



**DIRECTIONAL SERVICES, LLC.**

12074 FM 3083 Rd., Conroe, TX 77304 | P: 936-756-2400 | F: 936-756-2401

June 24, 2017

The Railroad Commission of Texas  
Oil & Gas Division  
P.O. Drawer 12967  
Capital Station  
Austin, TX 78711-2967

Attention: Pam Johns

RE: QEP Resources  
Well: University 7-2730 N 16MB  
Field: Spraberry (Trend Area)  
Martin County, TX  
API Number: 42-317-40613

Dear Ms. Johns,

Please find the attached surveys performed on the above referenced well by VON Directional Services, LLC. Other information required by your office is as follows:

Name of surveyor: Chuck Ortego

Original Hole:

Surveyed depths: 534'–8227'MD  
Job #170067 - Date performed: 05/28/17–6/5/17  
Type of Survey: Directional Survey – EVO

A certified plat on which the bottom hole location is oriented both to the surface location and the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Chuck Ortego  
MWD Manager

# SURVEY DATA CERTIFICATION



**Job #:** 170107  
**Client:** QEP Resources  
**County & State:** Martin County, TX.  
**Well:** University 7-2730 N 16MB  
**API No:** 42-317-40613  
**Proposed Direction:** 346.51

## TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
534'	533.99'	.47°	152.77°	-1.95'	1.00'	MWD
<b>Data Source Company:</b>						QEP

## SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
28-May-17	534 ft	.47°	152.77°

Last Survey Date	Last Survey Depth	INC	AZM
5-June-17	8171 ft	.39	112.17°

### Survey Instrument Type

EVO-TOOL

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
5-June-17	8227 ft	.39°	112.17°

## CORRECTION INFORMATION

<b>Magnetic Declination Used</b>	6.31	degrees
<b>Grid Convergence Used</b>	2.55	degrees

### Corrected to True/Grid North

Grid North

<b>Total Correction</b>	8.86	degrees
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TO THE BEST OF MY KNOWLEDGE, I CERTIFY THIS SURVEY DATA TO BE TRUE AND CORRECT.

**Signature**

Chuck Ortego

**Printed Name**

June 24, 2017

**Date**

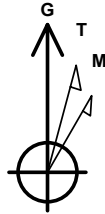
# QEP ENERGY



Project: Martin County, TX (NAD27)  
 Site: University 7-2730 N  
 Well: 7-2730 N 16MB  
 Wellbore: Lateral  
 Design: Lateral

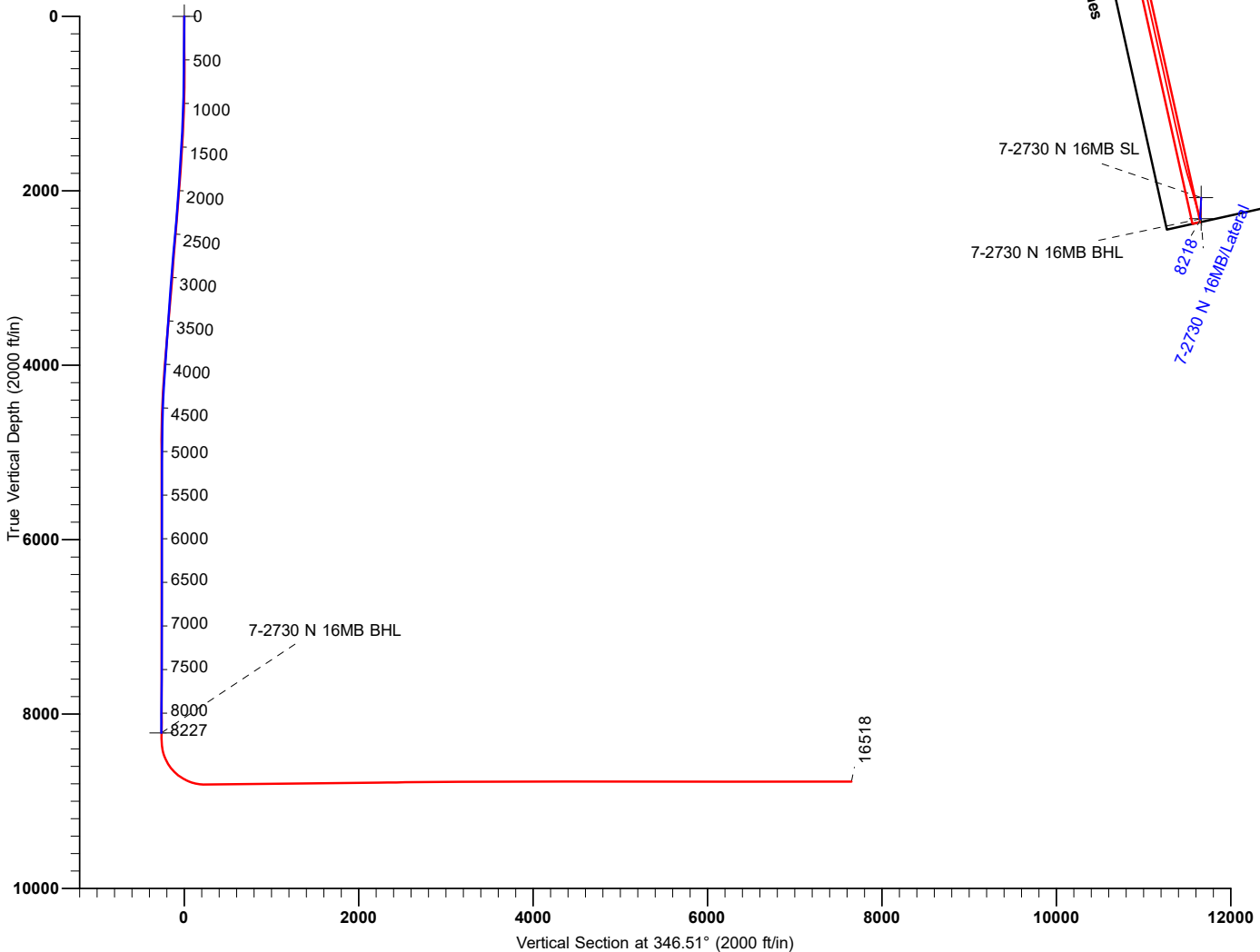
2924+25 @ 2949.00ft (Unit103)  
 NAD 1927 (NADCON CONUS)

To convert a Magnetic Direction to a Grid Direction, Add 8.86°



Azimuths to Grid North  
 True North: 2.55°  
 Magnetic North: 8.86°

Magnetic Field  
 Strength: 48182.0snT  
 Dip Angle: 60.42°  
 Date: 05/02/2017  
 Model: IGRF2015



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
7-2730 N 16MB SL	0.00	0.00	0.00	288293.25	555175.43	Point
7-2730 N 16MB BHL	8217.66	-268.39	-0.13	288024.86	555175.30	Point



# Directional Survey Report

Company Name: QEP Energy

Well Name: University 7-2730 N 16MB

Field: Spraberry

Rig ID: Unit 103

State/Prov: Texas

County: Martin County

Location: Tarzan

API/UWI: 42317406130000

Survey Company: Von Energy

Job Number: 170107

Latitude: 32.37055556

Longitude: -102.18111111

Proposed Azimuth: 346.51

Declination: 8.86

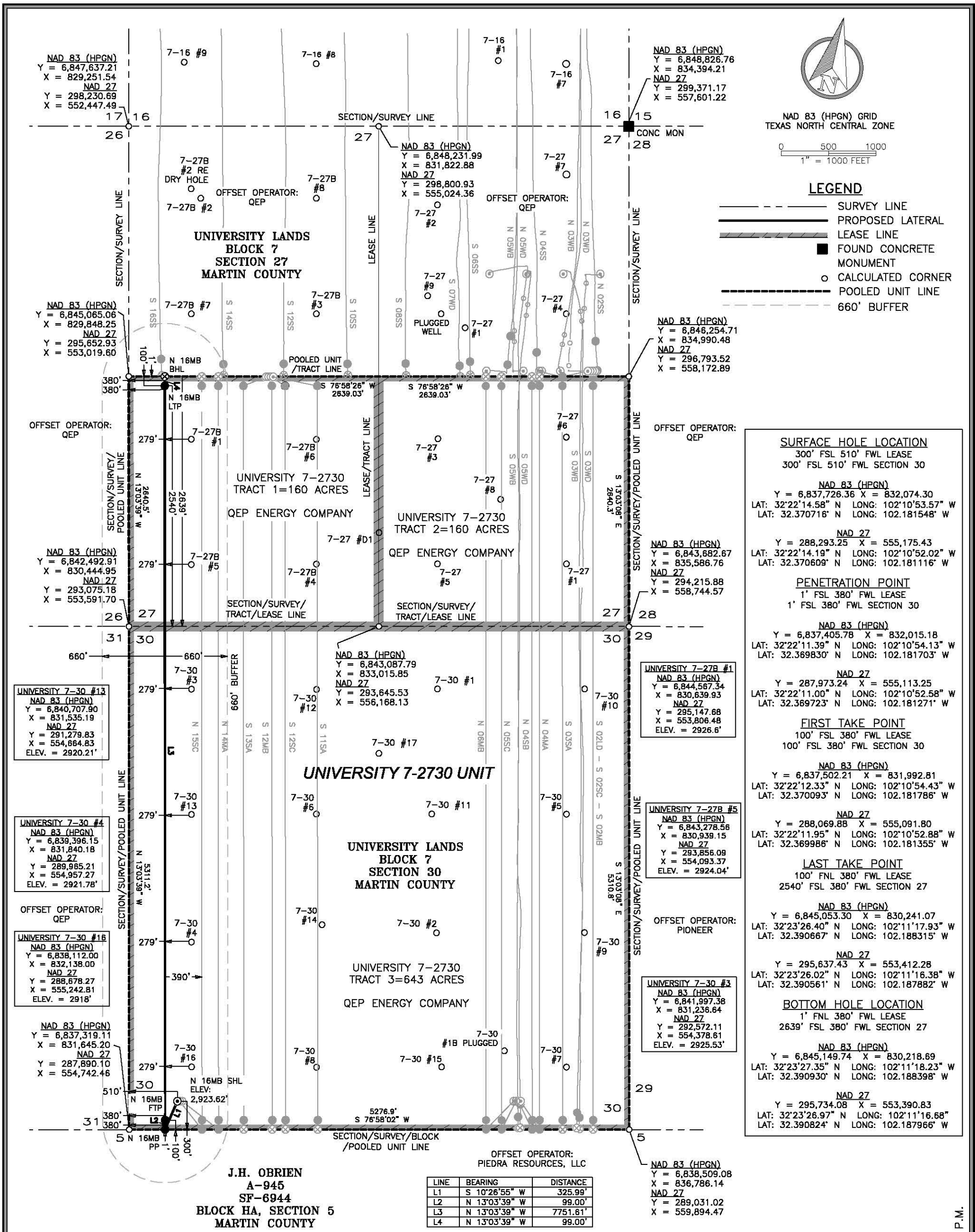
North Reference: Grid

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS
Tiein	0	0	0	0	0	0	0	0
1	534	0.47	152.77	533.99	-1.95	1.00	-2.13	0.09
2	627	0.55	152.57	626.99	-2.68	1.38	-2.93	0.09
3	721	0.79	172.88	720.98	-3.73	1.67	-4.01	0.36
4	813	0.94	182.32	812.97	-5.11	1.72	-5.37	0.22
5	905	1.11	187.96	904.96	-6.75	1.56	-6.93	0.21
6	1006	1.69	187.10	1,005.93	-9.19	1.25	-9.23	0.57
7	1101	2.24	184.13	1,100.87	-12.43	0.94	-12.31	0.59
8	1196	2.90	189.86	1,195.78	-16.65	0.39	-16.29	0.74
9	1292	3.20	188.02	1,291.64	-21.70	-0.40	-21.01	0.33
10	1387	2.82	184.09	1,386.51	-26.66	-0.93	-25.70	0.45
11	1482	2.98	182.78	1,481.39	-31.45	-1.22	-30.30	0.18
12	1577	3.37	186.70	1,576.24	-36.69	-1.67	-35.29	0.47
13	1672	3.97	186.09	1,671.05	-42.74	-2.34	-41.01	0.63
14	1767	4.09	181.91	1,765.81	-49.39	-2.80	-47.38	0.33
15	1862	4.37	180.24	1,860.55	-56.40	-2.93	-54.16	0.32
16	1955	4.09	177.63	1,953.30	-63.26	-2.81	-60.86	0.37
17	2050	4.34	177.98	2,048.04	-70.23	-2.54	-67.70	0.26
18	2145	4.46	179.67	2,142.76	-77.52	-2.39	-74.82	0.19
19	2240	4.61	183	2,237.46	-85.02	-2.57	-82.08	0.32
20	2335	5.09	183.65	2,332.12	-93.04	-3.04	-89.77	0.51
21	2430	5.17	183.97	2,426.74	-101.52	-3.60	-97.88	0.09
22	2525	5.08	184.18	2,521.36	-109.98	-4.21	-105.97	0.10
23	2620	5.18	184.34	2,615.98	-118.45	-4.84	-114.06	0.11
24	2716	5.17	185.65	2,711.59	-127.08	-5.59	-122.27	0.12
25	2809	5	184.06	2,804.23	-135.29	-6.29	-130.09	0.24
26	2903	4.89	186	2,897.88	-143.36	-7.00	-137.77	0.21
27	2998	4.70	183.13	2,992.54	-151.28	-7.64	-145.32	0.32
28	3093	4.65	183.18	3,087.23	-159.01	-8.06	-152.74	0.05
29	3188	4.36	187.12	3,181.93	-166.44	-8.72	-159.81	0.45
30	3283	4.40	188.96	3,276.66	-173.62	-9.74	-166.56	0.15
31	3379	4.41	183.60	3,372.37	-180.94	-10.54	-173.49	0.43
32	3473	4.20	183.98	3,466.11	-187.98	-11.01	-180.23	0.23
33	3568	4.22	183.05	3,560.85	-194.94	-11.44	-186.89	0.07

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS
34	3663	3.93	184.10	3,655.61	-201.68	-11.86	-193.35	0.32
35	3758	4.10	183.41	3,750.38	-208.32	-12.29	-199.70	0.19
36	3853	4.27	184.43	3,845.13	-215.23	-12.77	-206.32	0.20
37	3947	4.23	185.08	3,938.87	-222.17	-13.34	-212.93	0.07
38	4042	3.98	185.13	4,033.62	-228.95	-13.95	-219.38	0.26
39	4136	3.65	185.82	4,127.41	-235.17	-14.54	-225.29	0.35
40	4231	3.36	181.81	4,222.24	-240.96	-14.94	-230.83	0.40
41	4326	3.31	180.74	4,317.08	-246.49	-15.06	-236.18	0.08
42	4421	3.03	179.54	4,411.93	-251.74	-15.08	-241.28	0.30
43	4515	2.45	182.57	4,505.82	-256.23	-15.15	-245.63	0.64
44	4610	1.47	177.96	4,600.77	-259.48	-15.19	-248.78	1.04
45	4704	0.61	158.71	4,694.75	-261.15	-14.97	-250.45	0.97
46	4799	0.43	139.79	4,789.75	-261.90	-14.56	-251.27	0.26
47	4895	0.35	147.51	4,885.74	-262.42	-14.17	-251.87	0.10
48	4989	0.47	125.27	4,979.74	-262.88	-13.70	-252.43	0.21
49	5084	0.46	111.93	5,074.74	-263.25	-13.02	-252.95	0.11
50	5179	0.29	160.93	5,169.74	-263.62	-12.59	-253.41	0.37
51	5274	0.28	162.58	5,264.74	-264.07	-12.44	-253.88	0.01
52	5368	0.17	176.72	5,358.74	-264.43	-12.37	-254.25	0.13
53	5463	0.11	125.73	5,453.73	-264.62	-12.29	-254.45	0.14
54	5557	0.13	202.90	5,547.73	-264.77	-12.25	-254.61	0.16
55	5651	0.07	191.04	5,641.73	-264.93	-12.31	-254.75	0.07
56	5746	0.10	159.07	5,736.73	-265.06	-12.29	-254.88	0.06
57	5841	0.04	241.49	5,831.73	-265.15	-12.29	-254.97	0.11
58	5936	0.04	247.71	5,926.73	-265.18	-12.35	-254.99	0.00
59	6031	0.06	239.69	6,021.73	-265.22	-12.42	-255.00	0.02
60	6125	0.10	259.75	6,115.73	-265.26	-12.54	-255.01	0.05
61	6221	0.19	157.95	6,211.73	-265.42	-12.57	-255.17	0.24
62	6315	0.10	151.40	6,305.73	-265.64	-12.47	-255.40	0.10
63	6410	0.11	137.05	6,400.73	-265.78	-12.37	-255.56	0.03
64	6505	0.19	302.49	6,495.73	-265.76	-12.44	-255.53	0.31
65	6601	0.24	302.09	6,591.73	-265.57	-12.74	-255.27	0.05
66	6695	0.12	340.81	6,685.73	-265.37	-12.94	-255.03	0.17
67	6790	0.13	92.31	6,780.73	-265.28	-12.87	-254.96	0.22
68	6884	0.25	103.07	6,874.73	-265.33	-12.56	-255.08	0.13
69	6979	0.35	106.23	6,969.73	-265.46	-12.08	-255.32	0.11
70	7073	0.46	117.43	7,063.73	-265.71	-11.47	-255.71	0.14
71	7168	0.53	121.71	7,158.72	-266.12	-10.76	-256.27	0.08
72	7263	0.49	118.39	7,253.72	-266.54	-10.03	-256.85	0.05
73	7358	0.52	92.80	7,348.72	-266.76	-9.24	-257.24	0.24
74	7453	0.48	96.49	7,443.71	-266.82	-8.41	-257.50	0.05
75	7548	0.64	103.17	7,538.71	-266.99	-7.50	-257.87	0.18
76	7643	0.60	98.43	7,633.70	-267.18	-6.49	-258.30	0.07
77	7738	0.68	104.04	7,728.70	-267.39	-5.45	-258.74	0.11
78	7833	0.82	99.90	7,823.69	-267.65	-4.24	-259.27	0.16

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS
79	7929	0.85	83.66	7,919.68	-267.69	-2.85	-259.64	0.25
80	8024	0.60	111.33	8,014.67	-267.79	-1.69	-260.01	0.45
81	8119	0.48	110.08	8,109.67	-268.11	-0.85	-260.51	0.13
82	8171	0.39	112.17	8,161.67	-268.25	-0.48	-260.74	0.18
PTB	8227	0.39	112.17	8,217.66	-268.39	-0.13	-260.96	0





I HEREBY STATE THAT THIS PLAT SHOWS THE SUBJECT SURFACE LOCATION AS STAKED ON THE GROUND.

*John E. Kowalik*

JOHN E. KOWALIK  
REGISTERED PROFESSIONAL LAND SURVEYOR  
STATE OF TEXAS NO. 6408



**FSC INC**  
SURVEYORS + ENGINEERS  
550 Bailey Ave., 205 - Fort Worth, TX 76107  
Ph: 817.349.9800 - Fax: 979.732.5271  
TBPE Firm 17957 | TBPLS Firm 10193887  
www.fscinc.net  
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PLAT OF:  
A PROPOSED WELL LOCATION FOR:  
**QEP ENERGY COMPANY**  
**UNIVERSITY 7-2730 UNIT**  
**UNIVERSITY 7-2730 N 16MB**  
SITUATED IN THE UNIVERSITY LANDS, BLOCK 7, SECTIONS 27 AND 30, AND BEING APPROXIMATELY 21.6 MILES NORTHEAST OF ANDREWS IN MARTIN COUNTY, TEXAS.



**GENERAL NOTES**

- COORDINATES SHOWN ARE BASED ON TEXAS COORDINATE SYSTEM OF NAD 83 (HPGN) "TEXAS NORTH CENTRAL ZONE", AND BASED ON "GLASS" NGSS MONUMENT (Y = 6,817,164.36, X = 834,131.39)
- VERTICAL DATUM IS NAVD 88
- LATITUDE AND LONGITUDE ARE NAD 83 (HPGN) AS SHOWN
- AREA, DISTANCES, AND COORDINATES ARE "GRID"
- UNITS ARE UNITED STATES SURVEY FOOT.
- ALL LEASE AND TRACT INFORMATION SHOWN HERE ON IS DONE SO BY LIMITED DEED RECORD INFORMATION ONLY. ALL ACRES ARE BY DEED AND LEASE CALL, EXCEPT WHERE NOTED. THIS IS NOT IN ANY WAY A "BOUNDARY SURVEY".

**DATE:** 10-26-2016  
**DRAWN BY:** AI  
**CHECKED BY:** JK  
**FIELD CREW:** RE  
**PROJECT NO:** 2016070576  
**SCALE:** 1" = 1000'  
**SHEET:** 1 OF 1  
**REVISION:** 2

PLOT DATE: 11/07/16 1:30 P.M.

Customer Name **QEP Energy**  
 Site Name **University 7-2730 N 16MB**  
 Well Name **University 7-2730 N 16MB**  
 Survey Name **CORRECTED COMPUTED SURVEYS**  
 Survey Date **7/24/2017**  
 North Reference **Grid North**

## VERTICAL SECTION REFERENCE

+N/-S **0 ft**  
 +E/-W **0 ft**  
 Proposal Direction **346.51°**  
 Calculation Method **Minimum Curvature**

## GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: **998.558 mG** [computed]

MD	MODEL	DATE	DECLINATION	TRUE TO GRID	MAG TO GRID
8230-16493 ft	HDGM2016	24 Jul 2017	6.42°	add 2.55°	add 8.97°

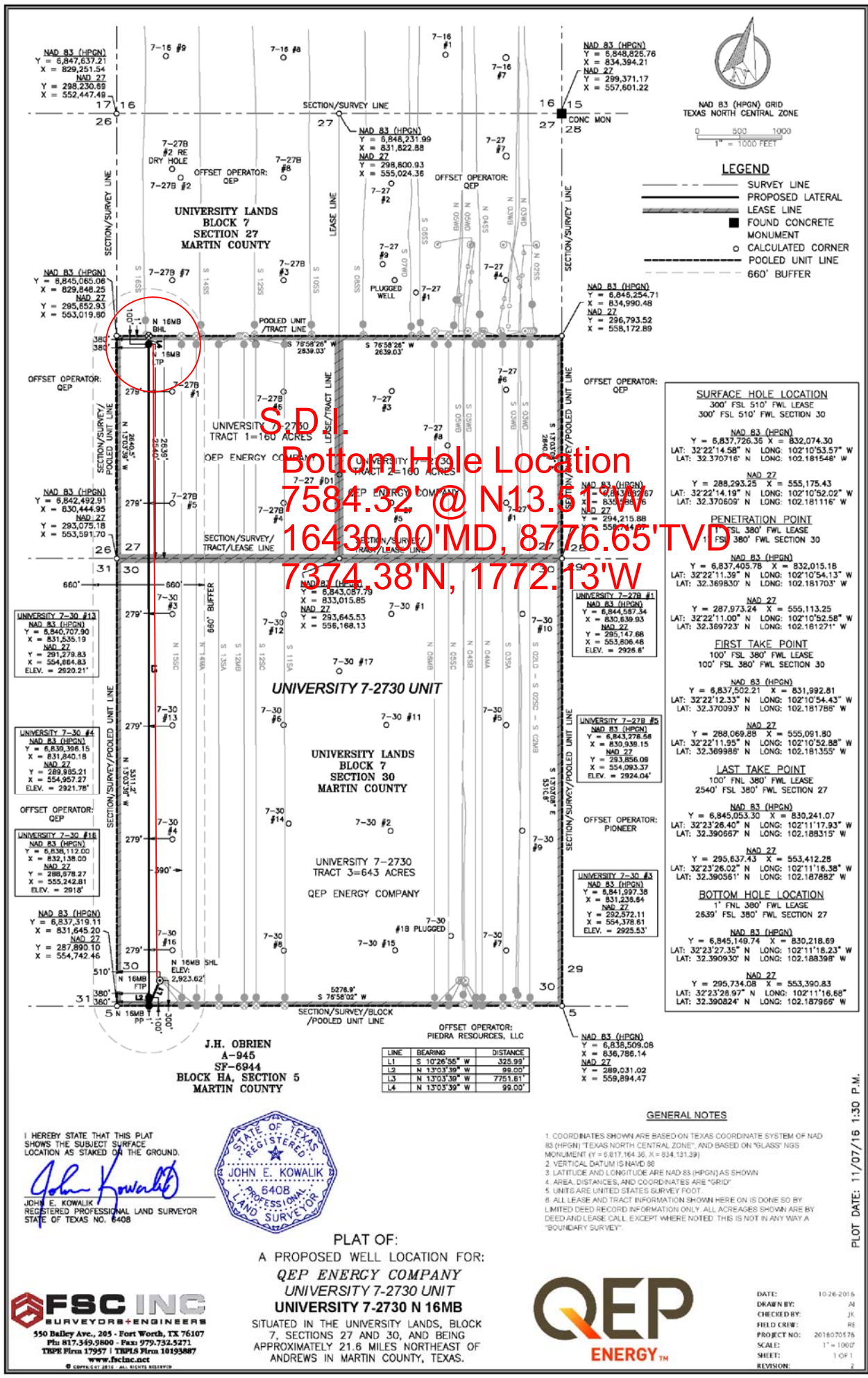
MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8230.00	0.29	9.81	8220.68	-267.40	-272.94	8.52	Invalid	273.07	178.21
8247.00	0.48	45.45	8237.68	-267.32	-272.85	8.58	1.75	272.98	178.20
8279.00	1.46	359.43	8269.68	-266.85	-272.35	8.67	3.68	272.48	178.18
8309.00	5.76	352.60	8299.61	-264.98	-270.47	8.47	14.38	270.60	178.21
8341.00	12.31	349.59	8331.19	-259.98	-265.52	7.65	20.52	265.63	178.35
8373.00	16.65	350.30	8362.17	-251.99	-257.64	6.26	13.57	257.72	178.61
8404.00	19.76	349.86	8391.62	-242.33	-248.10	4.59	10.04	248.14	178.94
8436.00	21.02	345.83	8421.61	-231.19	-237.21	2.23	5.89	237.22	179.46
8468.00	23.91	340.47	8451.18	-218.99	-225.53	-1.34	11.06	225.53	180.34
8500.00	26.80	338.22	8480.10	-205.40	-212.72	-6.19	9.52	212.81	181.67
8532.00	30.32	335.98	8508.20	-190.32	-198.64	-12.16	11.50	199.01	183.50
8563.00	33.15	333.97	8534.56	-174.35	-183.87	-19.06	9.74	184.85	185.92
8595.00	35.94	334.06	8560.92	-156.63	-167.56	-27.01	8.72	169.72	189.16
8627.00	36.50	334.50	8586.73	-138.16	-150.52	-35.22	1.93	154.59	193.17
8659.00	38.18	334.85	8612.18	-119.16	-132.98	-43.52	5.29	139.92	198.12
8691.00	40.50	336.10	8636.92	-99.25	-114.52	-51.93	7.66	125.75	204.39
8723.00	44.63	335.96	8660.49	-77.97	-94.75	-60.73	12.91	112.54	212.66
8755.00	48.45	335.68	8682.49	-55.15	-73.57	-70.24	11.95	101.71	223.68
8786.00	52.71	336.65	8702.17	-31.60	-51.66	-79.91	13.95	95.15	237.12
8818.00	55.54	338.83	8720.93	-5.97	-27.67	-89.72	10.42	93.89	252.86
8848.00	58.72	340.78	8737.21	19.05	-4.02	-98.41	11.92	98.49	267.66
8878.00	62.07	342.60	8752.03	45.03	20.74	-106.60	12.35	108.60	281.01
8910.00	65.81	342.78	8766.08	73.71	48.18	-115.15	11.70	124.82	292.70
8942.00	70.49	343.35	8777.99	103.35	76.58	-123.79	14.72	145.57	301.74



MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8973.00	75.55	344.07	8787.04	132.95	105.03	-132.11	16.47	168.77	308.49
9005.00	80.88	345.82	8793.57	164.25	135.27	-140.23	17.49	194.85	313.97
9037.00	83.79	347.11	8797.84	195.96	166.10	-147.65	9.93	222.24	318.36
9069.00	86.38	347.81	8800.58	227.84	197.22	-154.58	8.38	250.58	321.91
9102.00	88.53	348.98	8802.05	260.79	229.51	-161.21	7.42	280.47	324.92
9198.00	90.84	349.08	8802.58	356.69	323.75	-179.47	2.41	370.17	331.00
9293.00	92.51	348.42	8799.80	451.57	416.88	-198.00	1.89	461.51	334.59
9389.00	92.58	347.62	8795.54	547.44	510.70	-217.91	0.84	555.24	336.89
9484.00	90.70	347.26	8792.82	642.38	603.38	-238.56	2.01	648.83	338.43
9580.00	90.00	347.58	8792.23	738.37	697.08	-259.46	0.80	743.80	339.58
9675.00	89.03	347.69	8793.03	833.35	789.87	-279.81	1.03	837.96	340.49
9771.00	90.97	347.60	8793.03	929.32	883.64	-300.35	2.02	933.29	341.23
9866.00	92.25	347.07	8790.37	1024.27	976.29	-321.17	1.46	1027.76	341.79
9962.00	91.41	346.40	8787.30	1120.22	1069.68	-343.18	1.12	1123.38	342.21
10057.00	88.69	346.25	8787.22	1215.21	1161.98	-365.64	2.87	1218.15	342.53
10152.00	90.03	345.58	8788.28	1310.20	1254.11	-388.76	1.58	1312.98	342.78
10248.00	92.41	344.75	8786.23	1406.14	1346.88	-413.33	2.63	1408.88	342.94
10344.00	92.45	345.27	8782.16	1502.02	1439.53	-438.14	0.54	1504.73	343.07
10437.00	88.66	347.35	8781.26	1595.00	1529.87	-460.14	4.65	1597.57	343.26
10532.00	91.31	347.92	8781.29	1689.97	1622.65	-480.48	2.85	1692.30	343.51
10628.00	91.37	347.16	8779.04	1785.93	1716.37	-501.19	0.79	1788.04	343.72
10723.00	89.83	345.94	8778.05	1880.92	1808.75	-523.28	2.07	1882.92	343.86
10818.00	90.97	345.54	8777.38	1975.90	1900.82	-546.68	1.27	1977.87	343.95
10914.00	90.03	345.39	8776.55	2071.88	1993.74	-570.77	0.99	2073.84	344.02
11009.00	89.50	345.86	8776.94	2166.87	2085.77	-594.36	0.75	2168.80	344.09
11105.00	90.17	344.52	8777.21	2262.84	2178.57	-618.90	1.56	2264.78	344.14
11201.00	88.63	345.19	8778.22	2358.79	2271.23	-643.98	1.75	2360.76	344.17
11297.00	89.83	347.11	8779.51	2454.78	2364.43	-666.95	2.36	2456.69	344.25
11394.00	91.48	349.12	8778.40	2551.72	2459.33	-686.93	2.68	2553.47	344.39
11489.00	92.62	348.46	8775.00	2646.59	2552.46	-705.38	1.39	2648.13	344.55
11585.00	88.19	346.73	8774.32	2742.54	2646.19	-726.00	4.95	2743.97	344.66
11680.00	88.42	346.84	8777.13	2837.50	2738.63	-747.71	0.27	2838.87	344.73

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
11776.00	92.01	348.64	8776.77	2933.45	2832.42	-768.09	4.18	2934.72	344.83
11872.00	92.11	348.62	8773.32	3029.33	2926.48	-787.00	0.11	3030.45	344.95
11967.00	91.98	347.63	8769.93	3124.23	3019.38	-806.54	1.05	3125.25	345.04
12063.00	92.01	347.42	8766.59	3220.15	3113.06	-827.26	0.22	3221.10	345.12
12158.00	87.99	346.91	8766.59	3315.13	3205.67	-848.36	4.27	3316.03	345.18
12254.00	88.16	347.62	8769.81	3411.06	3299.25	-869.51	0.76	3411.91	345.24
12350.00	90.87	348.22	8770.63	3507.02	3393.11	-889.60	2.89	3507.79	345.31
12446.00	91.41	347.99	8768.72	3602.97	3487.03	-909.38	0.61	3603.66	345.38
12541.00	90.77	347.67	8766.91	3697.92	3579.88	-929.41	0.75	3698.56	345.45
12637.00	90.94	347.59	8765.48	3793.89	3673.64	-949.97	0.20	3794.48	345.50
12732.00	89.50	346.95	8765.11	3888.88	3766.30	-970.90	1.66	3889.43	345.54
12827.00	88.09	346.50	8767.11	3983.86	3858.74	-992.71	1.56	3984.39	345.57
12922.00	88.02	346.72	8770.34	4078.80	3951.11	-1014.70	0.24	4079.32	345.60
13018.00	87.89	347.01	8773.76	4174.74	4044.53	-1036.50	0.33	4175.24	345.63
13113.00	88.09	346.67	8777.09	4269.68	4136.98	-1058.12	0.42	4270.16	345.65
13208.00	88.06	346.66	8780.28	4364.63	4229.37	-1080.02	0.03	4365.09	345.68
13304.00	89.80	347.16	8782.08	4460.60	4322.85	-1101.75	1.89	4461.05	345.70
13399.00	90.80	348.07	8781.58	4555.58	4415.64	-1122.13	1.42	4555.99	345.74
13495.00	91.24	347.78	8779.87	4651.54	4509.50	-1142.21	0.55	4651.91	345.79
13590.00	90.54	347.62	8778.39	4746.50	4602.31	-1162.44	0.76	4746.84	345.82
13686.00	88.73	348.13	8779.01	4842.47	4696.16	-1182.61	1.96	4842.78	345.87
13782.00	88.96	347.89	8780.94	4938.42	4790.05	-1202.55	0.35	4938.69	345.91
13877.00	90.44	348.24	8781.44	5033.38	4882.99	-1222.19	1.60	5033.62	345.95
13973.00	90.13	348.49	8780.96	5129.33	4977.02	-1241.55	0.41	5129.54	345.99
14067.00	88.93	348.58	8781.73	5223.26	5069.14	-1260.23	1.28	5223.44	346.04
14161.00	90.97	348.77	8781.81	5317.19	5161.30	-1278.69	2.18	5317.34	346.09
14256.00	91.34	349.14	8779.90	5412.09	5254.52	-1296.89	0.55	5412.20	346.14
14352.00	91.34	349.09	8777.65	5507.96	5348.77	-1315.01	0.05	5508.05	346.19
14446.00	87.55	348.62	8778.56	5601.86	5440.97	-1333.18	4.06	5601.92	346.23
14542.00	87.49	348.66	8782.72	5697.70	5535.01	-1352.07	0.08	5697.75	346.27
14637.00	90.10	348.64	8784.72	5792.61	5628.12	-1370.76	2.75	5792.64	346.31
14731.00	90.34	349.49	8784.36	5886.51	5720.41	-1388.59	0.94	5886.53	346.36

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
14826.00	91.17	350.26	8783.10	5981.34	5813.92	-1405.29	1.19	5981.35	346.41
14922.00	87.55	349.34	8784.18	6077.16	5908.38	-1422.29	3.89	6077.16	346.47
15018.00	87.82	349.23	8788.05	6172.97	6002.63	-1440.12	0.30	6172.97	346.51
15113.00	88.32	348.36	8791.25	6267.84	6095.77	-1458.57	1.06	6267.84	346.54
15208.00	91.84	347.92	8791.12	6362.78	6188.72	-1478.09	3.73	6362.79	346.57
15304.00	91.78	346.94	8788.09	6458.72	6282.37	-1498.97	1.02	6458.73	346.58
15399.00	92.78	346.21	8784.31	6553.64	6374.70	-1521.01	1.30	6553.65	346.58
15493.00	91.98	345.44	8780.41	6647.55	6465.76	-1544.01	1.18	6647.56	346.57
15588.00	89.90	345.82	8778.85	6742.53	6557.77	-1567.58	2.23	6742.53	346.56
15683.00	89.93	345.58	8778.99	6837.52	6649.83	-1591.05	0.25	6837.52	346.54
15777.00	88.66	345.12	8780.14	6931.49	6740.76	-1614.82	1.44	6931.49	346.53
15872.00	89.56	345.33	8781.62	7026.45	6832.61	-1639.04	0.97	7026.45	346.51
15968.00	88.73	345.90	8783.05	7122.43	6925.59	-1662.89	1.05	7122.43	346.50
16063.00	91.78	346.76	8782.63	7217.41	7017.88	-1685.34	3.34	7217.41	346.50
16159.00	90.67	346.69	8780.58	7313.39	7111.30	-1707.38	1.16	7313.39	346.50
16255.00	89.56	345.76	8780.38	7409.39	7204.53	-1730.24	1.51	7409.39	346.50
16350.00	91.64	346.38	8779.39	7504.37	7296.73	-1753.10	2.28	7504.37	346.49
16430.00	92.28	346.09	8776.65	7584.32	7374.38	-1772.13	0.88	7584.32	346.49
16493.00	92.28	346.09	8774.15	7647.27	7435.49	-1787.26	0.00	7647.27	346.48



**S.D.L.**  
**Bottom Hole Location**  
**7584.32' @ N13.61°W**  
**16430.00' MD, 8776.65' TVD**  
**7374.38'N, 1772.13'W**

**SURFACE HOLE LOCATION**  
300' FSL 510' FWL LEASE  
300' FSL 510' FWL SECTION 30

NAD 83 (HPGN)  
Y = 6,837,726.36 X = 832,074.30  
LAT: 32°22'14.58" N LONG: 102°10'53.57" W  
LAT: 32.370716° N LONG: 102.181546° W

NAD 27  
Y = 288,293.25 X = 555,175.43  
LAT: 32°22'14.19" N LONG: 102°10'52.02" W  
LAT: 32.370809° N LONG: 102.181116° W

**PENETRATION POINT**  
1' FSL 380' FWL LEASE  
1' FSL 380' FWL SECTION 30

NAD 83 (HPGN)  
Y = 6,837,405.76 X = 832,015.18  
LAT: 32°22'11.39" N LONG: 102°10'54.13" W  
LAT: 32.369830° N LONG: 102.181703° W

NAD 27  
Y = 287,973.24 X = 555,113.25  
LAT: 32°22'11.00" N LONG: 102°10'52.58" W  
LAT: 32.369723° N LONG: 102.181271° W

**FIRST TAKE POINT**  
100' FSL 380' FWL LEASE  
100' FSL 380' FWL SECTION 30

NAD 83 (HPGN)  
Y = 6,837,502.21 X = 831,992.81  
LAT: 32°22'12.33" N LONG: 102°10'54.43" W  
LAT: 32.370093° N LONG: 102.181788° W

NAD 27  
Y = 288,069.88 X = 555,061.80  
LAT: 32°22'11.95" N LONG: 102°10'52.88" W  
LAT: 32.369988° N LONG: 102.181355° W

**LAST TAKE POINT**  
100' FSL 380' FWL LEASE  
2540' FSL 380' FWL SECTION 27

NAD 83 (HPGN)  
Y = 6,845,053.30 X = 830,241.07  
LAT: 32°23'26.40" N LONG: 102°11'17.93" W  
LAT: 32.390667° N LONG: 102.188315° W

NAD 27  
Y = 295,637.43 X = 553,412.28  
LAT: 32°23'26.02" N LONG: 102°11'16.38" W  
LAT: 32.390581° N LONG: 102.187882° W

**BOTTOM HOLE LOCATION**  
1' FSL 380' FWL LEASE  
2639' FSL 380' FWL SECTION 27

NAD 83 (HPGN)  
Y = 6,845,149.74 X = 830,218.69  
LAT: 32°23'27.35" N LONG: 102°11'18.23" W  
LAT: 32.390930° N LONG: 102.188398° W

NAD 27  
Y = 295,734.08 X = 553,390.83  
LAT: 32°23'28.97" N LONG: 102°11'16.68" W  
LAT: 32.390824° N LONG: 102.187965° W

I HEREBY STATE THAT THIS PLAT  
SHOWS THE SUBJECT SURFACE  
LOCATION AS STAKED ON THE GROUND.

*John E. Kowalik*

JOHN E. KOWALIK  
REGISTERED PROFESSIONAL LAND SURVEYOR  
STATE OF TEXAS NO. 6408



PLAT OF:  
A PROPOSED WELL LOCATION FOR:  
**QEP ENERGY COMPANY**  
**UNIVERSITY 7-2730 UNIT**  
**UNIVERSITY 7-2730 N 16MB**  
SITUATED IN THE UNIVERSITY LANDS, BLOCK 7,  
SECTIONS 27 AND 30, AND BEING  
APPROXIMATELY 21.6 MILES NORTHEAST OF  
ANDREWS IN MARTIN COUNTY, TEXAS.

**FSC INC**  
SURVEYORS+ENGINEERS  
550 Bailey Ave., 205 - Fort Worth, TX 76107  
Ph: 817-349-5800 - Fax: 817-732-5271  
TXBPE Firm 17957 | TXPLS Firm 10193687  
www.fscinc.net  
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**GENERAL NOTES**

- COORDINATES SHOWN ARE BASED ON TEXAS COORDINATE SYSTEM OF NAD 83 (HPGN) TEXAS NORTH CENTRAL ZONE, AND BASED ON "CLASS" NGM MONUMENT (Y = 6,811,164.96; X = 834,131.39).
- VERTICAL DATUM IS NAVD 88.
- LATITUDE AND LONGITUDE ARE NAD 83 (HPGN) AS SHOWN.
- AREA, DISTANCES, AND COORDINATES ARE "GRID".
- UNITS ARE UNITED STATES SURVEY FOOT.
- ALL LEASE AND TRACT INFORMATION SHOWN HEREON IS DONE SO BY LIMITED DEED RECORD INFORMATION ONLY. ALL ACRES ARE SHOWN BY DEED AND LEASE CALL, EXCEPT WHERE NOTED. THIS IS NOT IN ANY WAY A "BOUNDARY SURVEY".

DATE: 10-26-2015  
DRAWN BY: AJ  
CHECKED BY: JK  
FIELD CREW: RE  
PROJECT NO: 2016070576  
SCALE: 1" = 1000'  
SHEET: 1 OF 1  
REVISION: 2

PLOT DATE: 11/07/16 1:30 P.M.

State of Texas  
County of Midland

I, Auby Miller, certify that; I am employed by Scientific Drilling International; that I did on the day(s) of 07/24/2017 through 08/06/2017 conduct or supervise the taking of a MWD survey from a depth of 8247 feet to a depth of 16430 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 QEP Resources for the University 7-2730 N 16MB Well, API# 42-317-40613 in Martin County 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.

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Field Technician



# **QEP ENERGY (TX)**

**Texas North Central**

**Martin County**

**University 7-2730 N 16MB**

**TX102394-1**

**Original Wellbore**

**Design: As Drilled**

## **Standard Survey Report**

**31 October, 2017**

# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

<b>Project</b>	Texas North Central		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Texas North Central 4202		

Site	Martin County				
Site Position:		Northing:	263,112.75 usft	Latitude:	32.301342
From:	Map	Easting:	554,202.58 usft	Longitude:	-102.180632
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-2.55 °

Well	University 7-2730 N 16MB					
Well Position	+N/-S	0.00 usft	Northing:	288,293.25 usft	Latitude:	32.370609
	+E/-W	0.00 usft	Easting:	555,175.43 usft	Longitude:	-102.181117
Position Uncertainty		0.00 usft	Wellhead Elevation:	2,924.00 usft	Ground Level:	2,924.00 usft

<b>Wellbore</b>	Original Wellbore				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	11/7/2016	6.36	60.42	48,232

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00		346.51

<b>Survey Program</b>	<b>Date</b>	8/5/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
75.02	8,230.00	Gyro @ KOP (Original Wellbore)	Gyrodata New 2-16-16	Gyrodata Stationary Tool drop on BHA	
8,279.00	16,493.00	Curve + Lateral Corrected (Original Wellbo	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
75.02	1.00	137.04	75.02	-0.48	0.45	-0.57	1.33	1.33	0.00	
167.83	1.10	145.85	167.81	-1.81	1.50	-2.11	0.20	0.11	9.49	
259.48	1.04	149.15	259.44	-3.25	2.42	-3.73	0.09	-0.07	3.60	
349.02	0.85	151.04	348.97	-4.53	3.16	-5.14	0.22	-0.21	2.11	
445.19	0.57	147.92	445.13	-5.56	3.76	-6.28	0.29	-0.29	-3.24	
537.47	0.54	143.86	537.41	-6.30	4.26	-7.12	0.05	-0.03	-4.40	
633.12	0.56	156.73	633.06	-7.09	4.71	-8.00	0.13	0.02	13.46	
728.97	0.86	175.63	728.90	-8.24	4.95	-9.17	0.39	0.31	19.72	
823.91	0.96	179.38	823.83	-9.75	5.01	-10.65	0.12	0.11	3.95	

# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

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)
919.53	1.19	183.73	919.43	-11.54	4.95	-12.38	0.26	0.24	4.55
1,015.15	1.82	184.94	1,015.02	-14.04	4.76	-14.76	0.66	0.66	1.27
1,110.51	2.45	186.40	1,110.31	-17.58	4.40	-18.12	0.66	0.66	1.53
1,206.06	3.01	188.14	1,205.75	-22.09	3.82	-22.37	0.59	0.58	1.82
1,301.66	3.06	185.74	1,301.22	-27.11	3.21	-27.11	0.14	0.05	-2.51
1,397.18	2.97	183.65	1,396.61	-32.11	2.80	-31.88	0.15	-0.09	-2.19
1,493.19	2.93	182.81	1,492.49	-37.04	2.52	-36.61	0.06	-0.04	-0.87
1,588.77	3.35	186.80	1,587.92	-42.25	2.07	-41.57	0.49	0.44	4.17
1,683.22	3.71	186.38	1,682.20	-48.03	1.40	-47.03	0.39	0.39	-0.44
1,778.68	4.16	183.31	1,777.43	-54.56	0.86	-53.26	0.52	0.47	-3.22
1,873.84	4.40	180.59	1,872.32	-61.66	0.62	-60.11	0.33	0.25	-2.86
1,969.40	4.09	178.57	1,967.62	-68.74	0.67	-67.00	0.36	-0.32	-2.11
2,065.11	4.23	177.79	2,063.08	-75.69	0.89	-73.81	0.16	0.15	-0.81
2,160.51	4.50	180.36	2,158.20	-82.95	1.00	-80.89	0.35	0.28	2.69
2,256.18	4.73	182.16	2,253.56	-90.65	0.83	-88.34	0.28	0.24	1.88
2,351.24	5.11	183.08	2,348.27	-98.79	0.45	-96.17	0.41	0.40	0.97
2,446.85	5.16	184.01	2,443.50	-107.33	-0.08	-104.35	0.10	0.05	0.97
2,542.08	5.20	184.28	2,538.34	-115.91	-0.70	-112.55	0.05	0.04	0.28
2,637.11	5.06	184.73	2,632.99	-124.38	-1.36	-120.63	0.15	-0.15	0.47
2,733.15	5.09	184.19	2,728.65	-132.85	-2.03	-128.71	0.06	0.03	-0.56
2,828.60	4.97	183.86	2,823.73	-141.20	-2.61	-136.70	0.13	-0.13	-0.35
2,924.07	4.74	183.80	2,918.86	-149.26	-3.15	-144.41	0.24	-0.24	-0.06
3,018.73	4.77	182.92	3,013.19	-157.10	-3.61	-151.92	0.08	0.03	-0.93
3,113.57	4.50	183.56	3,107.72	-164.75	-4.04	-159.27	0.29	-0.28	0.67
3,209.43	4.32	185.49	3,203.30	-172.11	-4.62	-166.28	0.24	-0.19	2.01
3,304.38	4.32	185.58	3,297.98	-179.23	-5.31	-173.05	0.01	0.00	0.09
3,400.16	4.38	184.72	3,393.48	-186.47	-5.97	-179.93	0.09	0.06	-0.90
3,494.88	4.21	182.86	3,487.94	-193.55	-6.44	-186.71	0.23	-0.18	-1.96
3,590.36	4.09	183.13	3,583.17	-200.46	-6.80	-193.34	0.13	-0.13	0.28
3,684.83	4.03	183.51	3,677.40	-207.14	-7.19	-199.75	0.07	-0.06	0.40
3,779.66	4.13	184.25	3,771.99	-213.88	-7.64	-206.19	0.12	0.11	0.78
3,874.65	4.10	184.70	3,866.73	-220.68	-8.18	-212.68	0.05	-0.03	0.47
3,968.99	4.13	185.51	3,960.83	-227.43	-8.78	-219.11	0.07	0.03	0.86
4,063.85	3.80	186.24	4,055.46	-233.96	-9.45	-225.30	0.35	-0.35	0.77
4,158.78	3.59	186.30	4,150.19	-240.04	-10.12	-231.06	0.23	-0.23	0.06
4,253.07	3.24	180.72	4,244.32	-245.63	-10.47	-236.41	0.51	-0.37	-5.92
4,347.74	3.29	180.42	4,338.83	-251.02	-10.53	-241.64	0.06	0.05	-0.32
4,442.51	2.95	180.34	4,433.46	-256.18	-10.56	-246.64	0.36	-0.36	-0.08
4,536.86	2.41	181.03	4,527.71	-260.59	-10.61	-250.92	0.57	-0.57	0.73
4,631.07	1.32	173.75	4,621.87	-263.64	-10.53	-253.91	1.18	-1.16	-7.73
4,725.32	0.63	155.52	4,716.10	-265.20	-10.20	-255.50	0.79	-0.73	-19.34
4,820.02	0.52	142.80	4,810.80	-266.01	-9.72	-256.40	0.18	-0.12	-13.43
4,914.67	0.46	133.69	4,905.45	-266.62	-9.19	-257.12	0.10	-0.06	-9.62

# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

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)	
5,008.88	0.50	108.83	4,999.65	-267.01	-8.52	-257.65	0.22	0.04	-26.39	
5,103.34	0.56	97.19	5,094.11	-267.20	-7.68	-258.04	0.13	0.06	-12.32	
5,198.80	0.23	131.68	5,189.57	-267.39	-7.07	-258.36	0.41	-0.35	36.13	
5,294.06	0.29	138.23	5,284.83	-267.69	-6.77	-258.73	0.07	0.06	6.88	
5,389.01	0.19	136.63	5,379.77	-267.99	-6.50	-259.08	0.11	-0.11	-1.69	
5,484.42	0.21	134.13	5,475.18	-268.22	-6.27	-259.36	0.02	0.02	-2.62	
5,579.90	0.12	143.90	5,570.66	-268.43	-6.08	-259.60	0.10	-0.09	10.23	
5,675.16	0.19	144.85	5,665.92	-268.64	-5.93	-259.84	0.07	0.07	1.00	
5,770.26	0.22	145.57	5,761.02	-268.92	-5.74	-260.16	0.03	0.03	0.76	
5,865.84	0.12	160.45	5,856.60	-269.16	-5.60	-260.43	0.11	-0.10	15.57	
5,961.06	0.12	192.64	5,951.82	-269.35	-5.59	-260.62	0.07	0.00	33.81	
6,056.48	0.09	209.27	6,047.24	-269.52	-5.65	-260.76	0.04	-0.03	17.43	
6,149.88	0.10	210.89	6,140.64	-269.65	-5.72	-260.87	0.01	0.01	1.73	
6,245.48	0.18	158.64	6,236.24	-269.86	-5.71	-261.08	0.15	0.08	-54.65	
6,340.99	0.18	129.48	6,331.75	-270.10	-5.54	-261.35	0.09	0.00	-30.53	
6,436.41	0.15	118.26	6,427.17	-270.25	-5.32	-261.55	0.05	-0.03	-11.76	
6,529.58	0.08	313.48	6,520.34	-270.26	-5.26	-261.58	0.24	-0.08	-176.86	
6,625.03	0.16	328.28	6,615.79	-270.10	-5.37	-261.40	0.09	0.08	15.51	
6,720.47	0.14	23.82	6,711.23	-269.88	-5.40	-261.18	0.15	-0.02	58.19	
6,813.76	0.23	80.11	6,804.52	-269.75	-5.17	-261.10	0.21	0.10	60.34	
6,906.80	0.34	85.68	6,897.56	-269.69	-4.71	-261.16	0.12	0.12	5.99	
7,001.11	0.50	88.23	6,991.87	-269.66	-4.02	-261.28	0.17	0.17	2.70	
7,095.53	0.62	108.34	7,086.28	-269.81	-3.12	-261.64	0.24	0.13	21.30	
7,189.92	0.66	110.82	7,180.67	-270.16	-2.13	-262.21	0.05	0.04	2.63	
7,284.51	0.53	128.41	7,275.25	-270.63	-1.28	-262.86	0.24	-0.14	18.60	
7,378.91	0.48	97.69	7,369.65	-270.95	-0.54	-263.35	0.29	-0.05	-32.54	
7,473.19	0.50	93.61	7,463.92	-271.03	0.26	-263.61	0.04	0.02	-4.33	
7,567.44	0.61	100.47	7,558.17	-271.15	1.16	-263.94	0.14	0.12	7.28	
7,662.27	0.72	104.30	7,652.99	-271.39	2.24	-264.42	0.13	0.12	4.04	
7,756.47	0.74	112.45	7,747.19	-271.77	3.37	-265.05	0.11	0.02	8.65	
7,850.66	0.78	102.27	7,841.37	-272.13	4.56	-265.69	0.15	0.04	-10.81	
7,944.83	0.89	91.25	7,935.53	-272.29	5.92	-266.16	0.21	0.12	-11.70	
8,039.05	0.70	109.58	8,029.74	-272.50	7.19	-266.66	0.33	-0.20	19.45	
8,134.28	0.53	123.84	8,124.96	-272.94	8.11	-267.30	0.24	-0.18	14.97	
8,230.00	0.29	9.81	8,220.68	-272.94	8.52	-267.40	0.73	-0.25	-119.13	
8,279.00	1.46	359.43	8,269.67	-272.20	8.53	-266.68	2.40	2.39	-21.18	
8,309.00	5.76	352.60	8,299.61	-270.32	8.33	-264.81	14.38	14.33	-22.77	
8,341.00	12.31	349.59	8,331.19	-265.37	7.51	-259.80	20.52	20.47	-9.41	
8,373.00	16.65	350.30	8,362.17	-257.49	6.12	-251.81	13.57	13.56	2.22	
8,404.00	19.76	349.86	8,391.62	-247.95	4.45	-242.15	10.04	10.03	-1.42	
8,436.00	21.02	345.83	8,421.61	-237.06	2.09	-231.01	5.89	3.94	-12.59	
8,468.00	23.91	340.47	8,451.18	-225.38	-1.48	-218.82	11.06	9.03	-16.75	
8,500.00	26.80	338.22	8,480.10	-212.57	-6.33	-205.23	9.52	9.03	-7.03	

# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

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)
8,532.00	30.32	335.98	8,508.20	-198.49	-12.30	-190.14	11.50	11.00	-7.00
8,563.00	33.15	333.97	8,534.56	-183.72	-19.20	-174.17	9.74	9.13	-6.48
8,595.00	35.94	334.06	8,560.92	-167.41	-27.15	-156.46	8.72	8.72	0.28
8,627.00	36.50	334.50	8,586.73	-150.37	-35.36	-137.98	1.93	1.75	1.38
8,659.00	38.18	334.85	8,612.18	-132.83	-43.66	-118.98	5.29	5.25	1.09
8,691.00	40.50	336.10	8,636.92	-114.37	-52.07	-99.07	7.66	7.25	3.91
8,723.00	44.63	335.96	8,660.49	-94.60	-60.86	-77.79	12.91	12.91	-0.44
8,755.00	48.45	335.68	8,682.49	-73.42	-70.38	-54.97	11.95	11.94	-0.88
8,786.00	52.71	336.65	8,702.17	-51.51	-80.05	-31.42	13.95	13.74	3.13
8,818.00	55.54	338.83	8,720.93	-27.52	-89.86	-5.80	10.42	8.84	6.81
8,848.00	58.72	340.78	8,737.21	-3.87	-98.55	19.22	11.92	10.60	6.50
8,878.00	62.07	342.60	8,752.03	20.89	-106.74	45.21	12.35	11.17	6.07
8,910.00	65.81	342.78	8,766.08	48.33	-115.29	73.89	11.70	11.69	0.56
8,942.00	70.49	343.35	8,777.99	76.73	-123.93	103.53	14.72	14.63	1.78
8,973.00	75.55	344.07	8,787.04	105.18	-132.24	133.13	16.47	16.32	2.32
9,005.00	80.88	345.82	8,793.57	135.42	-140.37	164.43	17.49	16.66	5.47
9,037.00	83.79	347.11	8,797.84	166.25	-147.79	196.14	9.93	9.09	4.03
9,069.00	86.38	347.81	8,800.58	197.37	-154.71	228.02	8.38	8.09	2.19
9,102.00	88.53	348.98	8,802.05	229.66	-161.35	260.96	7.42	6.52	3.55
9,198.00	90.84	349.08	8,802.58	323.90	-179.61	356.86	2.41	2.41	0.10
9,293.00	92.51	348.42	8,799.80	417.03	-198.14	451.75	1.89	1.76	-0.69
9,389.00	92.58	347.62	8,795.54	510.85	-218.04	547.62	0.84	0.07	-0.83
9,484.00	90.70	347.26	8,792.82	603.53	-238.69	642.56	2.01	-1.98	-0.38
9,580.00	90.00	347.58	8,792.23	697.22	-259.60	738.55	0.80	-0.73	0.33
9,675.00	89.03	347.69	8,793.03	790.02	-279.94	833.52	1.03	-1.02	0.12
9,771.00	90.97	347.60	8,793.03	883.79	-300.48	929.50	2.02	2.02	-0.09
9,866.00	92.25	347.07	8,790.37	976.44	-321.30	1,024.45	1.46	1.35	-0.56
9,962.00	91.41	346.40	8,787.30	1,069.83	-343.32	1,120.40	1.12	-0.88	-0.70
10,057.00	88.69	346.25	8,787.22	1,162.13	-365.78	1,215.39	2.87	-2.86	-0.16
10,152.00	90.03	345.58	8,788.28	1,254.26	-388.90	1,310.38	1.58	1.41	-0.71
10,248.00	92.41	344.75	8,786.23	1,347.03	-413.47	1,406.32	2.63	2.48	-0.86
10,344.00	92.45	345.27	8,782.16	1,439.68	-438.27	1,502.20	0.54	0.04	0.54
10,437.00	88.66	347.35	8,781.26	1,530.01	-460.28	1,595.17	4.65	-4.08	2.24
10,532.00	91.31	347.92	8,781.29	1,622.80	-480.62	1,690.15	2.85	2.79	0.60
10,628.00	91.37	347.16	8,779.04	1,716.52	-501.33	1,786.10	0.79	0.06	-0.79
10,723.00	89.83	345.94	8,778.05	1,808.90	-523.42	1,881.09	2.07	-1.62	-1.28
10,818.00	90.97	345.54	8,777.38	1,900.97	-546.82	1,976.08	1.27	1.20	-0.42
10,914.00	90.03	345.39	8,776.55	1,993.89	-570.91	2,072.06	0.99	-0.98	-0.16
11,009.00	89.50	345.86	8,776.94	2,085.92	-594.50	2,167.05	0.75	-0.56	0.49
11,105.00	90.17	344.52	8,777.21	2,178.72	-619.04	2,263.02	1.56	0.70	-1.40
11,201.00	88.63	345.19	8,778.22	2,271.38	-644.11	2,358.97	1.75	-1.60	0.70
11,297.00	89.83	347.11	8,779.51	2,364.58	-667.09	2,454.95	2.36	1.25	2.00
11,394.00	91.48	349.12	8,778.40	2,459.48	-687.07	2,551.90	2.68	1.70	2.07
11,489.00	92.62	348.46	8,775.00	2,552.61	-705.52	2,646.76	1.39	1.20	-0.69



# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

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)
11,585.00	88.19	346.73	8,774.32	2,646.34	-726.14	2,742.72	4.95	-4.61	-1.80
11,680.00	88.42	346.84	8,777.13	2,738.78	-747.85	2,837.67	0.27	0.24	0.12
11,776.00	92.01	348.64	8,776.77	2,832.57	-768.23	2,933.63	4.18	3.74	1.88
11,872.00	92.11	348.62	8,773.32	2,926.63	-787.14	3,029.50	0.11	0.10	-0.02
11,967.00	91.98	347.63	8,769.93	3,019.53	-806.68	3,124.40	1.05	-0.14	-1.04
12,063.00	92.01	347.42	8,766.59	3,113.21	-827.40	3,220.33	0.22	0.03	-0.22
12,158.00	87.99	346.91	8,766.59	3,205.82	-848.50	3,315.31	4.27	-4.23	-0.54
12,254.00	88.16	347.62	8,769.81	3,299.40	-869.65	3,411.24	0.76	0.18	0.74
12,350.00	90.87	348.22	8,770.63	3,393.26	-889.74	3,507.20	2.89	2.82	0.63
12,446.00	91.41	347.99	8,768.72	3,487.18	-909.52	3,603.14	0.61	0.56	-0.24
12,541.00	90.77	347.67	8,766.91	3,580.03	-929.55	3,698.10	0.75	-0.67	-0.34
12,637.00	90.94	347.59	8,765.48	3,673.79	-950.11	3,794.07	0.20	0.18	-0.08
12,732.00	89.50	346.95	8,765.11	3,766.45	-971.04	3,889.06	1.66	-1.52	-0.67
12,827.00	88.09	346.50	8,767.11	3,858.89	-992.85	3,984.04	1.56	-1.48	-0.47
12,922.00	88.02	346.72	8,770.34	3,951.26	-1,014.84	4,078.98	0.24	-0.07	0.23
13,018.00	87.89	347.01	8,773.76	4,044.68	-1,036.64	4,174.92	0.33	-0.14	0.30
13,113.00	88.09	346.67	8,777.09	4,137.13	-1,058.26	4,269.86	0.42	0.21	-0.36
13,208.00	88.06	346.66	8,780.28	4,229.52	-1,080.16	4,364.80	0.03	-0.03	-0.01
13,304.00	89.80	347.16	8,782.08	4,323.00	-1,101.89	4,460.78	1.89	1.81	0.52
13,399.00	90.80	348.07	8,781.58	4,415.79	-1,122.27	4,555.76	1.42	1.05	0.96
13,495.00	91.24	347.78	8,779.87	4,509.65	-1,142.35	4,651.71	0.55	0.46	-0.30
13,590.00	90.54	347.62	8,778.39	4,602.46	-1,162.58	4,746.68	0.76	-0.74	-0.17
13,686.00	88.73	348.13	8,779.01	4,696.31	-1,182.75	4,842.65	1.96	-1.89	0.53
13,782.00	88.96	347.89	8,780.94	4,790.20	-1,202.68	4,938.60	0.35	0.24	-0.25
13,877.00	90.44	348.24	8,781.44	4,883.14	-1,222.33	5,033.56	1.60	1.56	0.37
13,973.00	90.13	348.49	8,780.96	4,977.17	-1,241.69	5,129.50	0.41	-0.32	0.26
14,067.00	88.93	348.58	8,781.73	5,069.28	-1,260.37	5,223.44	1.28	-1.28	0.10
14,161.00	90.97	348.77	8,781.81	5,161.45	-1,278.83	5,317.37	2.18	2.17	0.20
14,256.00	91.34	349.14	8,779.90	5,254.67	-1,297.03	5,412.26	0.55	0.39	0.39
14,352.00	91.34	349.09	8,777.65	5,348.92	-1,315.15	5,508.14	0.05	0.00	-0.05
14,446.00	87.55	348.62	8,778.56	5,441.12	-1,333.32	5,602.04	4.06	-4.03	-0.50
14,542.00	87.49	348.66	8,782.72	5,535.15	-1,352.21	5,697.88	0.08	-0.06	0.04
14,637.00	90.10	348.64	8,784.72	5,628.27	-1,370.90	5,792.78	2.75	2.75	-0.02
14,731.00	90.34	349.49	8,784.36	5,720.56	-1,388.73	5,886.69	0.94	0.26	0.90
14,826.00	91.17	350.26	8,783.10	5,814.07	-1,405.43	5,981.52	1.19	0.87	0.81
14,922.00	87.55	349.34	8,784.18	5,908.53	-1,422.42	6,077.34	3.89	-3.77	-0.96
15,018.00	87.82	349.23	8,788.05	6,002.78	-1,440.26	6,173.14	0.30	0.28	-0.11
15,113.00	88.32	348.36	8,791.25	6,095.91	-1,458.71	6,268.01	1.06	0.53	-0.92
15,208.00	91.84	347.92	8,791.12	6,188.87	-1,478.23	6,362.96	3.73	3.71	-0.46
15,304.00	91.78	346.94	8,788.09	6,282.52	-1,499.11	6,458.90	1.02	-0.06	-1.02
15,399.00	92.78	346.21	8,784.31	6,374.85	-1,521.15	6,553.82	1.30	1.05	-0.77
15,493.00	91.98	345.44	8,780.41	6,465.91	-1,544.15	6,647.73	1.18	-0.85	-0.82
15,588.00	89.90	345.82	8,778.85	6,557.92	-1,567.72	6,742.70	2.23	-2.19	0.40

# QEP Resources

## Survey Report

<b>Company:</b>	QEP ENERGY (TX)	<b>Local Co-ordinate Reference:</b>	Well University 7-2730 N 16MB
<b>Project:</b>	Texas North Central	<b>TVD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Site:</b>	Martin County	<b>MD Reference:</b>	RKB @ 2949.00usft (UNIT 154)
<b>Well:</b>	University 7-2730 N 16MB	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	EDMDB_QEP

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)	
15,683.00	89.93	345.58	8,778.99	6,649.98	-1,591.19	6,837.69	0.25	0.03	-0.25	
15,777.00	88.66	345.12	8,780.14	6,740.91	-1,614.96	6,931.66	1.44	-1.35	-0.49	
15,872.00	89.56	345.33	8,781.62	6,832.76	-1,639.18	7,026.63	0.97	0.95	0.22	
15,968.00	88.73	345.90	8,783.05	6,925.74	-1,663.03	7,122.60	1.05	-0.86	0.59	
16,063.00	91.78	346.76	8,782.63	7,018.03	-1,685.48	7,217.59	3.34	3.21	0.91	
16,159.00	90.67	346.69	8,780.58	7,111.45	-1,707.52	7,313.57	1.16	-1.16	-0.07	
16,255.00	89.56	345.76	8,780.38	7,204.68	-1,730.37	7,409.56	1.51	-1.16	-0.97	
16,350.00	91.64	346.38	8,779.39	7,296.88	-1,753.24	7,504.55	2.28	2.19	0.65	
16,430.00	92.28	346.09	8,776.65	7,374.53	-1,772.27	7,584.50	0.88	0.80	-0.36	
16,493.00	92.28	346.09	8,774.15	7,435.64	-1,787.40	7,647.45	0.00	0.00	0.00	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_