 544-12 - Slot SR 544-12 (B1), True North
 Vertical (TVD) Reference: GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
 Section (VS) Reference: Slot - SR 544-12 (B1)(0.00N, 0.00E)
 Measured Depth Reference: GL 7357' & RKB 24' @ 7381.00usft (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

11:22, November 07 2016
 Created By: Janie Collins

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 544-12 - Slot SR 544-12 (B1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	SR 544-12	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 usft	Slot Radius:	0.00 in	Grid Convergence:	-1.47 °

Well	SR 544-12 - Slot SR 544-12 (B1)					
Well Position	+N/-S	0.00 usft	Northing:	1,597,954.49 usft	Latitude:	39.4520753
	+E/-W	0.00 usft	Easting:	2,343,310.60 usft	Longitude:	-107.8258344
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,357.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/19/2016	9.33	65.68	51,771

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	192.91	

Survey Program	Date	11/7/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
127.00	1,118.00	Survey #1 - Surface MWD (Wellbore #1)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,250.00	9,848.00	Survey #2 - Production MWD Survey (Wel	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
127.00	1.48	204.24	126.99	-1.50	-0.67	1.61	1.17	1.17	0.00	
First SDI Surface MWD Survey										
217.00	3.72	196.76	216.89	-5.35	-1.99	5.66	2.51	2.49	-8.31	
309.00	8.40	196.29	308.35	-14.66	-4.74	15.35	5.09	5.09	-0.51	
400.00	11.51	189.85	397.97	-29.99	-8.16	31.06	3.62	3.42	-7.08	
491.00	14.71	188.08	486.59	-50.38	-11.34	51.64	3.54	3.52	-1.95	
581.00	18.32	190.02	572.86	-75.63	-15.40	77.16	4.06	4.01	2.16	
672.00	20.33	192.60	658.73	-105.15	-21.34	107.26	2.40	2.21	2.84	
762.00	22.99	192.92	742.37	-137.54	-28.68	140.47	2.96	2.96	0.36	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 544-12 - Slot SR 544-12 (B1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	SR 544-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
853.00	23.86	191.97	825.87	-172.87	-36.47	176.65	1.04	0.96	-1.04
944.00	23.57	190.56	909.18	-208.76	-43.63	213.23	0.70	-0.32	-1.55
1,035.00	24.89	192.93	992.17	-245.31	-51.25	250.56	1.80	1.45	2.60
1,118.00	25.68	195.13	1,067.22	-279.70	-59.85	286.00	1.48	0.95	2.65
Last SDI Surface MWD Survey									
1,250.00	26.49	194.64	1,185.77	-335.79	-74.75	344.01	0.63	0.61	-0.37
First SDI Production MWD Survey									
1,344.00	26.79	194.08	1,269.79	-376.62	-85.21	386.14	0.42	0.32	-0.60
1,439.00	26.39	192.99	1,354.74	-417.96	-95.16	428.66	0.66	-0.42	-1.15
1,533.00	25.82	193.49	1,439.15	-458.22	-104.63	470.02	0.65	-0.61	0.53
1,627.00	25.38	192.64	1,523.93	-497.79	-113.82	510.63	0.61	-0.47	-0.90
1,721.00	26.20	193.96	1,608.56	-537.58	-123.23	551.53	1.06	0.87	1.40
1,816.00	25.74	192.80	1,693.97	-578.05	-132.86	593.12	0.72	-0.48	-1.22
1,910.00	27.01	193.52	1,778.19	-618.71	-142.37	634.88	1.39	1.35	0.77
2,004.00	26.13	192.70	1,862.26	-659.66	-151.91	676.92	1.01	-0.94	-0.87
2,098.00	25.48	192.23	1,946.88	-699.61	-160.75	717.84	0.72	-0.69	-0.50
2,192.00	26.30	191.07	2,031.45	-739.81	-169.03	758.87	1.03	0.87	-1.23
2,287.00	25.57	192.22	2,116.88	-780.50	-177.41	800.41	0.93	-0.77	1.21
2,381.00	27.02	194.01	2,201.15	-821.05	-186.87	842.04	1.76	1.54	1.90
2,475.00	26.14	194.71	2,285.22	-861.79	-197.30	884.09	0.99	-0.94	0.74
2,570.00	25.23	194.21	2,370.83	-901.66	-207.58	925.25	0.98	-0.96	-0.53
2,664.00	26.03	193.18	2,455.58	-941.17	-217.21	965.90	0.97	0.85	-1.10
2,758.00	25.38	193.10	2,540.28	-980.87	-226.47	1,006.68	0.69	-0.69	-0.09
2,853.00	26.48	195.41	2,625.72	-1,021.12	-236.72	1,048.20	1.57	1.16	2.43
2,947.00	25.95	194.22	2,710.05	-1,061.26	-247.34	1,089.69	0.79	-0.56	-1.27
3,041.00	25.01	194.19	2,794.90	-1,100.46	-257.26	1,130.12	1.00	-1.00	-0.03
3,136.00	26.27	194.39	2,880.55	-1,140.30	-267.41	1,171.22	1.33	1.33	0.21
3,230.00	25.31	195.25	2,965.18	-1,179.83	-277.87	1,212.09	1.10	-1.02	0.91
3,325.00	24.46	195.17	3,051.36	-1,218.41	-288.35	1,252.03	0.90	-0.89	-0.08
3,419.00	25.02	192.74	3,136.74	-1,256.58	-297.83	1,291.36	1.23	0.60	-2.59
3,513.00	24.58	192.72	3,222.07	-1,295.04	-306.52	1,330.79	0.47	-0.47	-0.02
3,608.00	25.64	191.90	3,308.09	-1,334.43	-315.11	1,371.10	1.17	1.12	-0.86
3,702.00	25.94	192.23	3,392.73	-1,374.42	-323.66	1,411.99	0.35	0.32	0.35
3,796.00	25.12	191.44	3,477.55	-1,414.07	-331.97	1,452.49	0.94	-0.87	-0.84
3,890.00	24.46	191.67	3,562.88	-1,452.68	-339.86	1,491.90	0.71	-0.70	0.24
3,985.00	23.44	190.84	3,649.70	-1,490.50	-347.39	1,530.44	1.13	-1.07	-0.87
4,079.00	22.61	191.89	3,736.22	-1,526.55	-354.63	1,567.19	0.99	-0.88	1.12
4,174.00	21.64	192.16	3,824.22	-1,561.54	-362.09	1,602.97	1.03	-1.02	0.28
4,268.00	20.92	191.84	3,911.81	-1,594.91	-369.18	1,637.08	0.78	-0.77	-0.34
4,362.00	19.81	191.09	3,999.93	-1,626.97	-375.69	1,669.78	1.21	-1.18	-0.80
4,457.00	19.16	191.63	4,089.49	-1,658.04	-381.93	1,701.46	0.71	-0.68	0.57
4,551.00	17.76	191.29	4,178.65	-1,687.21	-387.84	1,731.21	1.49	-1.49	-0.36
4,646.00	16.67	191.53	4,269.40	-1,714.77	-393.40	1,759.32	1.15	-1.15	0.25

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Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	SR 544-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,740.00	15.24	192.22	4,359.77	-1,740.05	-398.71	1,785.15	1.53	-1.52	0.73	
4,834.00	14.26	191.49	4,450.67	-1,763.47	-403.64	1,809.08	1.06	-1.04	-0.78	
4,929.00	13.01	191.08	4,542.99	-1,785.43	-408.02	1,831.46	1.32	-1.32	-0.43	
5,023.00	12.31	191.79	4,634.71	-1,805.63	-412.10	1,852.06	0.76	-0.74	0.76	
5,117.00	11.83	190.66	4,726.63	-1,824.90	-415.93	1,871.70	0.57	-0.51	-1.20	
5,212.00	11.08	189.49	4,819.74	-1,843.48	-419.24	1,890.55	0.83	-0.79	-1.23	
5,306.00	10.64	188.01	4,912.05	-1,860.98	-421.94	1,908.21	0.55	-0.47	-1.57	
5,400.00	9.85	187.67	5,004.55	-1,877.54	-424.22	1,924.86	0.84	-0.84	-0.36	
5,494.00	9.52	189.61	5,097.21	-1,893.18	-426.59	1,940.63	0.49	-0.35	2.06	
5,588.00	9.53	188.72	5,189.92	-1,908.53	-429.07	1,956.15	0.16	0.01	-0.95	
5,683.00	7.67	189.63	5,283.85	-1,922.56	-431.32	1,970.33	1.96	-1.96	0.96	
5,777.00	5.45	190.14	5,377.23	-1,933.14	-433.16	1,981.05	2.36	-2.36	0.54	
5,871.00	5.11	191.30	5,470.83	-1,941.64	-434.76	1,989.69	0.38	-0.36	1.23	
5,966.00	3.24	179.33	5,565.57	-1,948.47	-435.56	1,996.53	2.16	-1.97	-12.60	
6,060.00	2.92	179.00	5,659.44	-1,953.52	-435.49	2,001.44	0.34	-0.34	-0.35	
6,154.00	1.07	181.31	5,753.37	-1,956.79	-435.47	2,004.62	1.97	-1.97	2.46	
6,248.00	1.14	312.45	5,847.37	-1,957.04	-436.18	2,005.02	2.14	0.07	139.51	
6,343.00	1.17	306.56	5,942.35	-1,955.82	-437.65	2,004.16	0.13	0.03	-6.20	
6,437.00	1.06	299.89	6,036.33	-1,954.82	-439.18	2,003.53	0.18	-0.12	-7.10	
6,531.00	0.97	305.07	6,130.32	-1,953.93	-440.58	2,002.97	0.14	-0.10	5.51	
6,626.00	1.02	311.12	6,225.30	-1,952.91	-441.88	2,002.27	0.12	0.05	6.37	
6,720.00	0.57	319.39	6,319.29	-1,952.00	-442.81	2,001.59	0.49	-0.48	8.80	
6,814.00	0.42	317.83	6,413.29	-1,951.39	-443.35	2,001.12	0.16	-0.16	-1.66	
6,909.00	0.54	308.82	6,508.28	-1,950.85	-443.93	2,000.72	0.15	0.13	-9.48	
7,003.00	0.90	314.35	6,602.28	-1,950.06	-444.80	2,000.15	0.39	0.38	5.88	
7,098.00	0.65	349.31	6,697.27	-1,949.01	-445.44	1,999.26	0.55	-0.26	36.80	
7,192.00	0.81	5.28	6,791.26	-1,947.82	-445.47	1,998.12	0.27	0.17	16.99	
7,286.00	1.17	10.66	6,885.25	-1,946.22	-445.24	1,996.50	0.40	0.38	5.72	
7,381.00	0.79	354.65	6,980.23	-1,944.61	-445.12	1,994.91	0.49	-0.40	-16.85	
7,475.00	0.62	345.07	7,074.23	-1,943.48	-445.31	1,993.84	0.22	-0.18	-10.19	
7,570.00	0.88	344.63	7,169.22	-1,942.28	-445.63	1,992.74	0.27	0.27	-0.46	
7,664.00	0.93	351.68	7,263.21	-1,940.83	-445.94	1,991.40	0.13	0.05	7.50	
7,758.00	0.62	216.57	7,357.20	-1,940.48	-446.35	1,991.15	1.53	-0.33	-143.73	
7,853.00	0.77	215.36	7,452.20	-1,941.41	-447.03	1,992.21	0.16	0.16	-1.27	
7,947.00	0.56	195.18	7,546.19	-1,942.37	-447.51	1,993.26	0.33	-0.22	-21.47	
8,041.00	0.70	203.74	7,640.18	-1,943.34	-447.86	1,994.28	0.18	0.15	9.11	
8,136.00	0.79	216.48	7,735.18	-1,944.40	-448.49	1,995.45	0.20	0.09	13.41	
8,230.00	0.40	198.97	7,829.17	-1,945.23	-448.98	1,996.37	0.45	-0.41	-18.63	
8,325.00	0.83	229.68	7,924.16	-1,945.99	-449.61	1,997.25	0.56	0.45	32.33	
8,419.00	0.68	238.09	8,018.16	-1,946.72	-450.60	1,998.19	0.20	-0.16	8.95	
8,513.00	0.41	212.99	8,112.15	-1,947.30	-451.26	1,998.90	0.38	-0.29	-26.70	
8,608.00	0.50	224.81	8,207.15	-1,947.88	-451.74	1,999.57	0.14	0.09	12.44	
8,702.00	0.62	262.74	8,301.15	-1,948.24	-452.53	2,000.09	0.41	0.13	40.35	
8,796.00	0.60	309.07	8,395.14	-1,947.99	-453.42	2,000.05	0.51	-0.02	49.29	

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Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	SR 544-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,891.00	0.62	347.53	8,490.14	-1,947.17	-453.91	1,999.37	0.42	0.02	40.48
8,985.00	0.73	263.84	8,584.13	-1,946.74	-454.62	1,999.10	0.96	0.12	-89.03
9,080.00	0.96	254.94	8,679.12	-1,947.01	-455.99	1,999.67	0.28	0.24	-9.37
9,174.00	1.01	251.31	8,773.11	-1,947.48	-457.53	2,000.48	0.09	0.05	-3.86
9,268.00	0.13	351.61	8,867.10	-1,947.64	-458.33	2,000.81	1.11	-0.94	106.70
9,363.00	0.60	51.33	8,962.10	-1,947.23	-457.96	2,000.32	0.57	0.49	62.86
9,457.00	0.70	32.97	9,056.09	-1,946.44	-457.27	1,999.40	0.24	0.11	-19.53
9,551.00	0.79	339.09	9,150.09	-1,945.35	-457.18	1,998.32	0.72	0.10	-57.32
9,645.00	1.17	319.27	9,244.07	-1,944.02	-458.04	1,997.21	0.54	0.40	-21.09
9,740.00	1.06	306.10	9,339.06	-1,942.76	-459.38	1,996.29	0.29	-0.12	-13.86
9,786.00	1.06	308.94	9,385.05	-1,942.25	-460.06	1,995.94	0.11	0.00	6.17
Last SDI Production MWD Survey									
9,848.00	1.06	308.94	9,447.04	-1,941.53	-460.95	1,995.43	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
127.00	126.99	-1.50	-0.67	First SDI Surface MWD Survey
1,118.00	1,067.22	-279.70	-59.85	Last SDI Surface MWD Survey
1,250.00	1,185.77	-335.79	-74.75	First SDI Production MWD Survey
9,786.00	9,385.05	-1,942.25	-460.06	Last SDI Production MWD Survey
9,848.00	9,447.04	-1,941.53	-460.95	Projection to TD

Checked By: _____ Approved By: _____ Date: _____