

A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

July 11, 2013

Devon Energy Production Co., LP
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

Attn: Patti Riechers

Re: **Aquila 22 Fed Com No 004H**

Please find enclosed a copy of the survey from 0' to 8,520' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §

COUNTY OF NUECES §

This instrument was acknowledged before me on the 11th day of July
A.D. 2013, by Keith Havelka.




Laura Ballew
Notary Public, State of Texas



Company: DEVON ENERGY PRODUCTION
Lease/Well: AQUILA 22 FED COM/No 004H

Rig Name: MCVAY 10
State/County: NEW MEXICO/EDDY
Latitude: 32.64, Longitude: -103.85
GRID North is 0.26 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB= 15'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: e-line gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 7/11/2013 / 12:47

Vaughn Energy Services

Conway, Arkansas

501-730-0602

Surveyor: Chris Ford

Aquila 22 Fed Com No 004H / API 30-015-41159

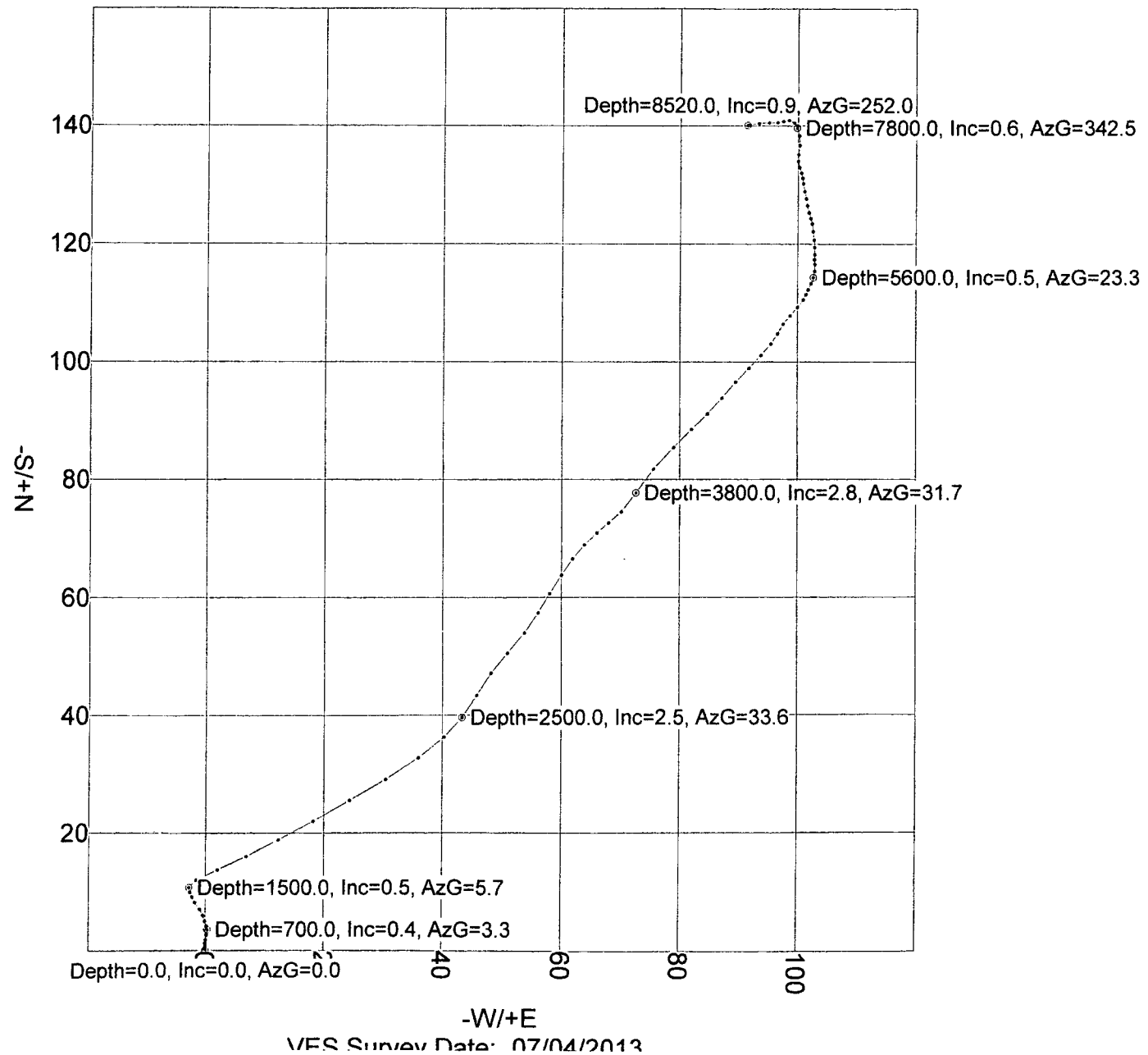
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.27	349.44	100.00	0.23	-0.04	0.23	0.24	349.44	0.27
200.00	0.09	53.46	200.00	0.52	-0.02	0.52	0.52	357.29	0.25
300.00	0.22	350.96	300.00	0.75	0.01	0.75	0.75	0.62	0.20
400.00	0.36	3.03	400.00	1.26	-0.01	1.26	1.26	359.74	0.15
500.00	0.29	18.00	500.00	1.81	0.09	1.81	1.81	2.81	0.11
600.00	0.67	7.42	599.99	2.63	0.24	2.63	2.64	5.27	0.39
700.00	0.38	3.33	699.99	3.55	0.34	3.55	3.56	5.44	0.29
800.00	0.38	334.05	799.99	4.18	0.21	4.18	4.18	2.92	0.19
900.00	0.59	340.89	899.98	4.96	-0.10	4.96	4.96	358.84	0.22
1000.00	0.59	344.12	999.98	5.94	-0.41	5.94	5.96	356.06	0.03
1100.00	0.80	325.54	1099.97	7.01	-0.94	7.01	7.07	352.33	0.30
1200.00	0.77	325.39	1199.96	8.14	-1.72	8.14	8.32	348.06	0.03
1300.00	0.45	344.33	1299.95	9.07	-2.21	9.07	9.34	346.31	0.38
1400.00	0.53	326.62	1399.95	9.84	-2.57	9.84	10.17	345.35	0.17
1500.00	0.54	5.71	1499.95	10.69	-2.78	10.69	11.05	345.43	0.36
1600.00	1.69	57.55	1599.93	11.95	-1.49	11.95	12.04	352.89	1.42
1700.00	2.83	66.81	1699.85	13.71	2.02	13.71	13.86	8.39	1.20
1800.00	3.38	62.57	1799.70	16.04	6.91	16.04	17.47	23.31	0.60

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	3.60	62.32	1899.52	18.86	12.31	18.86	22.52	33.13	0.21
2000.00	4.04	60.89	1999.29	22.03	18.16	22.03	28.55	39.51	0.46
2100.00	4.15	60.10	2099.04	25.55	24.38	25.55	35.31	43.66	0.12
2200.00	3.97	59.67	2198.79	29.10	30.50	29.10	42.15	46.35	0.18
2300.00	3.63	51.91	2298.57	32.80	35.98	32.80	48.68	47.65	0.62
2400.00	2.72	49.87	2398.41	36.28	40.28	36.28	54.21	47.99	0.91
2500.00	2.48	33.63	2498.31	39.61	43.30	39.61	58.69	47.55	0.77
2600.00	2.65	33.28	2598.21	43.35	45.77	43.35	63.04	46.55	0.17
2700.00	2.51	32.83	2698.11	47.12	48.22	47.12	67.42	45.66	0.15
2800.00	2.54	44.06	2798.01	50.55	50.95	50.55	71.77	45.22	0.49
2900.00	2.58	35.46	2897.91	53.98	53.80	53.98	76.21	44.90	0.39
3000.00	2.19	30.82	2997.83	57.45	56.08	57.45	80.28	44.31	0.44
3100.00	2.13	31.24	3097.76	60.68	58.02	60.68	83.95	43.72	0.06
3200.00	2.05	32.89	3197.69	63.77	59.96	63.77	87.53	43.24	0.10
3300.00	1.78	34.68	3297.63	66.55	61.81	66.55	90.83	42.89	0.27
3400.00	1.78	46.45	3397.59	68.90	63.82	68.90	93.91	42.81	0.37
3500.00	1.60	45.85	3497.54	70.93	65.94	70.93	96.85	42.91	0.18
3600.00	1.41	53.20	3597.51	72.64	67.93	72.64	99.45	43.08	0.27
3700.00	1.87	46.50	3697.47	74.50	70.10	74.50	102.30	43.26	0.50
3800.00	2.80	31.73	3797.38	77.70	72.57	77.70	106.32	43.04	1.10
3900.00	2.98	40.62	3897.26	81.75	75.54	81.75	111.31	42.74	0.48
4000.00	2.80	44.41	3997.13	85.47	78.94	85.47	116.35	42.73	0.27
4100.00	2.17	44.73	4097.04	88.56	81.98	88.56	120.68	42.79	0.63
4200.00	2.12	46.79	4196.97	91.17	84.66	91.17	124.42	42.88	0.09
4300.00	2.11	39.47	4296.90	93.86	87.18	93.86	128.10	42.89	0.27
4400.00	1.99	41.60	4396.83	96.58	89.51	96.58	131.67	42.82	0.15
4500.00	1.78	45.93	4496.78	98.95	91.77	98.95	134.96	42.84	0.25
4600.00	1.67	40.40	4596.74	101.14	93.83	101.14	137.96	42.85	0.20
4700.00	1.25	41.18	4696.70	103.08	95.50	103.08	140.51	42.81	0.42
4800.00	1.14	24.27	4796.68	104.80	96.63	104.80	142.55	42.68	0.37
4900.00	1.02	36.02	4896.66	106.43	97.56	106.43	144.38	42.51	0.25
5000.00	1.07	42.14	4996.65	107.84	98.71	107.84	146.20	42.47	0.12
5100.00	1.07	40.30	5096.63	109.24	99.94	109.24	148.06	42.45	0.03
5200.00	0.76	32.87	5196.62	110.51	100.90	110.51	149.64	42.40	0.33
5300.00	0.44	14.10	5296.61	111.44	101.35	111.44	150.63	42.29	0.37
5400.00	0.59	31.53	5396.61	112.24	101.71	112.24	151.47	42.18	0.22
5500.00	0.71	19.75	5496.60	113.26	102.19	113.26	152.55	42.06	0.18
5600.00	0.55	23.31	5596.59	114.29	102.59	114.29	153.58	41.91	0.17
5700.00	0.76	3.43	5696.59	115.40	102.82	115.40	154.56	41.70	0.31

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.56	356.54	5796.58	116.55	102.83	116.55	155.43	41.42	0.21
5900.00	0.33	354.47	5896.58	117.33	102.77	117.33	155.98	41.22	0.24
6000.00	0.69	5.18	5996.57	118.21	102.80	118.21	156.66	41.01	0.37
6100.00	0.72	356.36	6096.57	119.44	102.81	119.44	157.59	40.72	0.11
6200.00	0.69	353.57	6196.56	120.67	102.70	120.67	158.46	40.40	0.04
6300.00	0.95	352.34	6296.55	122.10	102.53	122.10	159.43	40.02	0.26
6400.00	0.55	353.22	6396.54	123.39	102.36	123.39	160.32	39.68	0.41
6500.00	0.54	341.35	6496.54	124.31	102.15	124.31	160.90	39.41	0.11
6600.00	0.67	340.57	6596.53	125.31	101.81	125.31	161.45	39.09	0.14
6700.00	0.75	352.73	6696.52	126.51	101.53	126.51	162.21	38.75	0.17
6800.00	0.59	349.49	6796.52	127.66	101.35	127.66	163.00	38.45	0.17
6900.00	0.86	345.28	6896.51	128.89	101.07	128.89	163.79	38.10	0.28
7000.00	0.67	354.62	6996.50	130.20	100.82	130.20	164.67	37.75	0.23
7100.00	0.43	351.61	7096.49	131.15	100.71	131.15	165.36	37.52	0.24
7200.00	0.58	344.85	7196.49	132.02	100.52	132.02	165.93	37.29	0.16
7300.00	0.61	336.92	7296.48	133.00	100.18	133.00	166.51	36.99	0.09
7400.00	0.58	357.26	7396.48	134.00	99.95	134.00	167.17	36.72	0.21
7500.00	0.77	8.16	7496.47	135.16	100.02	135.16	168.15	36.50	0.23
7600.00	1.02	7.05	7596.46	136.71	100.22	136.71	169.51	36.25	0.25
7700.00	0.89	345.21	7696.45	138.35	100.13	138.35	170.79	35.90	0.38
7800.00	0.63	342.50	7796.44	139.63	99.77	139.63	171.61	35.55	0.26
7900.00	0.59	320.95	7896.43	140.56	99.28	140.56	172.08	35.23	0.23
8000.00	0.61	271.74	7996.43	140.98	98.42	140.98	171.93	34.92	0.50
8100.00	0.52	245.39	8096.42	140.80	97.47	140.80	171.25	34.69	0.27
8200.00	0.68	268.09	8196.42	140.60	96.46	140.60	170.51	34.45	0.29
8300.00	0.95	268.32	8296.41	140.55	95.04	140.55	169.67	34.07	0.26
8400.00	1.02	263.92	8396.39	140.43	93.33	140.43	168.62	33.61	0.10
8500.00	0.86	257.80	8496.38	140.18	91.71	140.18	167.52	33.19	0.19
8520.00	0.94	252.03	8516.38	140.10	91.41	140.10	167.28	33.12	0.60



Vaughn Energy Services
Conway, Arkansas
501-730-0602
Surveyor: Chris Ford
Aquila 22 Fed Com No 004H / API 30-015-41159



Directional Survey Data

District PERMIAN BASIN	County EDDY	Field Name HACKBERRY		Project Group DELAWARE BASIN		State/Province NM		
Surface Legal Location SEC22 T19S R31E		API/UWI 3001541159	Latitude (") 32° 38' 40.508" N	Longitude (") 103° 50' 57.349" W	Ground Elev... 3,541.20	KB - GL (ft) 20.00	Orig KB Elev (ft) 3,561.20	Tubing Head Elevation (ft)
Wellbore Name OH		Parent Wellbore OH		Kick Off Depth (ftKB)			Vertical Section Direction (") 252.22	
Date 7/10/2013		Definitive? Yes		Description MWD			Proposed? No	
MD Tie In (ftKB) 8,520.00	TVD Tie In (ftKB) 8,516.38	Inclination Tie In (") 0.94		Azimuth Tie In (") 252.03		NSTie In (ft) 140.10		EWTie In (ft) 91.41

Survey Data

Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company
7/10/2013	8,701.00	1.12	235.43	8,697.35	-126.65	138.64	88.54	0.19	MWD	WEATHERFORD
7/10/2013	8,764.00	1.03	195.28	8,760.34	-125.75	137.74	87.88	1.18	MWD	WEATHERFORD
7/10/2013	8,796.00	3.23	133.04	8,792.32	-126.03	136.85	88.47	9.05	MWD	WEATHERFORD
7/10/2013	8,828.00	6.50	124.63	8,824.20	-127.58	135.20	90.62	10.43	MWD	WEATHERFORD
7/10/2013	8,860.00	10.01	118.63	8,855.86	-130.60	132.84	94.55	11.28	MWD	WEATHERFORD
7/11/2013	8,891.00	13.02	114.77	8,886.24	-135.03	130.09	100.09	10.02	MWD	WEATHERFORD
7/11/2013	8,922.00	15.69	115.26	8,916.27	-140.67	126.83	107.05	8.62	MWD	WEATHERFORD
7/11/2013	8,954.00	18.74	117.64	8,946.83	-147.44	122.60	115.52	9.78	MWD	WEATHERFORD
7/11/2013	8,986.00	22.96	117.31	8,976.73	-155.46	117.35	125.62	13.19	MWD	WEATHERFORD
7/12/2013	9,017.00	25.18	117.30	9,005.03	-164.38	111.55	136.86	7.16	MWD	WEATHERFORD
7/12/2013	9,049.00	30.11	116.90	9,033.37	-174.91	104.79	150.07	15.42	MWD	WEATHERFORD
7/12/2013	9,081.00	33.66	115.63	9,060.54	-187.06	97.32	165.23	11.29	MWD	WEATHERFORD
7/12/2013	9,112.00	37.86	116.14	9,085.69	-200.16	89.41	181.52	13.58	MWD	WEATHERFORD
7/12/2013	9,144.00	42.39	118.46	9,110.15	-214.70	79.94	199.83	14.91	MWD	WEATHERFORD
7/12/2013	9,175.00	46.42	120.16	9,132.29	-229.46	69.32	218.74	13.55	MWD	WEATHERFORD
7/12/2013	9,207.00	50.51	122.46	9,153.51	-245.13	56.86	239.19	13.87	MWD	WEATHERFORD
7/12/2013	9,238.00	54.61	125.13	9,172.35	-260.41	43.16	259.63	14.89	MWD	WEATHERFORD
7/12/2013	9,271.00	58.79	127.64	9,190.47	-276.54	26.79	281.81	14.17	MWD	WEATHERFORD
7/13/2013	9,302.00	62.51	130.41	9,205.66	-291.31	9.78	302.79	14.30	MWD	WEATHERFORD
7/13/2013	9,334.00	65.95	134.74	9,219.58	-305.55	-9.72	323.99	16.25	MWD	WEATHERFORD
7/13/2013	9,365.00	70.03	137.31	9,231.19	-318.22	-30.41	343.94	15.24	MWD	WEATHERFORD
7/13/2013	9,397.00	74.35	138.81	9,240.98	-330.68	-53.07	364.29	14.22	MWD	WEATHERFORD
7/13/2013	9,428.00	77.46	142.74	9,248.53	-341.67	-76.35	383.29	15.87	MWD	WEATHERFORD
7/13/2013	9,460.00	82.22	143.94	9,254.18	-351.85	-101.62	402.09	15.33	MWD	WEATHERFORD
7/13/2013	9,491.00	86.78	144.64	9,257.15	-361.35	-126.66	420.09	14.88	MWD	WEATHERFORD
7/13/2013	9,523.00	91.75	144.25	9,257.56	-371.11	-152.69	438.69	15.58	MWD	WEATHERFORD
7/14/2013	9,554.00	93.08	144.73	9,256.25	-380.55	-177.90	456.68	4.56	MWD	WEATHERFORD
7/14/2013	9,586.00	93.71	144.94	9,254.35	-390.09	-204.01	475.08	2.07	MWD	WEATHERFORD
7/14/2013	9,617.00	94.55	149.55	9,252.12	-398.08	-230.01	491.81	15.08	MWD	WEATHERFORD
7/14/2013	9,650.00	92.52	154.47	9,250.08	-403.91	-259.08	507.26	16.10	MWD	WEATHERFORD
7/15/2013	9,696.00	91.26	158.98	9,248.57	-408.31	-301.31	525.42	10.17	MWD	WEATHERFORD
7/15/2013	9,728.00	90.91	161.14	9,247.96	-409.52	-331.38	536.33	6.84	MWD	WEATHERFORD
7/15/2013	9,760.00	90.84	160.61	9,247.47	-410.27	-361.61	546.81	1.67	MWD	WEATHERFORD
7/15/2013	9,792.00	91.19	164.65	9,246.91	-410.04	-392.14	556.36	12.67	MWD	WEATHERFORD
7/16/2013	9,824.00	91.75	169.49	9,246.08	-407.34	-423.31	563.52	15.22	MWD	WEATHERFORD
7/16/2013	9,855.00	91.47	173.24	9,245.21	-402.41	-453.94	568.17	12.13	MWD	WEATHERFORD
7/16/2013	9,887.00	90.84	177.11	9,244.57	-395.24	-485.81	570.86	12.25	MWD	WEATHERFORD
7/17/2013	9,918.00	89.30	180.93	9,244.53	-386.29	-516.80	571.39	13.29	MWD	WEATHERFORD
7/17/2013	9,950.00	89.72	184.09	9,244.80	-375.19	-548.77	569.99	9.96	MWD	WEATHERFORD
7/17/2013	9,982.00	90.42	183.99	9,244.76	-363.30	-580.69	567.73	2.21	MWD	WEATHERFORD
7/17/2013	10,013.00	92.52	184.40	9,243.97	-351.70	-611.59	565.47	6.90	MWD	WEATHERFORD
7/17/2013	10,045.00	93.50	182.22	9,242.29	-340.20	-643.49	563.62	7.46	MWD	WEATHERFORD
7/17/2013	10,077.00	95.81	181.55	9,239.69	-329.47	-675.37	562.57	7.51	MWD	WEATHERFORD
7/17/2013	10,108.00	96.30	183.01	9,236.42	-318.90	-706.17	561.35	4.94	MWD	WEATHERFORD
7/17/2013	10,140.00	97.72	184.99	9,232.52	-307.11	-737.85	559.13	7.58	MWD	WEATHERFORD
7/17/2013	10,171.00	98.15	189.40	9,228.23	-294.15	-768.30	555.29	14.16	MWD	WEATHERFORD
7/18/2013	10,203.00	97.85	193.14	9,223.78	-278.77	-799.37	549.10	11.61	MWD	WEATHERFORD
7/18/2013	10,234.00	95.53	196.08	9,220.17	-262.28	-829.16	541.33	12.03	MWD	WEATHERFORD
7/18/2013	10,266.00	92.24	197.63	9,218.00	-244.13	-859.71	532.07	11.36	MWD	WEATHERFORD
7/18/2013	10,298.00	90.63	200.03	9,217.20	-225.06	-889.99	521.75	9.03	MWD	WEATHERFORD
7/18/2013	10,330.00	91.61	203.13	9,216.57	-204.77	-919.73	509.98	10.16	MWD	WEATHERFORD



Directional Survey Data

District PERMIAN BASIN		County EDDY		Field Name HACKBERRY			Project Group DELAWARE BASIN			State/Province NM	
Surface Legal Location SEC22 T19S R31E		API/UWI 3001541159		Latitude (°) 32° 38' 40.508" N	Longitude (°) 103° 50' 57.349" W	Ground Elev... 3,541.20	KB - GL (ft) 20.00	Orig KB Elev (ft) 3,561.20	Tubing Head Elevation (ft)		
Survey Data											
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (2/100ft)	Survey Tool	Survey Company	
7/18/2013	10,361.00	92.73	207.09	9,215.40	-183.69	-947.78	496.84	13.27	MWD	WEATHERFORD	
7/18/2013	10,393.00	94.13	210.20	9,213.48	-160.56	-975.81	481.53	10.64	MWD	WEATHERFORD	
7/18/2013	10,425.00	95.61	214.44	9,210.77	-136.10	-1,002.75	464.49	13.99	MWD	WEATHERFORD	
7/18/2013	10,457.00	95.96	219.03	9,207.54	-110.19	-1,028.25	445.45	14.31	MWD	WEATHERFORD	
7/18/2013	10,489.00	95.04	222.61	9,204.47	-83.00	-1,052.35	424.63	11.50	MWD	WEATHERFORD	
7/18/2013	10,519.00	95.12	227.62	9,201.81	-56.41	-1,073.43	403.47	16.64	MWD	WEATHERFORD	
7/18/2013	10,552.00	93.29	231.54	9,199.39	-26.04	-1,094.77	378.42	13.08	MWD	WEATHERFORD	
7/19/2013	10,583.00	92.87	235.09	9,197.73	3.24	-1,113.26	353.60	11.52	MWD	WEATHERFORD	
7/19/2013	10,615.00	91.75	239.46	9,196.43	34.12	-1,130.54	326.71	14.09	MWD	WEATHERFORD	
7/19/2013	10,646.00	92.10	243.00	9,195.39	64.53	-1,145.45	299.55	11.47	MWD	WEATHERFORD	
7/19/2013	10,677.00	90.35	246.82	9,194.73	95.27	-1,158.59	271.49	13.55	MWD	WEATHERFORD	
7/19/2013	10,709.00	88.46	250.47	9,195.06	127.20	-1,170.24	241.70	12.84	MWD	WEATHERFORD	
7/19/2013	10,741.00	88.04	255.11	9,196.04	159.17	-1,179.70	211.15	14.55	MWD	WEATHERFORD	
7/19/2013	10,772.00	89.93	258.32	9,196.59	190.06	-1,186.82	180.99	12.01	MWD	WEATHERFORD	
7/19/2013	10,804.00	92.38	261.16	9,195.94	221.78	-1,192.52	149.51	11.72	MWD	WEATHERFORD	
7/20/2013	10,836.00	92.59	263.85	9,194.56	253.23	-1,196.69	117.82	8.42	MWD	WEATHERFORD	
7/20/2013	10,930.00	95.33	265.18	9,188.07	344.85	-1,205.65	24.49	3.24	MWD	WEATHERFORD	
7/21/2013	11,025.00	97.72	266.53	9,177.27	436.56	-1,212.47	-69.64	2.88	MWD	WEATHERFORD	
7/21/2013	11,056.00	97.99	267.90	9,173.03	466.22	-1,213.97	-100.32	4.46	MWD	WEATHERFORD	
7/22/2013	11,087.00	98.70	269.19	9,168.53	495.66	-1,214.75	-130.98	4.71	MWD	WEATHERFORD	
7/22/2013	11,119.00	98.50	271.36	9,163.75	525.74	-1,214.59	-162.61	6.73	MWD	WEATHERFORD	
7/22/2013	11,151.00	96.59	272.15	9,159.55	555.63	-1,213.62	-194.32	6.45	MWD	WEATHERFORD	
7/22/2013	11,183.00	94.63	272.02	9,156.42	585.58	-1,212.46	-226.14	6.14	MWD	WEATHERFORD	
7/22/2013	11,215.00	92.94	271.85	9,154.31	615.64	-1,211.38	-258.06	5.31	MWD	WEATHERFORD	
7/22/2013	11,246.00	91.61	270.81	9,153.08	644.91	-1,210.67	-289.02	5.44	MWD	WEATHERFORD	
7/22/2013	11,278.00	90.07	269.58	9,152.61	675.34	-1,210.56	-321.02	6.16	MWD	WEATHERFORD	
7/22/2013	11,310.00	89.16	268.13	9,152.82	706.00	-1,211.20	-353.01	5.35	MWD	WEATHERFORD	
7/22/2013	11,342.00	88.95	266.05	9,153.35	736.92	-1,212.82	-384.96	6.53	MWD	WEATHERFORD	
7/22/2013	11,373.00	88.95	264.83	9,153.92	767.10	-1,215.28	-415.86	3.93	MWD	WEATHERFORD	
7/22/2013	11,405.00	89.86	265.27	9,154.25	798.30	-1,218.05	-447.74	3.16	MWD	WEATHERFORD	
7/22/2013	11,436.00	90.28	265.28	9,154.21	828.49	-1,220.60	-478.63	1.36	MWD	WEATHERFORD	
7/23/2013	11,468.00	90.42	265.22	9,154.02	859.67	-1,223.25	-510.52	0.48	MWD	WEATHERFORD	
7/23/2013	11,500.00	90.28	264.97	9,153.82	890.86	-1,225.99	-542.40	0.90	MWD	WEATHERFORD	
7/23/2013	11,531.00	88.74	264.79	9,154.09	921.11	-1,228.75	-573.28	5.00	MWD	WEATHERFORD	
7/23/2013	11,562.00	88.67	265.52	9,154.79	951.31	-1,231.37	-604.16	2.37	MWD	WEATHERFORD	
7/23/2013	11,594.00	88.95	265.18	9,155.45	982.47	-1,233.96	-636.04	1.38	MWD	WEATHERFORD	
7/23/2013	11,625.00	89.37	265.97	9,155.91	1,012.63	-1,236.35	-666.95	2.89	MWD	WEATHERFORD	
7/23/2013	11,657.00	89.37	266.35	9,156.26	1,043.68	-1,238.50	-698.87	1.19	MWD	WEATHERFORD	
7/23/2013	11,688.00	89.09	266.68	9,156.67	1,073.72	-1,240.38	-729.81	1.40	MWD	WEATHERFORD	
7/23/2013	11,719.00	88.88	266.62	9,157.22	1,103.74	-1,242.19	-760.76	0.70	MWD	WEATHERFORD	
7/23/2013	11,751.00	88.67	266.87	9,157.91	1,134.71	-1,244.01	-792.70	1.02	MWD	WEATHERFORD	
7/23/2013	11,783.00	89.44	266.89	9,158.44	1,165.66	-1,245.75	-824.65	2.41	MWD	WEATHERFORD	
7/23/2013	11,877.00	91.33	268.15	9,157.80	1,256.32	-1,249.82	-918.55	2.42	MWD	WEATHERFORD	
7/23/2013	11,971.00	91.75	268.88	9,155.28	1,346.51	-1,252.25	-1,012.48	0.90	MWD	WEATHERFORD	
7/23/2013	12,065.00	91.47	269.69	9,152.64	1,436.34	-1,253.43	-1,106.44	0.91	MWD	WEATHERFORD	
7/23/2013	12,160.00	90.84	269.57	9,150.72	1,526.97	-1,254.04	-1,201.42	0.68	MWD	WEATHERFORD	
7/24/2013	12,254.00	91.19	268.27	9,149.06	1,616.99	-1,255.81	-1,295.38	1.43	MWD	WEATHERFORD	
7/24/2013	12,349.00	91.12	265.91	9,147.14	1,708.78	-1,260.63	-1,390.23	2.48	MWD	WEATHERFORD	
7/24/2013	12,444.00	90.84	264.31	9,145.52	1,801.37	-1,268.73	-1,484.87	1.71	MWD	WEATHERFORD	
7/24/2013	12,538.00	90.98	264.05	9,144.02	1,893.32	-1,278.26	-1,578.37	0.31	MWD	WEATHERFORD	
7/24/2013	12,633.00	89.44	264.14	9,143.67	1,986.28	-1,288.03	-1,672.87	1.62	MWD	WEATHERFORD	
7/24/2013	12,728.00	88.74	263.75	9,145.18	2,079.29	-1,298.05	-1,767.32	0.84	MWD	WEATHERFORD	
7/24/2013	12,822.00	89.58	264.50	9,146.56	2,171.25	-1,307.67	-1,860.82	1.20	MWD	WEATHERFORD	
7/24/2013	12,919.00	90.21	265.72	9,146.74	2,265.81	-1,315.94	-1,957.46	1.42	MWD	WEATHERFORD	
7/24/2013	13,013.00	90.70	266.78	9,145.99	2,357.00	-1,322.09	-2,051.26	1.24	MWD	WEATHERFORD	



Directional Survey Data

District PERMIAN BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC22 T19S R31E	API/UWI 3001541159	Latitude (°) 32° 38' 40.508" N	Longitude (°) 103° 50' 57.349" W	Ground Elev... 3,541.20
				KB - GL (ft) 20.00
				Orig KB Elev (ft) 3,561.20
				Tubing Head Elevation (ft)

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (1/100ft)	Survey Tool	Survey Company
7/24/2013	13,107.00	90.21	266.24	9,145.25	2,448.09	-1,327.81	-2,145.08	0.78	MWD	WEATHERFORD
7/24/2013	13,201.00	89.44	265.87	9,145.53	2,539.36	-1,334.28	-2,238.86	0.91	MWD	WEATHERFORD
7/24/2013	13,296.00	90.56	265.33	9,145.53	2,631.78	-1,341.57	-2,333.57	1.31	MWD	WEATHERFORD
7/24/2013	13,391.00	91.68	265.00	9,143.68	2,724.34	-1,349.57	-2,428.22	1.23	MWD	WEATHERFORD
7/24/2013	13,486.00	91.89	265.80	9,140.72	2,816.80	-1,357.19	-2,522.86	0.87	MWD	WEATHERFORD
7/24/2013	13,582.00	91.40	265.29	9,137.96	2,910.17	-1,364.64	-2,618.53	0.74	MWD	WEATHERFORD
7/24/2013	13,677.00	91.40	264.98	9,135.64	3,002.74	-1,372.69	-2,713.16	0.33	MWD	WEATHERFORD
7/24/2013	13,772.00	90.77	265.56	9,133.84	3,095.27	-1,380.53	-2,807.82	0.90	MWD	WEATHERFORD
7/24/2013	13,866.00	91.19	265.67	9,132.23	3,186.70	-1,387.71	-2,901.53	0.46	MWD	WEATHERFORD
7/24/2013	13,962.00	93.01	266.11	9,128.72	3,279.91	-1,394.59	-2,997.22	1.95	MWD	WEATHERFORD
7/24/2013	14,056.00	92.93	265.42	9,123.85	3,371.18	-1,401.52	-3,090.83	0.74	MWD	WEATHERFORD
7/24/2013	14,151.00	92.66	264.30	9,119.21	3,463.76	-1,410.02	-3,185.34	1.21	MWD	WEATHERFORD
7/24/2013	14,248.00	92.03	263.32	9,115.24	3,558.70	-1,420.47	-3,281.69	1.20	MWD	WEATHERFORD
7/24/2013	14,342.00	93.08	263.85	9,111.05	3,650.77	-1,430.96	-3,375.01	1.25	MWD	WEATHERFORD
7/24/2013	14,437.00	93.50	264.88	9,105.60	3,743.49	-1,440.28	-3,469.39	1.17	MWD	WEATHERFORD
7/24/2013	14,532.00	91.05	266.73	9,101.83	3,835.74	-1,447.22	-3,564.05	3.23	MWD	WEATHERFORD
7/24/2013	14,626.00	91.05	266.24	9,100.11	3,926.83	-1,452.98	-3,657.86	0.52	MWD	WEATHERFORD
7/24/2013	14,721.00	91.26	266.10	9,098.19	4,019.01	-1,459.32	-3,752.63	0.27	MWD	WEATHERFORD
7/24/2013	14,816.00	91.12	264.46	9,096.22	4,111.53	-1,467.14	-3,847.28	1.73	MWD	WEATHERFORD
7/24/2013	14,910.00	90.98	264.17	9,094.50	4,203.43	-1,476.45	-3,940.80	0.34	MWD	WEATHERFORD
7/24/2013	15,005.00	91.12	265.35	9,092.76	4,296.14	-1,485.12	-4,035.39	1.25	MWD	WEATHERFORD
7/29/2013	15,099.00	91.12	266.11	9,090.92	4,387.52	-1,492.12	-4,129.11	0.81	MWD	WEATHERFORD
7/29/2013	15,194.00	90.14	266.99	9,089.87	4,479.56	-1,497.84	-4,223.93	1.39	MWD	WEATHERFORD
7/29/2013	15,288.00	90.21	267.57	9,089.59	4,570.33	-1,502.30	-4,317.82	0.62	MWD	WEATHERFORD
7/29/2013	15,383.00	90.35	267.76	9,089.12	4,661.90	-1,506.17	-4,412.74	0.25	MWD	WEATHERFORD
7/29/2013	15,477.00	89.30	267.55	9,089.41	4,752.51	-1,510.02	-4,506.66	1.14	MWD	WEATHERFORD
7/29/2013	15,572.00	88.46	267.34	9,091.27	4,844.15	-1,514.25	-4,601.55	0.91	MWD	WEATHERFORD
7/29/2013	15,585.00	88.32	267.08	9,091.63	4,856.71	-1,514.88	-4,614.53	2.27	MWD	WEATHERFORD
7/29/2013	15,660.00	88.00	267.00	9,094.04	4,929.17	-1,518.75	-4,689.39	0.44	BIT	WEATHERFORD