

800508

VES Bottom Hole Location is 52.74' @ 174.04° of Surface Location

BLOCK 11 UNIVERSITY LAND SURVEY ANDREWS COUNTY, TEXAS

DRIVING DIRECTIONS

From the intersection of F.M. Highway 181 and C.R. 7000 (Coyote Creek) approximately 18 miles Southwest of Andrews, Texas. Go North on Highway 181 for 2.1 miles to a lease road, turn West (left) on lease road and go approximately 0.1 miles to lease road, turn West (left) 0.1 miles to a lease road, turn North (right) and go 0.7 mile to a point approximately 500 feet West of location.

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

LEGEND

- - Denotes Proposed Well Location
- - Denotes Producing Well Location
- - Denotes Calculated Corner this Survey
- - Denotes Lease Line

Date Surveyed: February 28, 2012
Weather: Warm & Windy

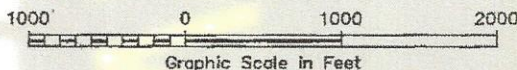
The University UA #5 is located approximately 16 miles Southwest of Andrews, Texas.

NOTE:

- Plane Coordinates and Bearings shown hereon are Lambert Grid and Conform to the "Texas Coordinate System", Texas North Central Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.
- Geodetic Coordinate unless otherwise shown hereon references the North American Datum of 1927, (Clarke Spheroid of 1866). Reference Station - "WALKER" (CU0800)
- See information filed in the office of this Surveyor which describes the reconstruction of this Section.

Geodetic Coordinate (NAD 83)
Latitude = 32°08'43.37" N
Longitude = 102°44'20.98" W

Geodetic Coordinate
Latitude = 32°08'42.97" N
Longitude = 102°44'19.41" W



I HEREBY CERTIFY THAT THIS SURVEY WAS MADE FROM NOTES TAKEN IN THE FIELD AND A BONA FIDE SURVEY MADE UNDER MY SUPERVISION.

J. FRANK NEWMAN
MAON McDONALD
R. CRAIG ALDERMAN
TEXAS RPLS AND 5011
TEXAS RPLS AND 4388
TEXAS RPLS AND 5285

WEST COMPANY
of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 667-0865 - (432) 667-0868 FAX

ConocoPhillips

Location of the
UNIVERSITY UA #5
1270' FNL & 1195' FEL
Section 24, Block 11
University Land Survey
Andrews County, Texas

Drawn By: SJA	Date: April 3, 2012
Scale: 1" = 1000'	Field Book: 546 / 1-4
Revision Date:	Quadrangle: North Cowden NW
W.O. No: 2012-0416	Dwg. No.: L-2012-0416

VES Bottom Hole Location is 52.74' @ 174.04° of Surface Location

MD / FT	8,742.00		8,741.40	TVD / FT
North / FT	South / FT		East / FT	West / FT
	52.46		5.47	

VES SURVEY INTERNATIONAL



Company: ConocoPhillips
Lease/Well: University UA/5
Location: 16 Miles SW dir from Andrews
Rig Name: GE Crane
State/County: Texas/Andrews
VS-Azi: 0.00 Degrees
Latitude: 32.14538, Longitude: -102.73916
Grid North = True North +2.86 degs (NAD 83)
Grid Correction Applied = +2.86 degs



Depth Reference : 14 Foot

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: university ua 5_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/28/2015 / 09:34

VES Survey International

Midland, TX

(432) 563-5444

Surveyor: Gene Heiss

University UA 5 / API 42-003-47198

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	0.44	38.28	100.00	0.30	0.24	0.30	0.38	38.28	0.44
200.00	0.29	64.51	200.00	0.71	0.70	0.71	1.00	44.69	0.22
300.00	0.63	83.48	299.99	0.88	1.48	0.88	1.72	59.17	0.37
400.00	0.54	97.90	399.99	0.88	2.49	0.88	2.64	70.53	0.17
500.00	0.24	104.03	499.99	0.76	3.16	0.76	3.25	76.42	0.30
600.00	0.36	122.27	599.98	0.54	3.64	0.54	3.68	81.51	0.15
700.00	0.41	133.05	699.98	0.13	4.16	0.13	4.16	88.19	0.09
800.00	0.05	149.82	799.98	-0.15	4.44	-0.15	4.45	91.93	0.36
900.00	0.28	160.77	899.98	-0.42	4.55	-0.42	4.57	95.28	0.23
1000.00	0.20	169.69	999.98	-0.83	4.66	-0.83	4.73	100.06	0.09
1100.00	0.24	286.88	1099.98	-0.94	4.49	-0.94	4.59	101.82	0.38
1200.00	0.34	264.25	1199.98	-0.91	3.99	-0.91	4.10	102.82	0.15
1300.00	0.17	343.32	1299.98	-0.80	3.65	-0.80	3.74	102.31	0.35
1400.00	0.23	290.63	1399.98	-0.58	3.42	-0.58	3.47	99.68	0.19
1500.00	0.49	182.38	1499.98	-0.94	3.21	-0.94	3.34	106.35	0.61
1600.00	0.25	97.60	1599.97	-1.40	3.41	-1.40	3.68	112.36	0.53

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
1700.00	0.23	66.51	1699.97	-1.35	3.80	-1.35	4.03	109.56	0.13
1800.00	0.21	29.03	1799.97	-1.11	4.07	-1.11	4.22	105.23	0.14
1900.00	0.25	16.84	1899.97	-0.74	4.23	-0.74	4.29	99.89	0.06
2000.00	0.22	59.62	1999.97	-0.43	4.45	-0.43	4.47	95.55	0.17
2100.00	0.60	68.83	2099.97	-0.15	5.11	-0.15	5.11	91.65	0.39
2200.00	0.20	91.86	2199.97	0.04	5.77	0.04	5.77	89.64	0.43
2300.00	0.52	96.63	2299.96	-0.02	6.39	-0.02	6.39	90.19	0.32
2400.00	0.86	91.34	2399.96	-0.09	7.59	-0.09	7.59	90.69	0.35
2500.00	1.19	87.30	2499.94	-0.06	9.38	-0.06	9.38	90.36	0.34
2600.00	1.33	87.06	2599.92	0.05	11.57	0.05	11.57	89.76	0.13
2700.00	1.33	86.21	2699.89	0.18	13.88	0.18	13.89	89.24	0.02
2800.00	0.71	99.23	2799.87	0.16	15.65	0.16	15.65	89.41	0.65
2900.00	0.33	72.41	2899.87	0.15	16.54	0.15	16.54	89.49	0.45
3000.00	0.19	54.59	2999.87	0.33	16.94	0.33	16.94	88.89	0.16
3100.00	0.35	6.13	3099.87	0.72	17.11	0.72	17.12	87.57	0.26
3200.00	0.19	355.49	3199.87	1.19	17.13	1.19	17.17	86.02	0.16
3300.00	0.35	324.21	3299.86	1.60	16.94	1.60	17.01	84.59	0.21
3400.00	0.29	248.12	3399.86	1.75	16.52	1.75	16.62	83.94	0.40
3500.00	0.26	138.94	3499.86	1.49	16.44	1.49	16.51	84.83	0.45
3600.00	0.34	165.58	3599.86	1.03	16.66	1.03	16.69	86.47	0.16
3700.00	0.25	192.85	3699.86	0.53	16.69	0.53	16.70	88.18	0.17
3800.00	0.22	259.62	3799.86	0.28	16.45	0.28	16.45	89.01	0.26
3900.00	0.27	326.37	3899.86	0.45	16.13	0.45	16.13	88.42	0.27
4000.00	0.13	3.25	3999.86	0.75	16.00	0.75	16.02	87.31	0.19
4100.00	0.15	49.95	4099.86	0.95	16.11	0.95	16.14	86.63	0.11
4200.00	0.10	63.73	4199.86	1.07	16.29	1.07	16.33	86.23	0.06
4300.00	0.11	42.77	4299.86	1.18	16.44	1.18	16.48	85.89	0.04
4400.00	0.24	23.67	4399.86	1.44	16.59	1.44	16.65	85.03	0.14
4500.00	0.04	354.80	4499.86	1.68	16.67	1.68	16.75	84.26	0.20
4600.00	0.22	234.24	4599.86	1.60	16.51	1.60	16.59	84.45	0.24
4700.00	0.59	168.98	4699.85	0.98	16.45	0.98	16.48	86.58	0.54
4800.00	0.80	172.18	4799.85	-0.21	16.65	-0.21	16.65	90.74	0.21
4900.00	0.47	206.99	4899.84	-1.27	16.55	-1.27	16.60	94.39	0.49
5000.00	0.67	210.56	4999.84	-2.14	16.07	-2.14	16.21	97.59	0.20
5100.00	0.60	209.06	5099.83	-3.10	15.52	-3.10	15.82	101.30	0.07
5200.00	0.53	206.85	5199.82	-3.97	15.05	-3.97	15.57	104.78	0.08
5300.00	0.69	171.54	5299.82	-4.98	14.93	-4.98	15.74	108.43	0.40
5400.00	0.42	204.48	5399.81	-5.90	14.87	-5.90	16.00	111.64	0.41
5500.00	0.54	207.24	5499.81	-6.66	14.50	-6.66	15.96	114.65	0.13

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
5600.00	0.47	201.63	5599.81	-7.46	14.13	-7.46	15.98	117.83	0.09
5700.00	0.58	200.65	5699.80	-8.32	13.80	-8.32	16.12	121.08	0.10
5800.00	0.68	202.86	5799.80	-9.34	13.39	-9.34	16.33	124.89	0.11
5900.00	0.63	199.59	5899.79	-10.41	12.98	-10.41	16.64	128.75	0.06
6000.00	0.65	194.17	5999.78	-11.48	12.65	-11.48	17.09	132.23	0.06
6100.00	0.69	191.85	6099.78	-12.62	12.39	-12.62	17.69	135.54	0.05
6200.00	0.79	187.97	6199.77	-13.90	12.17	-13.90	18.47	138.80	0.11
6300.00	0.88	185.09	6299.76	-15.35	12.00	-15.35	19.48	141.96	0.10
6400.00	0.85	182.26	6399.75	-16.85	11.91	-16.85	20.63	144.75	0.05
6500.00	0.89	182.26	6499.74	-18.36	11.85	-18.36	21.85	147.17	0.04
6600.00	0.83	179.31	6599.72	-19.86	11.83	-19.86	23.11	149.23	0.07
6700.00	0.84	173.88	6699.71	-21.32	11.91	-21.32	24.42	150.80	0.08
6800.00	0.81	172.60	6799.70	-22.74	12.08	-22.74	25.75	152.02	0.03
6900.00	0.75	172.36	6899.69	-24.09	12.26	-24.09	27.03	153.03	0.06
7000.00	0.82	150.45	6999.69	-25.36	12.70	-25.36	28.36	153.40	0.31
7100.00	0.51	180.53	7099.68	-26.43	13.05	-26.43	29.47	153.72	0.46
7200.00	0.90	180.45	7199.67	-27.65	13.04	-27.65	30.58	154.75	0.39
7300.00	0.72	182.54	7299.66	-29.07	13.01	-29.07	31.84	155.89	0.19
7400.00	0.83	170.11	7399.65	-30.40	13.10	-30.40	33.11	156.68	0.20
7500.00	0.59	160.11	7499.64	-31.60	13.40	-31.60	34.33	157.02	0.27
7600.00	1.04	179.57	7599.63	-32.99	13.59	-32.99	35.68	157.62	0.52
7700.00	0.87	170.05	7699.62	-34.64	13.72	-34.64	37.26	158.39	0.23
7800.00	0.61	190.60	7799.61	-35.91	13.76	-35.91	38.46	159.04	0.36
7900.00	0.61	187.67	7899.61	-36.97	13.59	-36.97	39.39	159.82	0.03
8000.00	0.73	192.14	7999.60	-38.12	13.38	-38.12	40.40	160.66	0.12
8100.00	1.69	197.49	8099.58	-40.14	12.81	-40.14	42.13	162.31	0.97
8200.00	1.93	200.48	8199.53	-43.12	11.78	-43.12	44.70	164.73	0.26
8300.00	1.42	213.20	8299.48	-45.73	10.51	-45.73	46.93	167.06	0.62
8400.00	0.73	217.64	8399.47	-47.28	9.44	-47.28	48.21	168.71	0.70
8500.00	1.22	207.38	8499.45	-48.73	8.56	-48.73	49.47	170.04	0.52
8600.00	0.83	215.09	8599.43	-50.27	7.65	-50.27	50.85	171.35	0.41
8700.00	1.44	224.72	8699.41	-51.76	6.35	-51.76	52.15	173.01	0.63
8742.00	1.63	237.13	8741.40	-52.46	5.47	-52.46	52.74	174.04	0.91