



Where energy meets Innovation.

EQT Production

Doddridge County, WV

Well No. 514392

North Reference: True

Original Hole

API: 41-170-6445

Survey: ProDirectional

Standard Survey Report

16 February, 2015



03/25/2016



Professional Directional Survey Report



Company: EQT Production	Local Co-ordinate Reference: Well Well #514392 - Slot 514392
Project: Doddridge County, WV	TVD Reference: GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Site: Orion WEU49 Pad	MD Reference: GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Well: Well #514392	North Reference: True
Wellbore: Original Hole	Survey Calculation Method: Minimum Curvature
Design: Original Hole	Database: Well_Planner1

Project Doddridge County, WV	
Map System: US State Plane 1927 (Exact solution)	System Datum: Mean Sea Level
Geo Datum: NAD 1927 (NADCON CONUS)	
Map Zone: West Virginia North 4701	Using geodetic scale factor

Site Orion WEU49 Pad		
Site Position:	Northing: 277,569.80 usft	Latitude: 39° 15' 17.748 N
From: Map	Easting: 1,635,662.00 usft	Longitude: 80° 47' 11.892 W
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: -0.82 °

Well Well #514392 - Slot 514392		
Well Position +N-S 0.00 usft	Northing: 277,524.90 usft	Latitude: 39° 15' 17.305 N
+E-W 0.00 usft	Easting: 1,635,667.10 usft	Longitude: 80° 47' 11.819 W
Position Uncertainty 0.00 usft	Wellhead Elevation: 1,152.50 usft	Ground Level: 1,130.00 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/22/2015	-8.49	66.73	52,203

Design Original Hole		
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	154.18

Survey Program		Date 2/9/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	5,252.00	#2 Gyrodata Gyro (Original Hole)	Gyrodata_DP_MS	Gyrodata gyro-compassing and drop
5,310.00	12,350.00	Pro Directional (Original Hole)	ProMWD	MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buid Rate (°/100usft)	Turn Rate (°/100usft)
5,252.00	1.70	314.84	5,251.64	-22.32	-25.98	8.77	0.00	0.00	0.00
5,310.00	1.99	315.23	5,309.61	-20.99	-27.30	7.01	0.50	0.50	0.67
5,342.00	2.39	331.09	5,341.59	-20.02	-28.01	5.82	2.26	1.25	49.56
5,374.00	2.78	329.99	5,373.56	-18.76	-28.73	4.38	1.23	1.22	-3.44
5,405.00	3.31	5.83	5,404.51	-17.22	-29.01	2.86	6.26	1.71	115.61
5,437.00	7.11	40.03	5,436.38	-14.78	-27.64	1.27	14.84	11.88	106.88
5,469.00	12.11	41.31	5,467.92	-10.74	-24.15	-0.85	15.64	15.63	4.00
5,500.00	14.18	40.03	5,498.11	-5.39	-19.56	-3.67	6.74	6.68	-4.13
5,532.00	14.10	39.19	5,529.14	0.63	-14.58	-6.92	0.69	-0.25	-2.63
5,564.00	16.22	38.40	5,560.03	7.16	-9.34	-10.51	6.66	6.63	-2.47



Professional Directional

Survey Report



Company:	EQT Production	Local Co-ordinate Reference:	Well Well #514392 - Slot 514392
Project:	Doddridge County, WV	TVD Reference:	GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Site:	Orion WEU49 Pad	MD Reference:	GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Well:	Well #514392	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Well_Planner1

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
5,595.00	18.21	38.79	5,589.64	14.33	-3.61	-14.47	6.43	6.42	1.26
5,627.00	19.18	38.09	5,619.95	22.36	2.76	-18.92	3.11	3.03	-2.19
5,658.00	20.02	37.69	5,649.15	30.57	9.15	-23.53	2.74	2.71	-1.29
5,690.00	22.49	36.90	5,678.97	39.80	16.17	-28.78	7.77	7.72	-2.47
5,722.00	25.19	36.02	5,708.24	50.20	23.85	-34.80	8.51	8.44	-2.75
5,753.00	27.31	36.02	5,736.04	61.29	31.92	-41.27	6.84	6.84	0.00
5,785.00	30.18	36.02	5,764.09	73.74	40.96	-48.53	8.97	8.97	0.00
5,817.00	34.51	35.49	5,791.12	87.63	50.96	-56.68	13.56	13.53	-1.66
5,848.00	38.40	34.30	5,816.05	102.74	61.49	-65.70	12.75	12.55	-3.84
5,880.00	42.29	32.89	5,840.44	120.00	72.94	-76.25	12.49	12.16	-4.41
5,912.00	46.71	31.21	5,863.26	139.01	84.83	-88.18	14.29	13.81	-5.25
5,943.00	50.42	30.11	5,883.77	159.00	96.67	-101.02	12.26	11.97	-3.55
5,975.00	52.89	30.60	5,903.62	180.65	109.36	-114.99	7.81	7.72	1.53
6,007.00	56.52	30.29	5,922.10	203.17	122.59	-129.49	11.37	11.34	-0.97
6,038.00	59.92	29.41	5,938.43	226.02	135.70	-144.35	11.23	10.97	-2.84
6,070.00	63.59	29.01	5,953.57	250.62	149.45	-160.51	11.52	11.47	-1.25
6,165.00	71.01	26.72	5,990.21	328.07	190.34	-212.41	8.12	7.81	-2.41
6,260.00	68.98	24.60	6,022.71	408.52	229.00	-267.99	2.99	-2.14	-2.23
6,307.00	69.69	24.60	6,039.30	448.50	247.30	-296.01	1.51	1.51	0.00
6,355.00	70.08	24.43	6,055.80	489.51	266.00	-324.78	0.88	0.81	-0.35
6,402.00	66.51	26.32	6,073.19	528.96	284.70	-352.15	8.46	-7.60	4.02
6,450.00	64.91	25.62	6,092.93	568.29	303.86	-379.20	3.59	-3.33	-1.46
6,497.00	65.18	25.53	6,112.76	606.73	322.26	-405.79	0.60	0.57	-0.19
6,545.00	65.49	25.71	6,132.79	646.06	341.12	-432.98	0.73	0.65	0.38
6,639.00	68.18	26.19	6,169.76	723.76	378.94	-486.45	2.90	2.86	0.51
6,734.00	69.51	25.71	6,204.05	803.42	417.70	-541.28	1.48	1.40	-0.51
6,829.00	67.39	26.50	6,238.94	882.77	456.57	-595.77	2.36	-2.23	0.83
6,924.00	69.11	26.01	6,274.14	961.90	495.60	-650.00	1.87	1.81	-0.52
7,019.00	69.69	28.79	6,307.57	1,040.84	536.52	-703.24	2.81	0.61	2.93
7,051.00	70.08	28.13	6,318.58	1,067.25	550.84	-720.78	2.29	1.22	-2.06
7,082.00	70.00	29.72	6,329.16	1,092.75	564.93	-737.60	4.83	-0.26	5.13
7,114.00	69.20	33.20	6,340.32	1,118.33	580.58	-753.81	10.49	-2.50	10.88
7,146.00	68.18	38.40	6,351.96	1,142.51	598.01	-767.98	15.47	-3.19	16.25
7,177.00	67.08	43.02	6,363.76	1,164.23	616.70	-779.39	14.23	-3.55	14.90
7,209.00	66.59	44.83	6,376.35	1,185.42	637.10	-789.58	5.42	-1.53	5.66
7,241.00	66.68	47.12	6,389.04	1,205.84	658.22	-798.76	6.58	0.28	7.16
7,272.00	66.81	49.33	6,401.28	1,224.81	679.46	-806.58	6.56	0.42	7.13
7,304.00	66.81	52.01	6,413.88	1,243.45	702.21	-813.45	7.70	0.00	8.38
7,336.00	66.59	55.10	6,426.54	1,260.91	725.85	-818.87	8.90	-0.69	9.66
7,368.00	66.42	56.82	6,439.30	1,277.33	750.17	-823.07	4.96	-0.53	5.38
7,399.00	66.11	59.20	6,451.78	1,292.37	774.23	-826.12	7.10	-1.00	7.68
7,431.00	66.28	61.09	6,464.70	1,306.94	799.62	-828.18	5.43	0.53	5.91
7,463.00	65.09	64.31	6,477.88	1,320.32	825.53	-828.94	9.89	-3.72	10.06



Professional Directional Survey Report



Company:	EQT Production	Local Co-ordinate Reference:	Well Well #514392 - Slot 514392
Project:	Doddridge County, WV	TVD Reference:	GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Site:	Orion WEU49 Pad	MD Reference:	GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Well:	Well #514392	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Well_Planner1

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)	
7,494.00	63.72	68.41	6,491.27	1,331.53	851.13	-827.88	12.72	-4.42	13.23	
7,526.00	61.29	72.73	6,506.05	1,340.98	877.88	-824.73	14.18	-7.59	13.50	
7,558.00	59.48	76.82	6,521.87	1,348.29	904.72	-819.63	12.47	-5.66	12.78	
7,589.00	60.10	79.91	6,537.47	1,353.69	930.95	-813.06	8.84	2.00	9.97	
7,621.00	61.51	84.71	6,553.09	1,357.42	958.62	-804.37	13.81	4.41	15.00	
7,652.00	63.10	89.30	6,567.50	1,358.85	986.02	-793.72	14.08	5.13	14.81	
7,684.00	65.40	92.60	6,581.40	1,358.36	1,014.83	-780.73	11.74	7.19	10.31	
7,716.00	66.51	96.21	6,594.45	1,356.11	1,043.96	-766.02	10.87	3.47	11.28	
7,747.00	68.01	100.40	6,606.43	1,351.98	1,072.24	-749.98	13.37	4.84	13.52	
7,779.00	69.60	104.10	6,618.01	1,345.64	1,101.39	-731.58	11.87	4.97	11.56	
7,811.00	70.48	108.82	6,628.93	1,337.12	1,130.23	-711.35	14.13	2.75	14.75	
7,842.00	71.81	112.43	6,638.96	1,326.79	1,157.67	-690.09	11.83	4.29	11.65	
7,874.00	72.91	115.91	6,648.66	1,314.30	1,185.49	-666.74	10.92	3.44	10.88	
7,906.00	73.62	119.00	6,657.87	1,300.17	1,212.68	-642.18	9.51	2.22	9.66	
7,937.00	74.50	121.51	6,666.39	1,285.16	1,238.42	-617.45	8.29	2.84	8.10	
7,969.00	75.39	123.80	6,674.70	1,268.48	1,264.44	-591.11	7.45	2.78	7.16	
8,001.00	76.89	127.02	6,682.37	1,250.48	1,289.75	-563.88	10.84	4.69	10.06	
8,032.00	78.08	130.32	6,689.09	1,231.57	1,313.38	-536.57	11.08	3.84	10.65	
8,064.00	78.88	133.50	6,695.48	1,210.63	1,336.71	-507.56	10.05	2.50	9.94	
8,095.00	79.72	136.40	6,701.23	1,189.11	1,358.26	-478.80	9.58	2.71	9.35	
8,127.00	82.10	139.09	6,706.29	1,165.73	1,379.50	-448.50	11.14	7.44	8.41	
8,159.00	85.11	142.40	6,709.86	1,141.11	1,399.62	-417.57	13.93	9.41	10.34	
8,190.00	87.58	145.39	6,711.83	1,116.12	1,417.85	-387.14	12.49	7.97	9.65	
8,222.00	88.11	145.39	6,713.04	1,089.80	1,436.01	-355.54	1.66	1.66	0.00	
8,253.00	88.60	146.63	6,713.93	1,064.11	1,453.33	-324.87	4.30	1.58	4.00	
8,305.00	93.02	150.51	6,713.19	1,019.76	1,480.43	-273.14	11.31	8.50	7.46	
8,312.56	93.19	150.69	6,712.78	1,013.18	1,484.14	-265.60	3.25	2.26	2.35	
514392 LP 527' VS										
8,348.00	93.99	151.52	6,710.56	982.22	1,501.23	-230.29	3.25	2.26	2.35	
8,443.00	98.81	155.62	6,699.97	897.73	1,543.25	-135.94	6.64	5.07	4.32	
8,538.00	97.22	153.33	6,686.72	812.85	1,583.78	-41.87	2.92	-1.67	-2.41	
8,633.00	96.51	153.90	6,675.37	728.36	1,625.70	52.44	0.96	-0.75	0.60	
8,728.00	97.39	152.93	6,663.87	644.03	1,667.90	146.73	1.37	0.93	-1.02	
8,823.00	89.40	153.81	6,658.25	559.32	1,710.37	241.48	8.46	-8.41	0.93	
8,918.00	90.19	153.50	6,658.59	474.19	1,752.53	336.47	0.89	0.83	-0.33	
8,970.97	90.09	152.65	6,658.46	426.97	1,776.51	389.43	1.61	-0.19	-1.60	
514392 Plat LP2										
9,012.00	90.01	152.00	6,658.43	390.63	1,795.57	430.44	1.61	-0.19	-1.60	
9,107.00	91.78	154.03	6,656.94	305.99	1,838.67	525.40	2.83	1.86	2.14	
9,202.00	89.22	154.21	6,656.11	220.53	1,880.13	620.39	2.70	-2.69	0.19	
9,297.00	89.70	153.72	6,657.01	135.17	1,921.83	715.38	0.72	0.51	-0.52	
9,392.00	86.21	155.22	6,660.40	49.52	1,962.74	810.30	4.00	-3.67	1.58	
9,488.00	86.61	155.00	6,666.41	-37.39	2,003.06	906.10	0.48	0.42	-0.23	
9,583.00	92.18	154.29	6,667.41	-123.20	2,043.73	1,001.06	5.91	5.86	-0.75	



Professional Directional Survey Report



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Site:	Orion WEU49 Pad	MD Reference:	GL 1130' + 22.5' KB @ 1152.50usft (Orion Rig)
Well:	Well #514392	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Well_Planner1

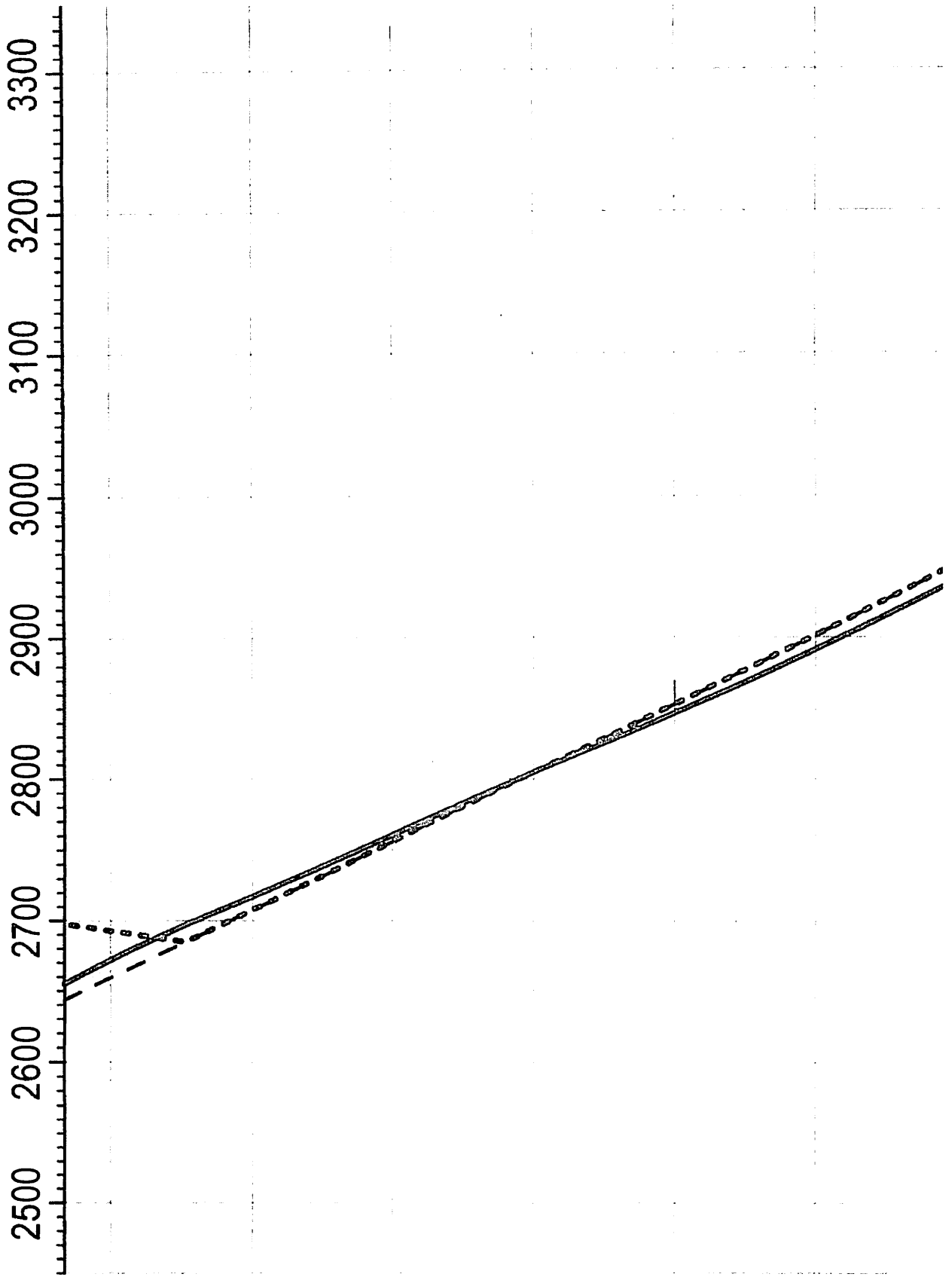
Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
9,677.00	93.59	154.82	6,662.68	-207.97	2,084.06	1,094.93	1.60	1.50	0.56
9,772.00	93.02	155.53	6,657.20	-294.05	2,123.88	1,189.76	0.96	-0.60	0.75
9,867.00	92.80	154.91	6,652.38	-380.19	2,163.65	1,284.62	0.69	-0.23	-0.65
9,962.00	94.92	154.60	6,645.99	-465.92	2,204.07	1,379.39	2.26	2.23	-0.33
10,057.00	92.31	154.21	6,640.00	-551.42	2,245.03	1,474.20	2.78	-2.75	-0.41
10,152.00	90.81	154.60	6,637.41	-637.06	2,286.06	1,569.16	1.63	-1.58	0.41
10,247.00	88.38	153.59	6,638.08	-722.50	2,327.55	1,664.15	2.77	-2.56	-1.06
10,341.00	87.19	154.43	6,641.72	-806.93	2,368.72	1,758.07	1.55	-1.27	0.89
10,436.00	87.89	154.69	6,645.79	-892.64	2,409.49	1,852.98	0.79	0.74	0.27
10,531.00	93.59	155.40	6,644.57	-978.73	2,449.55	1,947.92	6.05	6.00	0.75
10,626.00	90.90	152.71	6,640.85	-1,064.07	2,491.08	2,042.83	4.00	-2.83	-2.83
10,721.00	91.91	152.40	6,638.52	-1,148.35	2,534.85	2,137.77	1.11	1.06	-0.33
10,816.00	92.00	151.69	6,635.27	-1,232.21	2,579.36	2,232.64	0.75	0.09	-0.75
10,911.00	89.40	149.62	6,634.11	-1,315.01	2,625.90	2,327.44	3.50	-2.74	-2.18
11,006.00	87.19	153.11	6,636.94	-1,398.33	2,671.40	2,422.27	4.35	-2.33	3.67
11,101.00	86.79	157.29	6,641.93	-1,484.43	2,711.19	2,517.10	4.41	-0.42	4.40
11,196.00	87.19	156.41	6,646.92	-1,571.66	2,748.49	2,611.86	1.02	0.42	-0.93
11,292.00	87.98	156.10	6,650.97	-1,659.45	2,787.11	2,707.71	0.88	0.82	-0.32
11,386.00	92.80	157.60	6,650.33	-1,745.85	2,824.05	2,801.58	5.37	5.13	1.60
11,481.00	93.59	156.10	6,645.03	-1,833.07	2,861.34	2,896.33	1.78	0.83	-1.58
11,576.00	91.91	154.91	6,640.47	-1,919.41	2,900.68	2,991.19	2.17	-1.77	-1.25
11,671.00	92.40	154.91	6,636.90	-2,005.38	2,940.94	3,086.11	0.52	0.52	0.00
11,766.00	90.10	153.02	6,634.83	-2,090.71	2,982.62	3,181.08	3.13	-2.42	-1.99
11,861.00	88.91	151.52	6,635.65	-2,174.80	3,026.83	3,276.02	2.02	-1.25	-1.58
11,956.00	87.89	151.12	6,638.30	-2,258.11	3,072.40	3,370.86	1.15	-1.07	-0.42
12,052.00	90.01	156.32	6,640.06	-2,344.14	3,114.88	3,466.80	5.85	2.21	5.42
12,242.00	91.38	152.49	6,637.76	-2,515.44	3,196.94	3,656.75	2.14	0.72	-2.02
12,290.00	91.91	152.40	6,636.38	-2,557.98	3,219.13	3,704.70	1.12	1.10	-0.19
12,332.03	91.91	152.40	6,634.98	-2,595.21	3,238.60	3,746.69	0.00	0.00	0.00
514392 Plat TD2									
12,350.00	91.91	152.40	6,634.38	-2,611.12	3,246.92	3,764.64	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,252.00	5,251.64	-22.32	-25.98	Tie Into Gyro 5252'MD
5,310.00	5,309.61	-20.99	-27.30	First ProMWD 5310'MD
12,290.00	6,636.38	-2,557.98	3,219.13	Last Survey: 12290'MD / 6636.38'TVD
12,350.00	6,634.38	-2,611.12	3,246.92	PTB 12350'MD

West(-)/East(+) (100 usft/in)



03/25/2016