



I Chris Tallant certify that I am employed by Vaughn Energy Services. That I did on the day(s) of 10/30/12 through 10/30/12 conduct or supervise the taking of a Rate Gyro survey from a depth of 0 feet to a depth of 686 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the at the request of EOG Resources for the University 52S Well # #0905H API # 42-105-41595 in Crockett County, Texas ; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Vaughn Energy Services

Chris Tallant
Service Technician
Vaughn Energy Services



Company: EOG Resources, Inc.
 Lease/Well: University 52S / 0905H
 Location: 11 Miles SE from Barnhart
 Rig Name: Biffle
 State/County: Texas / Crockett
 Latitude: 31.27, Longitude: -100.87
 GRID North is 0.28 Degrees West of True North
 VS-Azi: 0.00 Degrees



Depth Reference : Ground Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...lty 52s #0905h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/8/2012 / 11:13

Vaughn Energy Services

Gardendale, Texas

432-563-8444

Surveyor: Chris Tallant

University 52S 0905H / API 42-106-41595

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	****
50.00	0.09	87.32	50.00	0.00	0.04	0.00	0.04	87.32	0.19
100.00	0.10	8.61	100.00	0.06	0.09	0.05	0.10	61.89	0.26
150.00	0.31	346.19	150.00	0.22	0.06	0.22	0.23	15.18	0.44
200.00	0.53	6.31	200.00	0.58	0.05	0.58	0.58	5.20	0.52
250.00	0.76	10.37	250.00	1.14	0.14	1.14	1.15	6.92	0.47
300.00	0.84	346.72	299.99	1.82	0.11	1.82	1.82	3.56	0.68
350.00	0.71	345.00	349.99	2.48	-0.05	2.48	2.48	358.81	0.27
400.00	0.79	343.88	399.98	3.11	-0.23	3.11	3.12	355.82	0.16
450.00	0.78	340.38	449.98	3.76	-0.44	3.76	3.78	353.37	0.10
500.00	0.84	341.45	499.97	4.43	-0.67	4.43	4.48	351.42	0.12
550.00	0.98	340.45	549.97	5.18	-0.93	5.18	5.26	349.84	0.29
600.00	0.80	346.91	599.96	5.93	-1.15	5.93	6.04	349.01	0.41
650.00	0.89	340.95	649.95	6.63	-1.36	6.63	6.77	348.44	0.24
686.00	1.73	357.87	685.94	7.44	-1.47	7.44	7.58	348.84	2.55



Scientific Drilling

Scientific Drilling International, Inc.

2034 Trade Drive • Midland, Texas 79706

P.O. Box 9699 • Midland, Texas 79708

Tel: 432-689-5600 • Fax: 432-697-0324

State of Texas
County of Midland

I, TODD BALDWIN certify that; I am employed by Scientific Drilling International; that I did on the day(s) of 12/24/2012 through 12/28/2012 conduct or supervise the taking of a MWD survey from a depth of 804 feet to a depth of 13765 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Scientific Drilling International; that I am authorized and qualified to make this report; that this survey was conducted at the request of EOG RESOURCES for the UNIVERSITY 52S #0905H WELL, API# 42-105-41595 in CROCKETT County, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Scientific Drilling International.

Field Technician



EOG Resources

Crockett County, TX (NAD27 TC)

University 52 S

#0905H

OH - Job #32H12121539

Survey: MWD

SDI Standard Survey Report

18 January, 2013



Company:	EOG Resources	Local Co-ordinate Reference:	Well #0905H
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	RF @ 2459.00usft (Cactus #102)
Site:	University 52 S	MD Reference:	RF @ 2459.00usft (Cactus #102)
Well:	#0905H	North Reference:	Grid
Wellbore:	OH - Job #32H12121539	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Project	Crockett County, TX (NAD27 TC)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site		University 52 S				
Site Position:		Northing:	509,503.00 usft	Latitude:	31° 3' 57.181 N	
From:	Map	Easting:	1,790,503.00 usft	Longitude:	101° 0' 8.890 W	
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.34 °

Well	#0905H					
Well Position	+N/-S	0.00 usft	Northing:	509,653.00 usft	Latitude:	31° 3' 58.837 N
	+E/-W	0.00 usft	Easting:	1,793,398.00 usft	Longitude:	100° 59' 35.613 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,432.00 usft

Wellbore	OH - Job #32H12121539				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	12/24/12			

Design	OH				
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	352.93	

Survey Program	Date	01/18/13			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
77.00	713.00	VES Gyro (OH - Job #32H12121539)	UNKNOWN	Unknown survey	
804.00	13,822.00	MWD (OH - Job #32H12121539)	MWD	MWD - Standard ISCWSA	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
713.00	1.73	357.87	712.94	7.44	-1.45	348.97	7.58
804.00	0.70	344.16	803.92	9.34	-1.65	349.97	9.49
987.00	0.35	31.18	986.92	10.90	-1.67	351.30	11.02
1,171.00	0.62	37.77	1,170.91	12.17	-0.77	356.39	12.19
1,361.00	0.62	55.79	1,360.90	13.56	0.71	3.01	13.57
1,551.00	0.62	60.36	1,550.89	14.64	2.46	9.52	14.85
1,740.00	0.70	65.28	1,739.87	15.63	4.39	15.70	16.24
1,929.00	0.88	64.31	1,928.86	16.74	6.75	21.96	18.05
2,118.00	0.88	99.73	2,117.84	17.13	9.49	28.99	19.58
2,308.00	1.49	86.46	2,307.79	17.03	13.39	38.18	21.67
2,402.00	1.85	81.63	2,401.75	17.33	16.11	42.92	23.66

Company:	EOG Resources	Local Co-ordinate Reference:	Well #0905H
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	RF @ 2459.00usft (Cactus #102)
Site:	University 52 S	MD Reference:	RF @ 2459.00usft (Cactus #102)
Well:	#0905H	North Reference:	Grid
Wellbore:	OH - Job #32H12121539	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
2,498.00	2.11	55.08	2,497.70	18.57	19.10	45.81	26.63
2,593.00	2.02	16.68	2,592.64	21.17	21.01	44.78	29.83
2,688.00	3.61	351.19	2,687.53	25.73	21.03	39.26	33.23
2,783.00	2.37	327.81	2,782.40	30.35	19.53	32.76	36.09
2,878.00	1.49	329.74	2,877.34	33.08	17.86	28.37	37.59
2,972.00	2.02	332.29	2,971.30	35.60	16.47	24.83	39.23
3,066.00	1.06	324.28	3,065.27	37.77	15.20	21.91	40.72
3,161.00	0.88	319.28	3,160.25	39.04	14.21	20.00	41.54
3,256.00	1.85	288.70	3,255.22	40.08	12.28	17.03	41.92
3,350.00	1.32	274.28	3,349.19	40.65	9.76	13.50	41.81
3,444.00	1.76	278.06	3,443.15	40.93	7.25	10.05	41.57
3,539.00	1.14	274.63	3,538.12	41.22	4.87	6.73	41.50
3,633.00	1.41	274.72	3,632.10	41.39	2.78	3.84	41.48
3,727.00	2.29	254.95	3,726.05	40.99	-0.19	359.74	40.99
3,822.00	2.11	250.90	3,820.98	39.93	-3.67	354.75	40.10
3,916.00	1.32	238.25	3,914.94	38.79	-6.23	350.88	39.29
4,012.00	1.41	214.61	4,010.91	37.24	-7.84	348.11	38.05
4,106.00	1.14	212.23	4,104.89	35.50	-8.99	345.78	36.62
4,200.00	1.41	271.36	4,198.87	34.73	-10.65	342.96	36.33
4,295.00	2.81	300.12	4,293.80	35.93	-13.83	338.94	38.50
4,389.00	2.29	290.19	4,387.71	37.73	-17.59	335.01	41.63
4,484.00	2.29	281.67	4,482.64	38.77	-21.23	331.30	44.20
4,578.00	2.99	278.59	4,576.54	39.52	-25.49	327.18	47.03
4,673.00	2.37	270.59	4,671.43	39.91	-29.90	323.15	49.87
4,768.00	2.64	272.79	4,766.34	40.04	-34.05	319.62	52.56
4,862.00	4.04	264.79	4,860.18	39.84	-39.51	315.24	56.11
4,957.00	3.25	283.16	4,954.99	40.15	-45.47	311.44	60.66
5,052.00	3.08	280.96	5,049.84	41.25	-50.60	309.19	65.28
5,147.00	2.29	282.46	5,144.74	42.14	-54.96	307.48	69.25
5,241.00	2.55	303.20	5,238.66	43.69	-58.54	306.74	73.05
5,336.00	2.02	300.12	5,333.58	45.69	-61.76	306.50	76.82
5,412.00	4.57	310.05	5,409.45	48.31	-65.23	306.52	81.17
5,444.00	8.00	315.06	5,441.25	50.71	-67.78	306.80	84.65
5,475.00	12.13	318.23	5,471.77	54.67	-71.48	307.41	89.99
5,507.00	16.71	319.99	5,502.75	60.70	-76.68	308.37	97.80
5,538.00	20.66	319.55	5,532.11	68.28	-83.09	309.41	107.55
5,569.00	24.71	318.76	5,560.71	77.32	-90.92	310.38	119.35
5,601.00	28.93	317.79	5,589.26	88.08	-100.53	311.22	133.66
5,632.00	33.24	317.08	5,615.80	99.86	-111.36	311.89	149.58
5,663.00	37.37	316.91	5,641.10	112.96	-123.58	312.43	167.43
5,695.00	41.15	317.44	5,665.87	127.81	-137.34	312.94	187.61
5,727.00	45.20	317.61	5,689.20	143.96	-152.12	313.42	209.44
5,758.00	48.89	316.38	5,710.32	160.54	-167.60	313.77	232.08
5,790.00	52.94	314.89	5,730.49	178.29	-184.97	313.95	256.90

Company:	EOG Resources	Local Co-ordinate Reference:	Well #0905H
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	RF @ 2459.00usft (Cactus #102)
Site:	University 52 S	MD Reference:	RF @ 2459.00usft (Cactus #102)
Well:	#0905H	North Reference:	Grid
Wellbore:	OH - Job #32H12121539	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,821.00	56.54	314.01	5,748.39	196.01	-203.03	313.99	282.21
5,853.00	58.48	313.83	5,765.58	214.73	-222.48	313.99	309.20
5,884.00	60.06	314.18	5,781.42	233.24	-241.64	313.99	335.85
5,916.00	62.08	314.36	5,796.89	252.79	-261.70	314.01	363.85
5,947.00	64.05	314.99	5,810.94	272.22	-281.35	314.06	391.49
5,979.00	65.60	315.50	5,824.55	292.79	-301.74	314.14	420.44
6,010.00	67.45	315.59	5,836.90	313.09	-321.65	314.23	448.87
6,042.00	69.47	315.15	5,848.64	334.27	-342.56	314.30	478.62
6,073.00	71.67	314.63	5,858.96	354.90	-363.27	314.33	507.85
6,105.00	74.04	315.06	5,868.39	376.46	-384.95	314.36	538.43
6,136.00	76.50	315.59	5,876.27	397.78	-406.02	314.41	568.40
6,168.00	78.79	315.86	5,883.12	420.16	-427.84	314.48	599.65
6,199.00	81.34	316.29	5,888.47	442.15	-449.03	314.56	630.17
6,230.00	83.36	316.73	5,892.59	464.44	-470.17	314.65	660.88
6,262.00	84.86	317.35	5,895.88	487.73	-491.86	314.76	692.68
6,322.00	87.85	319.55	5,899.69	532.54	-531.57	315.05	752.44
6,417.00	88.29	322.80	5,902.89	606.50	-591.09	315.74	846.89
6,512.00	88.72	326.14	5,905.37	683.77	-646.27	316.62	940.85
6,606.00	87.58	326.40	5,908.40	761.91	-698.43	317.49	1,033.59
6,700.00	88.29	329.48	5,911.79	841.51	-748.29	318.36	1,126.09
6,795.00	90.48	333.78	5,912.81	925.07	-793.41	319.38	1,218.71
6,890.00	89.60	337.30	5,912.75	1,011.53	-832.74	320.54	1,310.21
6,985.00	89.96	339.85	5,913.11	1,099.96	-867.44	321.74	1,400.84
7,080.00	89.78	343.72	5,913.33	1,190.18	-897.13	322.99	1,490.43
7,174.00	90.31	347.06	5,913.25	1,281.13	-920.84	324.29	1,577.73
7,268.00	90.66	348.02	5,912.46	1,372.91	-941.12	325.57	1,664.51
7,362.00	91.89	351.19	5,910.36	1,465.33	-958.07	326.82	1,750.74
7,457.00	90.92	355.58	5,908.03	1,559.64	-969.01	328.15	1,836.16
7,551.00	89.16	358.39	5,907.97	1,653.50	-973.95	329.50	1,919.02
7,646.00	89.78	358.31	5,908.85	1,748.46	-976.69	330.81	2,002.75
7,741.00	89.87	359.01	5,909.14	1,843.43	-978.91	332.03	2,087.22
7,835.00	90.66	1.03	5,908.70	1,937.42	-978.88	333.19	2,170.67
7,930.00	91.19	0.15	5,907.17	2,032.40	-977.90	334.31	2,255.43
8,025.00	90.31	357.95	5,905.93	2,127.38	-979.48	335.28	2,342.03
8,119.00	88.29	353.74	5,907.07	2,221.10	-986.28	336.06	2,430.23
8,214.00	90.22	356.20	5,908.31	2,315.71	-994.61	336.76	2,520.27
8,308.00	89.60	356.20	5,908.46	2,409.50	-1,000.84	337.44	2,609.10
8,403.00	90.84	358.39	5,908.09	2,504.39	-1,005.32	338.13	2,698.64
8,497.00	91.10	0.68	5,906.50	2,598.37	-1,006.09	338.83	2,786.34
8,592.00	90.92	359.71	5,904.83	2,693.35	-1,005.76	339.52	2,875.01
8,684.00	91.33	0.15	5,903.02	2,785.33	-1,005.87	340.14	2,961.39
8,777.00	93.91	1.21	5,898.77	2,878.22	-1,004.77	340.76	3,048.56
8,870.00	91.45	1.21	5,894.42	2,971.09	-1,002.81	341.35	3,135.76
8,962.00	90.22	1.91	5,893.08	3,063.04	-1,000.31	341.91	3,222.24
9,055.00	89.08	3.76	5,893.65	3,155.92	-995.71	342.49	3,309.27

Company:	EOG Resources	Local Co-ordinate Reference:	Well #0905H
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	RF @ 2459.00usft (Cactus #102)
Site:	University 52 S	MD Reference:	RF @ 2459.00usft (Cactus #102)
Well:	#0905H	North Reference:	Grid
Wellbore:	OH - Job #32H12121539	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
9,146.00	89.87	4.19	5,894.48	3,246.70	-989.40	343.05	3,394.11
9,239.00	89.43	2.96	5,895.05	3,339.51	-983.60	343.59	3,481.35
9,330.00	89.43	3.05	5,895.96	3,430.38	-978.83	344.07	3,567.30
9,421.00	86.97	2.17	5,898.81	3,521.24	-974.69	344.53	3,653.64
9,513.00	86.79	1.91	5,903.82	3,613.04	-971.42	344.95	3,741.35
9,606.00	87.05	0.94	5,908.82	3,705.88	-969.11	345.34	3,830.50
9,697.00	87.23	0.50	5,913.36	3,796.76	-967.97	345.70	3,918.20
9,792.00	87.85	0.59	5,917.44	3,891.66	-967.06	346.04	4,010.02
9,886.00	87.32	359.80	5,921.40	3,985.58	-966.74	346.37	4,101.15
9,981.00	87.85	359.54	5,925.40	4,080.49	-967.29	346.66	4,193.57
10,075.00	88.90	359.54	5,928.07	4,174.45	-968.05	346.94	4,285.22
10,170.00	88.99	358.92	5,929.82	4,269.42	-969.32	347.21	4,378.08
10,265.00	90.40	359.36	5,930.32	4,364.41	-970.75	347.46	4,471.07
10,359.00	90.57	358.66	5,929.53	4,458.39	-972.37	347.70	4,563.20
10,454.00	91.01	358.04	5,928.22	4,553.34	-975.11	347.91	4,656.58
10,548.00	86.53	358.39	5,930.23	4,647.25	-978.03	348.12	4,749.05
10,643.00	86.79	358.83	5,935.77	4,742.06	-980.33	348.32	4,842.34
10,738.00	89.62	0.06	5,938.74	4,837.00	-981.25	348.53	4,935.53
10,832.00	89.78	0.15	5,939.24	4,931.00	-981.08	348.75	5,027.65
10,927.00	89.87	359.45	5,939.53	5,026.00	-981.41	348.95	5,120.92
11,022.00	90.57	359.62	5,939.16	5,120.99	-982.18	349.14	5,214.33
11,117.00	88.55	0.06	5,939.89	5,215.98	-982.45	349.33	5,307.70
11,211.00	88.55	359.80	5,942.27	5,309.95	-982.56	349.52	5,400.10
11,305.00	88.90	359.98	5,944.36	5,403.93	-982.74	349.69	5,492.56
11,400.00	89.08	359.80	5,946.03	5,498.91	-982.93	349.87	5,586.07
11,495.00	90.22	0.50	5,946.62	5,593.91	-982.68	350.04	5,679.57
11,552.00	90.22	0.50	5,946.40	5,650.91	-982.18	350.14	5,735.63
11,589.00	90.66	359.89	5,946.11	5,687.91	-982.05	350.20	5,772.06
11,684.00	91.10	359.89	5,944.65	5,782.89	-982.24	350.36	5,865.72
11,779.00	91.19	0.94	5,942.75	5,877.87	-981.55	350.52	5,959.26
11,873.00	89.34	0.94	5,942.32	5,971.85	-980.01	350.68	6,051.73
11,968.00	89.87	1.03	5,942.97	6,066.84	-978.37	350.84	6,145.22
12,062.00	90.75	1.47	5,942.47	6,160.81	-976.32	351.00	6,237.69
12,157.00	90.40	1.82	5,941.51	6,255.77	-973.60	351.15	6,331.08
12,252.00	89.08	1.73	5,941.94	6,350.72	-970.65	351.31	6,424.47
12,347.00	89.43	1.73	5,943.18	6,445.67	-967.79	351.46	6,517.92
12,441.00	89.87	2.26	5,943.75	6,539.61	-964.51	351.61	6,610.35
12,536.00	88.72	1.29	5,944.92	6,634.55	-961.57	351.75	6,703.87
12,631.00	88.37	0.15	5,947.33	6,729.51	-960.38	351.88	6,797.70
12,725.00	88.46	359.45	5,949.93	6,823.48	-960.71	351.99	6,890.78
12,820.00	88.90	359.27	5,952.12	6,918.45	-961.77	352.09	6,984.98
12,915.00	89.08	0.06	5,953.80	7,013.43	-962.32	352.19	7,079.14
13,009.00	89.52	0.24	5,954.95	7,107.42	-962.08	352.29	7,172.24
13,104.00	90.31	1.03	5,955.09	7,202.41	-961.02	352.40	7,266.25

Company:	EOG Resources	Local Co-ordinate Reference:	Well #0905H
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	RF @ 2459.00usft (Cactus #102)
Site:	University 52 S	MD Reference:	RF @ 2459.00usft (Cactus #102)
Well:	#0905H	North Reference:	Grid
Wellbore:	OH - Job #32H12121539	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
13,199.00	91.54	1.29	5,953.55	7,297.38	-959.10	352.51	7,360.14
13,293.00	90.31	359.80	5,952.04	7,391.36	-958.21	352.61	7,453.21
13,387.00	89.16	358.83	5,952.47	7,485.35	-959.33	352.70	7,546.57
13,482.00	90.66	0.06	5,952.62	7,580.34	-960.25	352.78	7,640.92
13,576.00	91.19	359.71	5,951.10	7,674.33	-960.44	352.87	7,734.19
13,671.00	89.78	358.83	5,950.30	7,769.31	-961.65	352.94	7,828.60
13,765.00	90.48	359.54	5,950.08	7,863.30	-962.99	353.02	7,922.05
Last MWD Survey - PBHL-Univ 52S #0905H							
13,822.00	90.48	359.54	5,949.61	7,920.30	-963.44	353.06	7,978.68
Projection to Bit							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13,765.00	5,950.08	7,863.30	-962.99	Last MWD Survey
13,822.00	5,949.61	7,920.30	-963.44	Projection to Bit



Azimuths to Grid North
True North: 0.34°
Magnetic North: 6.48°

Magnetic Field
Strength: 48016.4snT
Dip Angle: 59.44°
Date: 12/24/2012
Model: BGGM2012

University 52 S#0905H
Crockett County, TX (NAD27 TC)
Northing: 509653.00
Easting: 1793398.00
Plan #4 - 8-3/4" Hole

WELL DETAILS:					
		Ground Level:	2432.00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	509653.00	1793398.00	31° 3' 58.837 N	100° 59' 35.613 W

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect Target
1	5336.00	2.02	300.12	5333.58	45.69	-61.76	0.00	0.00	52.94
2	5422.00	2.02	300.12	5419.53	47.21	-64.38	0.00	0.00	54.77
3	6182.13	89.50	314.45	5900.00	389.39	-419.13	11.52	14.34	438.00
4	7705.56	89.50	0.15	5914.01	1757.81	-991.49	3.00	90.21	1866.45
5	8112.00	89.50	0.15	5967.00	7864.00	-975.00	0.00	0.00	7924.21

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL	5967.00	7864.00	-975.00	517517.00	1792423.00

SITE DETAILS: University 52 S
Site Centre Northing: 509503.00
Easting: 1790503.00

Positional Uncertainty: 0.00
Convergence: -0.34
Local North: Grid

CASING DETAILS			
TVD	MD	Name	Size
772.00		9 5/8"	9-5/8"

PROJECT DETAILS: Crockett County, TX (NAD27 TC)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Texas Central 4203

System Datum: Mean Sea Level

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: Texas Central 4203

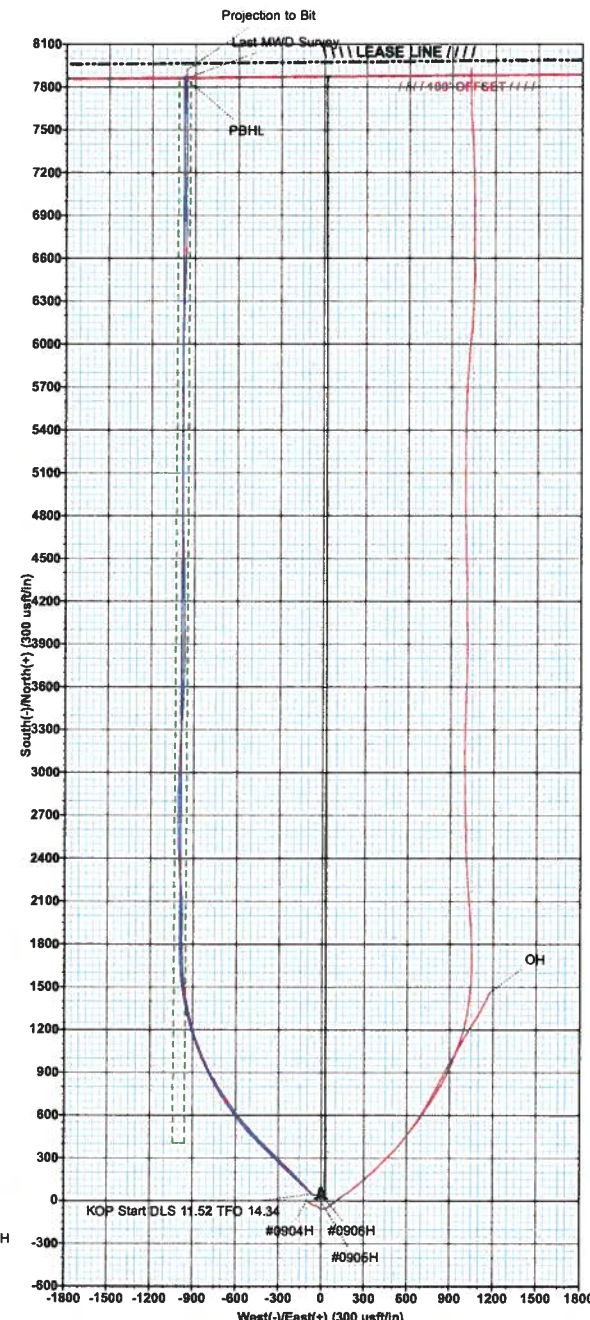
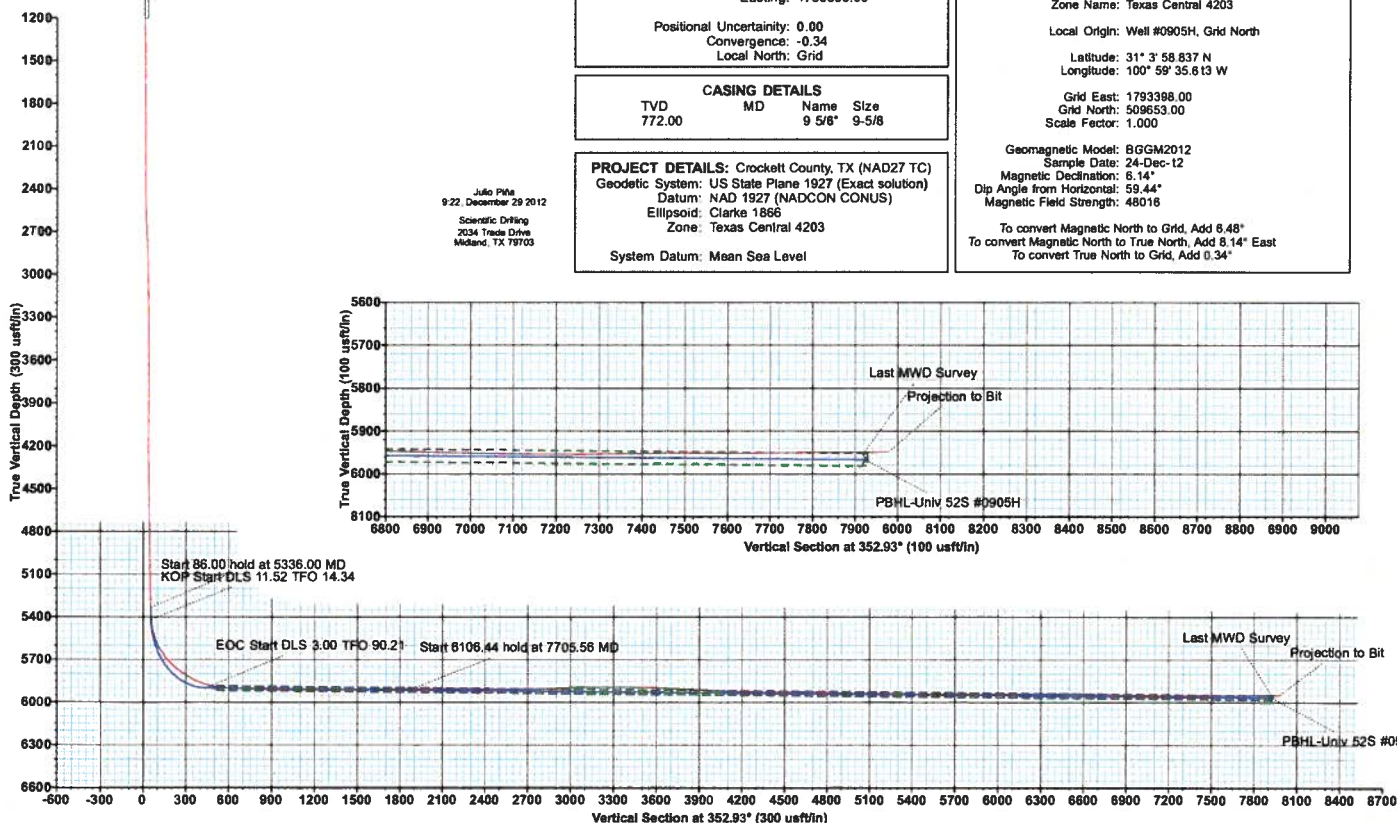
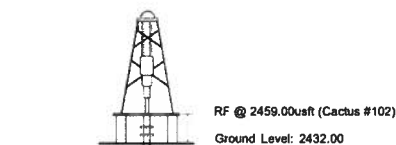
Local Origin: Well #0905H, Grid North

Latitude: 31° 3' 58.837 N
Longitude: 100° 59' 35.613 W

Grid East: 1793398.00
Grid North: 509653.00
Scale Factor: 1.000

Geomagnetic Model: BGGM2012
Sample Date: 24-Dec-12
Magnetic Declination: 6.14°
Dip Angle from Horizontal: 59.44°
Magnetic Field Strength: 48016

To convert Magnetic North to Grid, Add 6.48°
To convert Magnetic North to True North, Add 8.14° East
To convert True North to Grid, Add 0.34°





LEASE HOLE & WELL NO.:
UNIVERSITY 52S #0905H

TOPOGRAPHY & VEGETATION:
NATURAL MESQUITE PASTURE

NEAREST TOWN IN COUNTY:
±11.0 MILES SOUTHEAST OF BARNHART, TEXAS

DESCRIPTION:
**SRL: SECTION 9, BLOCK 62, UNIVERSITY LAND SURVEY
CROCKETT COUNTY, TEXAS
TBL: SECTION 2, BLOCK 52, UNIVERSITY LAND SURVEY
IRION COUNTY, TEXAS**

This location has been very carefully stated on the ground according to the best official survey records, maps, and other data available to us. This plat does not in any way represent a "Boundary Survey", and does not comply with current I.S.P.S. Minimum Standards of Procedures for Boundary Surveys.

CERTIFICATION:



William J. Keating
Texas Reg. No. **5041**

William J. Keating, a Registered Professional Land Surveyor and an authorized agent of Topographic Land Surveys, do hereby certify that the above described well location was surveyed and placed on the ground as shown herein. This plat is for Texas Technical Commission recording only.

TOPOGRAPHIC

SURVEYS • MAPS • GIS • GPS

5525 S. 90 STREET • MIDLAND, TEXAS 79705
TELEPHONE: (409) 682-1663 • (800) 787-1663 • FAX: (409) 682-1743



W. SMITH

G.C. & S.F.

IRION CO.
CROCKETT CO.

Surface Hole Location:
2250' FSL & 1300' FEL (SEC. 9, CROCKETT CO.)
SRL Ground Elevation: 2432'
X = 1793358 Y = 509663
NAD 83 TX-C ZONE
LAT: N 31.0683443 LONG: W 100.9932249
X = 2096663 Y = 10352233
LAT: N 31.0683118 LONG: W 100.9936117
Terminus Hole Location:
100' FSL & 1300' FEL (SEC. 2, IRION CO.)
X = 1793419 Y = 517526
LAT: N 31.0679906 LONG: W 100.9933083
NAD 83 TX-C ZONE
X = 2096666 Y = 10360108
LAT: N 31.0681574 LONG: W 100.9936950

All Coordinates are in NAD 83 TX-C Zone unless otherwise noted.

LEGEND:

—X— Fence
—E— Powerline
—W— Water Line
—P— Pipeline
== == == Leased Road

ORIGINAL DOC. SIZE: 8.5"x14"

SCALE: 1" = 2000'
DATE: SEPTEMBER 25, 2012
COGO: 518-124590
LO_UNIVERSITY52S_0905H
DRAWN BY: MJN:10.2.12

VES LEGEND	
	Surface Location Highlight
	Bottom Hole Location
	° of SL Direction Line
	North Indicator
	Bottom Hole Text Box

VES Bottom Hole Location is 7.58' @ 348.84° of Surface Location

MD / FT	686.00	686.94	TVD / FT
North / FT	South / FT	East / FT	West / FT
7.44			1.47



VES Bottom Hole Location is 7.58' @ 348.84° of Surface Location

RESOURCES, INC.
7732.6 ACRES (CALLED)

University 52S"

K 52
ITY LAND