

October 8, 2014

The Railroad Commission of Texas  
Oil and Gas Division  
PO Drawer 12967  
Capital Station  
Austin, Texas 78711-2967

Attn: Pam Johns

RE: Apache Corporation  
University 2505 2HU (Permit No. 773568)  
Survey: University Land / Abstract: Not Available  
Field: Spraberry (Trend Area)  
Reagan County, TX  
API number: 42-383-38545

Dear Pam Johns:

Please find enclosed the original and one copy of the survey performed on the above referenced well by MS Energy Services; RRC Operator No. 592474. Other information required by your office is as follows:

Name of surveyor	Drainhole number	Surveyed depths	Date performed	Type of Survey
Curtis Bingeman	Original	Surface - 7400'	7/5/2014 - 7/6/2014	Rate Gyro

A certified plat, on which the bottom hole location is oriented, both to the surface location and to 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,

Ryan Moran  
MS Survey

**RAILROAD COMMISSION OF TEXAS  
OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER <b>773568</b>	DATE PERMIT ISSUED OR AMENDED <b>Nov 22, 2013</b>	DISTRICT <b>* 7C</b>	
API NUMBER <b>42-383-38545</b>	FORM W-1 RECEIVED <b>Nov 11, 2013</b>	COUNTY <b>REAGAN</b>	
TYPE OF OPERATION <b>NEW DRILL</b>	WELLBORE PROFILE(S) <b>Horizontal</b>	ACRES <b>482.3</b>	
OPERATOR <b>APACHE CORPORATION</b> <b>ATTN REGULATORY STE 3000</b> <b>303 VETERANS AIRPARK LN</b> <b>MIDLAND, TX 79705-0000</b>		027200 <b>NOTICE</b> This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. District Office Telephone No: <b>(325) 657-7450</b>	
LEASE NAME <b>UNIVERSITY 2505</b>		WELL NUMBER <b>2HU</b>	
LOCATION <b>11.2 miles NW direction from BIG LAKE</b>		TOTAL DEPTH <b>8300</b>	
Section, Block and/or Survey SECTION <b>25</b> BLOCK <b>58</b> ABSTRACT <b></b> SURVEY <b>UNIVERSITY LAND</b>			
DISTANCE TO SURVEY LINES <b>2433 ft. SOUTH 1750 ft. EAST</b>		DISTANCE TO NEAREST LEASE LINE <b>110 ft.</b>	
DISTANCE TO LEASE LINES <b>200 ft. NORTH 888 ft. WEST</b>		DISTANCE TO NEAREST WELL ON LEASE <b>See FIELD(s) Below</b>	
FIELD(s) and LIMITATIONS: <p style="text-align: center;"><b>* SEE FIELD DISTRICT FOR REPORTING PURPOSES *</b></p>			
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST LEASE	WELL # NEAREST WE
SPRABERRY (TREND AREA)	482.30	8,300	2HU
UNIVERSITY 2505	110		229
-----			
WELLBORE PROFILE(s) FOR FIELD: <b>Horizontal</b>			
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RESTRICTIONS: Lateral: TH1 Penetration Point Location Lease Lines: 200.0 F NORTH L 888.0 F WEST L Terminus Location BH County: REAGAN Section: 5 Block: 58 Abstract: Survey: UNIVERSITY LAND Lease Lines: 100.0 F SOUTH L 889.0 F WEST L Survey Lines: 100.0 F SOUTH L 1750.0 F EAST L			
<b>THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS</b>			
This well shall be completed and produced in compliance with applicable special field or statewide spacing and density rules. If this well is to be used for brine mining, underground storage of liquid hydrocarbons in salt formations, or underground storage of gas in salt formations, a permit for that specific purpose must be obtained from Environmental Services prior to construction, including drilling, of the well in accordance with Statewide Rules 81, 95, and 97.			



Job Number: SVMO-140912  
 Company: Apache Corporation  
 Lease/Well: University 2505 2HU  
 Location: Reagan County, TX  
 Rig Name: Patterson #173  
 RKB: 28.6'  
 G.L. or M.S.L.: GL

State/Country: Texas/USA  
 Declination: 6.87°  
 Grid: East To Grid North  
 File name: S:\2014SU~1\APACHE\MO\UNIVER~1\2HU.SVY  
 Date/Time: 07-Jul-14 / 14:41  
 Curve Name: Surface - 7400' M.D. (Rate Gyro)

### MS SURVEY

#### WINSERVE SURVEY CALCULATIONS

*Minimum Curvature Method*

*Vertical Section Plane .00*

*Vertical Section Referenced to Wellhead*

*Rectangular Coordinates Referenced to Wellhead*

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.90	254.35	100.00	-.21	-.76	-.21	.79	254.35	.90
200.00	.95	249.21	199.98	-.72	-2.29	-.72	2.40	252.58	.10
300.00	.88	250.57	299.97	-1.27	-3.79	-1.27	3.99	251.49	.07
400.00	.80	246.96	399.96	-1.80	-5.15	-1.80	5.46	250.78	.10
500.00	.40	262.17	499.95	-2.12	-6.14	-2.12	6.50	250.98	.43
600.00	.19	262.12	599.95	-2.19	-6.65	-2.19	7.00	251.80	.21
700.00	.37	284.30	699.95	-2.13	-7.13	-2.13	7.44	253.36	.21
800.00	.29	288.79	799.95	-1.97	-7.68	-1.97	7.93	255.62	.08
900.00	.38	315.19	899.95	-1.65	-8.15	-1.65	8.32	258.55	.18

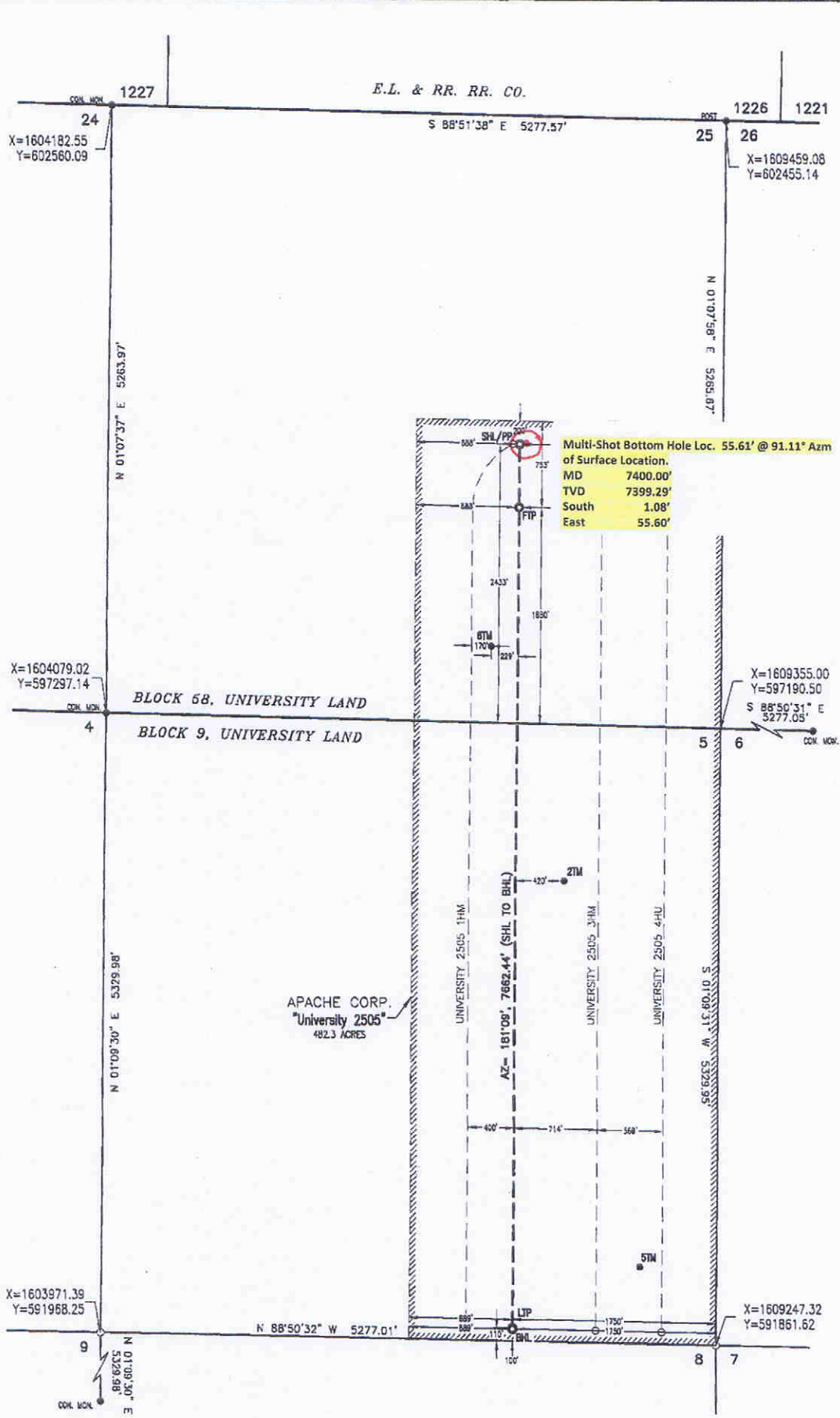


Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.34	313.20	999.95	-1.21	-8.60	-1.21	8.69	261.97	.04
1100.00	.19	278.42	1099.94	-.99	-8.98	-.99	9.04	263.73	.21
1200.00	.24	287.86	1199.94	-.90	-9.35	-.90	9.39	264.51	.06
1300.00	.33	272.35	1299.94	-.82	-9.84	-.82	9.87	265.22	.12
1400.00	.50	258.57	1399.94	-.90	-10.55	-.90	10.59	265.14	.20
1500.00	.35	262.69	1499.94	-1.02	-11.28	-1.02	11.33	264.82	.15
1600.00	.43	210.40	1599.94	-1.38	-11.77	-1.38	11.86	263.29	.35
1700.00	.52	212.38	1699.93	-2.09	-12.21	-2.09	12.38	260.28	.09
1800.00	.61	204.69	1799.93	-2.96	-12.67	-2.96	13.01	256.86	.12
1900.00	.59	218.99	1899.92	-3.84	-13.22	-3.84	13.77	253.79	.15
2000.00	.53	209.91	1999.92	-4.64	-13.77	-4.64	14.53	251.37	.11
2100.00	.54	191.72	2099.91	-5.51	-14.10	-5.51	15.14	248.67	.17
2200.00	.24	151.53	2199.91	-6.15	-14.10	-6.15	15.38	246.42	.39
2300.00	.51	133.79	2299.91	-6.64	-13.67	-6.64	15.20	244.09	.29
2400.00	.43	134.56	2399.90	-7.21	-13.09	-7.21	14.94	241.13	.08
2500.00	.54	131.84	2499.90	-7.79	-12.47	-7.79	14.70	237.99	.11
2600.00	.64	127.54	2599.90	-8.45	-11.67	-8.45	14.41	234.11	.11
2700.00	.46	125.88	2699.89	-9.02	-10.91	-9.02	14.15	230.40	.18
2800.00	.28	146.57	2799.89	-9.46	-10.45	-9.46	14.09	227.83	.22
2900.00	.35	136.19	2899.89	-9.89	-10.10	-9.89	14.13	225.61	.09
3000.00	.49	156.65	2999.88	-10.50	-9.72	-10.50	14.31	222.79	.20
3100.00	.77	140.12	3099.88	-11.41	-9.12	-11.41	14.60	218.64	.33
3200.00	.87	122.34	3199.87	-12.33	-8.05	-12.33	14.72	213.13	.27
3300.00	.84	94.18	3299.86	-12.79	-6.67	-12.79	14.42	207.56	.42
3400.00	.67	85.02	3399.85	-12.79	-5.36	-12.79	13.87	202.74	.21
3500.00	.46	117.95	3499.84	-12.93	-4.42	-12.93	13.66	198.89	.38
3600.00	.48	89.19	3599.84	-13.11	-3.65	-13.11	13.61	195.55	.23
3700.00	.76	67.79	3699.84	-12.85	-2.62	-12.85	13.12	191.51	.36
3800.00	1.07	58.91	3799.82	-12.12	-1.20	-12.12	12.18	185.67	.34

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	.99	65.73	3899.81	-11.28	.38	-11.28	11.29	178.05	.15
4000.00	1.15	60.41	3999.79	-10.43	2.04	-10.43	10.63	168.91	.19
4100.00	1.19	56.51	4099.77	-9.36	3.78	-9.36	10.10	158.00	.09
4200.00	1.26	60.83	4199.75	-8.26	5.61	-8.26	9.98	145.81	.12
4300.00	1.25	64.33	4299.72	-7.25	7.55	-7.25	10.47	133.82	.08
4400.00	1.19	74.91	4399.70	-6.50	9.54	-6.50	11.54	124.29	.23
4500.00	1.06	81.24	4499.68	-6.09	11.45	-6.09	12.97	118.01	.18
4600.00	.99	91.49	4599.66	-5.98	13.23	-5.98	14.52	114.30	.20
4700.00	.69	80.31	4699.65	-5.90	14.69	-5.90	15.83	111.87	.34
4800.00	.69	62.78	4799.65	-5.52	15.82	-5.52	16.75	109.23	.21
4900.00	.74	48.70	4899.64	-4.82	16.84	-4.82	17.51	105.97	.18
5000.00	.96	45.86	4999.63	-3.81	17.93	-3.81	18.33	101.99	.22
5100.00	1.20	56.76	5099.61	-2.65	19.40	-2.65	19.58	97.78	.31
5200.00	1.28	52.93	5199.59	-1.40	21.17	-1.40	21.22	93.79	.12
5300.00	1.11	63.21	5299.56	-.29	22.93	-.29	22.93	90.73	.27
5400.00	.67	101.71	5399.55	.02	24.36	.02	24.36	89.94	.72
5500.00	.55	82.18	5499.55	-.03	25.41	-.03	25.41	90.07	.24
5600.00	.64	66.28	5599.54	.26	26.40	.26	26.40	89.43	.19
5700.00	.53	86.52	5699.54	.51	27.37	.51	27.37	88.93	.23
5800.00	.65	91.27	5799.53	.53	28.40	.53	28.40	88.93	.13
5900.00	.92	98.05	5899.52	.40	29.76	.40	29.76	89.22	.29
6000.00	.82	93.51	5999.51	.25	31.27	.25	31.27	89.55	.12
6100.00	.78	95.57	6099.50	.14	32.66	.14	32.66	89.76	.05
6200.00	.84	100.01	6199.49	-.06	34.06	-.06	34.06	90.09	.09
6300.00	.99	101.68	6299.48	-.36	35.63	-.36	35.63	90.58	.15
6400.00	1.07	103.06	6399.46	-.74	37.38	-.74	37.39	91.14	.08
6500.00	.88	110.31	6499.45	-1.22	39.01	-1.22	39.03	91.79	.23
6600.00	.95	97.82	6599.43	-1.60	40.56	-1.60	40.59	92.26	.21
6700.00	1.05	94.15	6699.42	-1.78	42.29	-1.78	42.33	92.41	.12

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6800.00	1.09	96.96	6799.40	-1.96	44.15	-1.96	44.19	92.54	.07
6900.00	1.12	90.85	6899.38	-2.09	46.07	-2.09	46.12	92.60	.12
7000.00	1.14	86.46	6999.36	-2.04	48.04	-2.04	48.08	92.44	.09
7100.00	1.06	86.60	7099.35	-1.93	49.96	-1.93	49.99	92.21	.08
7200.00	1.15	76.85	7199.33	-1.64	51.86	-1.64	51.88	91.82	.21
7300.00	1.06	83.05	7299.31	-1.30	53.75	-1.30	53.77	91.39	.15
<b>Last Survey Depth Recorded</b>									
7400.00	1.07	82.98	7399.29	-1.08	55.60	-1.08	55.61	91.11	.01





**Surface Hole Location:**  
 GROUND ELEVATION:  
 SHL Ground Elevation: 2619'  
 COORDINATES:  
 NAD 27 TX-C ZONE:  
 X = 1607653.49 Y = 599657.86  
 LAT.: N 31°18'33.86" LONG.: W 101°35'22.95"  
 LAT.: N 31.3094056 LONG.: W 101.5897074  
 NAD 83 TX-C ZONE:  
 X = 1904121.58 Y = 10442234.64  
 LAT.: N 31°18'34.40" LONG.: W 101°35'24.38"  
 LAT.: N 31.3095552 LONG.: W 101.5901047  
 SURVEY LINE PERPENDICULARS:  
 2433' FSL & 1750' FEL (SEC. 25, BLK 58)  
 UNIT LINE PERPENDICULARS:  
 200' FNL & 888' FWL  
**Penetration Point:**  
 COORDINATES:  
 NAD 27 TX-C ZONE:  
 X = 1607653.49 Y = 599657.86  
 LAT.: N 31°18'33.86" LONG.: W 101°35'22.95"  
 LAT.: N 31.3094056 LONG.: W 101.5897074  
 NAD 83 TX-C ZONE:  
 X = 1904121.58 Y = 10442234.64  
 LAT.: N 31°18'34.40" LONG.: W 101°35'24.38"  
 LAT.: N 31.3095552 LONG.: W 101.5901047  
 SURVEY LINE PERPENDICULARS:  
 2433' FSL & 1750' FEL (SEC. 25, BLK 58)  
 UNIT LINE PERPENDICULARS:  
 200' FNL & 888' FWL  
**First Take Point:**  
 COORDINATES:  
 NAD 27 TX-C ZONE:  
 X = 1607642.39 Y = 599105.50  
 LAT.: N 31°18'28.39" LONG.: W 101°35'23.00"  
 LAT.: N 31.3078867 LONG.: W 101.5897230  
 NAD 83 TX-C ZONE:  
 X = 1904110.48 Y = 10441682.28  
 LAT.: N 31°18'28.93" LONG.: W 101°35'24.43"  
 LAT.: N 31.3080363 LONG.: W 101.5901203  
 SURVEY LINE PERPENDICULARS:  
 1880' FSL & 1750' FEL (SEC. 25, BLK 58)  
 UNIT LINE PERPENDICULARS:  
 753' FNL & 888' FWL  
**Last Take Point:**  
 COORDINATES:  
 NAD 27 TX-C ZONE:  
 X = 1607499.79 Y = 592006.96  
 LAT.: N 31°17'18.12" LONG.: W 101°35'23.72"  
 LAT.: N 31.2883665 LONG.: W 101.5899228  
 NAD 83 TX-C ZONE:  
 X = 1903987.85 Y = 10434583.74  
 LAT.: N 31°17'18.66" LONG.: W 101°35'25.15"  
 LAT.: N 31.2885168 LONG.: W 101.5903201  
 SURVEY LINE PERPENDICULARS:  
 110' FSL & 1750' FEL (SEC. 5, BLK 9)  
 UNIT LINE PERPENDICULARS:  
 110' FSL & 889' FWL  
**Bottom Hole Location:**  
 COORDINATES:  
 NAD 27 TX-C ZONE:  
 X = 1607499.58 Y = 591996.96  
 LAT.: N 31°17'18.02" LONG.: W 101°35'23.72"  
 LAT.: N 31.2883390 LONG.: W 101.5899231  
 NAD 83 TX-C ZONE:  
 X = 1903967.65 Y = 10434573.75  
 LAT.: N 31°17'18.56" LONG.: W 101°35'25.15"  
 LAT.: N 31.2884893 LONG.: W 101.5903204  
 SURVEY LINE PERPENDICULARS:  
 100' FSL & 1750' FEL (SEC. 5, BLK 9)  
 UNIT LINE PERPENDICULARS:  
 100' FSL & 889' FWL



*William J. Keating*  
 Texas Reg. No. 5041  
 I, William J. Keating, a Registered Professional Land Surveyor, and an authorized agent of Topographic Land Surveyors, do hereby certify that the above described well location was surveyed and staked on the ground as shown herein. This plat is for Texas Railroad Commission permitting only.

This location has been very carefully staked 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 correct I.B.P.L.S. Minimum Standards of Procedures for Boundary Surveys.



- LEGEND:**
- Prop. Wellbore
  - Unit Boundary
  - Section Lines
  - X- Fence
  - E- Powerline
  - Calculated Corner
  - Pipeline
  - == Lease Road

LEASE NAME & WELL NO:  
**UNIVERSITY 2505 #2HU**  
 TOPOGRAPHY & VEGETATION:  
**NATURAL MESQUITE PASTURE**  
 NEAREST TOWN IN COUNTY:  
**±11.2 MILES NORTHWEST OF BIG LAKE, TEXAS**

LOCATION DESCRIPTION:  
**SECTION 25, BLOCK 58, UNIVERSITY LAND**  
**SECTION 25, BLOCK 58, UNIVERSITY LAND**  
**SECTION 5, BLOCK 9, UNIVERSITY LAND**  
**REAGAN COUNTY, TEXAS**

Scale: 1" = 1000' All Coordinates are in NAD 27 TX-C Zone unless otherwise noted.  
 ORIGINAL DOC. SIZE: 11"x17" COGO: 569-107244 Surveyed: OCTOBER 14, 2013 Drawn By: ACP: 10-31-13

Company:		Apache Corporation				<div><div>Magnetic Declination:</div><div>6.89</div><div>REFERENCED TO GRID NORTH</div><div></div></div>					
Well Name:		University 2505 2HU									
Location:		Reagan County, TX									
Rig:		Patterson #173									
Job Number:		DDMO-140545									
API #:		42-383-38545									
Vertical Section Azimuth:				181.15		Proposed Direction:		181.15			
Survey Calculation Method:				Minimum Curvature							
PTB:	MD		INC		AZM	TVD	N/S	E/W		VS	
	15,483		90.8		180.5	8013.33	-7646.17	-125.06		7647.14	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'
TIE IN	0	0.00	0.00	0.00	0.00	0.00			0.00		
1	624	0.60	254.20	623.99	-0.89	-3.14	0.95	3.27	254.20	0.10	0.10
2	686	0.60	261.10	685.99	-1.03	-3.78	1.10	3.91	254.77	0.12	0.00
3	877	0.60	261.80	876.97	-1.33	-5.75	1.44	5.91	257.03	0.00	0.00
4	1,066	0.10	215.10	1065.97	-1.60	-6.83	1.74	7.01	256.80	0.28	-0.26
5	1,254	0.10	251.20	1253.97	-1.79	-7.08	1.93	7.30	255.82	0.03	0.00
6	1,441	0.60	211.90	1440.97	-2.67	-7.75	2.83	8.20	250.97	0.28	0.27
7	1,630	1.00	189.70	1629.95	-5.14	-8.55	5.31	9.98	239.00	0.26	0.21
8	1,819	0.80	183.10	1818.92	-8.08	-8.90	8.26	12.02	227.76	0.12	-0.11
9	2,008	0.50	167.40	2007.91	-10.20	-8.79	10.38	13.47	220.75	0.18	-0.16
10	2,197	0.60	159.90	2196.90	-11.94	-8.27	12.10	14.52	214.72	0.07	0.05
11	2,384	0.40	146.40	2383.90	-13.40	-7.57	13.55	15.39	209.48	0.12	-0.11
12	2,572	0.40	143.60	2571.89	-14.48	-6.82	14.61	16.00	205.23	0.01	0.00
13	2,760	0.40	129.40	2759.89	-15.42	-5.93	15.54	16.52	201.02	0.05	0.00
14	2,949	0.60	133.50	2948.88	-16.52	-4.70	16.61	17.18	195.87	0.11	0.11
15	3,138	0.70	125.20	3137.87	-17.87	-3.04	17.92	18.12	189.64	0.07	0.05
16	3,325	0.70	122.30	3324.85	-19.14	-1.14	19.16	19.17	183.40	0.02	0.00
17	3,512	0.90	112.90	3511.84	-20.32	1.18	20.29	20.35	176.67	0.13	0.11
18	3,700	1.00	71.00	3699.81	-20.36	4.09	20.27	20.77	168.63	0.36	0.05
19	3,889	1.10	70.80	3888.78	-19.22	7.36	19.07	20.59	159.04	0.05	0.05
20	4,077	0.90	74.20	4076.75	-18.23	10.49	18.02	21.03	150.08	0.11	-0.11
21	4,265	1.10	68.80	4264.72	-17.17	13.59	16.90	21.90	141.64	0.12	0.11
22	4,454	0.80	76.20	4453.70	-16.20	16.57	15.87	23.17	134.37	0.17	-0.16
23	4,642	0.80	59.10	4641.68	-15.22	18.97	14.83	24.32	128.74	0.13	0.00
24	4,829	0.90	70.00	4828.66	-14.04	21.47	13.61	25.65	123.19	0.10	0.05
25	5,017	0.80	63.30	5016.64	-12.95	24.03	12.46	27.29	118.32	0.07	-0.05
26	5,206	1.00	43.80	5205.61	-11.17	26.35	10.64	28.62	112.97	0.19	0.11
27	5,394	0.60	67.80	5393.60	-9.61	28.39	9.04	29.98	108.70	0.27	-0.21
28	5,583	0.70	38.30	5582.58	-8.33	30.03	7.73	31.16	105.51	0.18	0.05
29	5,771	0.70	54.00	5770.57	-6.75	31.67	6.12	32.38	102.04	0.10	0.00
30	5,959	0.90	72.90	5958.55	-5.65	34.01	4.96	34.47	99.43	0.17	0.11
31	6,147	0.80	87.90	6146.53	-5.16	36.73	4.42	37.09	98.00	0.13	-0.05



<b>Company:</b>		Apache Corporation									
<b>Well Name:</b>		University 2505 2HU									
<b>Location:</b>		Reagan County, TX									
<b>Rig:</b>		Patterson #173		<b>Magnetic Declination:</b>		6.89		REFERENCED TO GRID NORTH			
<b>Job Number:</b>		DDMO-140545									
<b>API #:</b>		42-383-38545									
<b>Vertical Section Azimuth:</b>		181.15		<b>Proposed Direction:</b>		181.15					
<b>Survey Calculation Method:</b>		Minimum Curvature									
<b>PTB:</b>	<b>MD</b>	<b>INC</b>	<b>AZM</b>	<b>TVD</b>	<b>N/S</b>	<b>E/W</b>	<b>VS</b>				
	15,483	90.8	180.5	8013.33	-7646.17	-125.06	7647.14				
<b>#</b>	<b>Depth Feet</b>	<b>Inc Degrees</b>	<b>Azm Degrees</b>	<b>TVD Feet</b>	<b>N/S Feet</b>	<b>E/W Feet</b>	<b>Surface Vert Sec</b>	<b>Closure Distance</b>	<b>Azm</b>	<b>DLS/ 100</b>	<b>BUR/ 100'</b>
32	6,336	0.70	94.20	6335.52	-5.20	39.20	4.41	39.54	97.55	0.07	-0.05
33	6,524	0.90	80.70	6523.50	-5.04	41.80	4.20	42.10	96.88	0.15	0.11
34	6,712	0.80	94.30	6711.48	-4.90	44.57	4.01	44.84	96.28	0.12	-0.05
35	6,901	0.80	97.10	6900.46	-5.17	47.19	4.22	47.47	96.25	0.02	0.00
36	7,089	0.80	94.00	7088.44	-5.42	49.80	4.42	50.10	96.21	0.02	0.00
37	7,277	0.80	69.90	7276.42	-5.06	52.35	4.01	52.59	95.52	0.18	0.00
38	7,393	0.80	69.40	7392.41	-4.50	53.86	3.42	54.05	94.77	0.01	0.00
39	7,400	1.07	82.98	7399.41	-4.47	53.98	3.39	54.16	94.74	4.96	3.86
40	7,483	0.70	80.60	7482.40	-4.29	55.24	3.19	55.41	94.45	0.45	-0.45
41	7,514	1.00	71.30	7513.40	-4.18	55.69	3.06	55.84	94.29	1.06	0.97
42	7,546	1.70	185.00	7545.39	-4.56	55.91	3.44	56.10	94.66	7.16	2.19
43	7,577	4.00	209.50	7576.35	-5.96	55.34	4.85	55.66	96.15	8.23	7.42
44	7,608	7.70	201.60	7607.19	-8.83	54.04	7.75	54.76	99.28	12.19	11.94
45	7,640	10.50	195.00	7638.78	-13.64	52.50	12.59	54.24	104.57	9.32	8.75
46	7,671	13.50	194.20	7669.10	-19.88	50.88	18.86	54.62	111.34	9.69	9.68
47	7,702	16.20	195.30	7699.06	-27.56	48.85	26.58	56.09	119.43	8.76	8.71
48	7,734	18.00	195.80	7729.65	-36.63	46.32	35.69	59.05	128.33	5.64	5.63
49	7,765	21.30	194.50	7758.84	-46.69	43.61	45.80	63.89	136.95	10.74	10.65
50	7,797	25.90	189.70	7788.16	-59.21	40.97	58.38	72.01	145.32	15.57	14.38
51	7,828	30.10	188.60	7815.52	-73.58	38.67	72.79	83.12	152.27	13.65	13.55
52	7,860	33.80	187.60	7842.67	-90.34	36.29	89.59	97.36	158.11	11.68	11.56
53	7,891	38.10	185.40	7867.76	-108.42	34.25	107.71	113.70	162.47	14.48	13.87
54	7,923	42.00	184.60	7892.25	-128.93	32.46	128.25	132.95	165.87	12.29	12.19
55	7,953	46.00	184.70	7913.83	-149.69	30.77	149.05	152.82	168.38	13.34	13.33
56	7,985	50.50	185.00	7935.13	-173.48	28.75	172.86	175.84	170.59	14.08	14.06
57	8,016	54.90	185.80	7953.91	-198.02	26.43	197.45	199.77	172.40	14.34	14.19
58	8,048	59.50	185.90	7971.24	-224.77	23.69	224.25	226.01	173.98	14.38	14.38
59	8,079	64.20	186.50	7985.86	-251.93	20.73	251.47	252.79	175.30	15.26	15.16
60	8,110	68.70	186.70	7998.24	-280.16	17.47	279.75	280.70	176.43	14.53	14.52
61	8,142	72.40	186.10	8008.90	-310.14	14.10	309.79	310.46	177.40	11.70	11.56
62	8,173	77.40	185.70	8016.97	-339.90	11.03	339.61	340.08	178.14	16.18	16.13
63	8,205	82.50	184.10	8022.55	-371.28	8.34	371.04	371.38	178.71	16.68	15.94
64	8,237	86.90	183.40	8025.51	-403.07	5.26	402.86	403.12	179.11	13.92	13.75

Company:		Apache Corporation									
Well Name:		University 2505 2HU									
Location:		Reagan County, TX									
Rig:		Patterson #173				Magnetic Declination:		6.89		REFERENCED TO GRID NORTH	
Job Number:		DDMO-140545									
API #:		42-383-38545									
Vertical Section Azimuth:				181.15		Proposed Direction:		181.15			
Survey Calculation Method:				Minimum Curvature							
PTB:	MD		INC		AZM	TVD	N/S		E/W		VS
	15,483		90.8		180.5	8013.33	-7646.17		-125.06		7647.14
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'
65	8,266	88.20	183.10	8026.75	-432.00	4.62	431.82	432.02	179.39	4.60	4.48
66	8,330	88.00	183.50	8028.87	-495.85	0.94	495.74	495.85	179.89	0.70	-0.31
67	8,424	89.60	182.90	8030.84	-589.68	-4.31	589.65	589.70	180.42	1.82	1.70
68	8,518	89.50	181.80	8031.58	-683.60	-8.16	683.63	683.65	180.68	1.18	-0.11
69	8,613	88.80	182.10	8032.99	-778.53	-11.40	778.61	778.62	180.84	0.80	-0.74
70	8,707	90.80	182.10	8033.31	-872.47	-14.84	872.59	872.59	180.97	2.13	2.13
71	8,801	90.50	182.10	8032.25	-966.40	-18.28	966.57	966.57	181.08	0.32	-0.32
72	8,895	90.90	181.90	8031.10	-1060.33	-21.56	1060.55	1060.55	181.17	0.48	0.43
73	8,990	90.50	181.20	8029.94	-1155.29	-24.13	1155.54	1155.54	181.20	0.85	-0.42
74	9,084	90.70	180.90	8028.96	-1249.27	-25.86	1249.54	1249.54	181.19	0.38	0.21
75	9,177	90.70	181.50	8027.82	-1342.24	-27.80	1342.53	1342.53	181.19	0.65	0.00
76	9,272	90.00	179.90	8027.24	-1437.23	-28.96	1437.52	1437.52	181.15	1.84	-0.74
77	9,366	89.50	178.50	8027.65	-1531.21	-27.65	1531.46	1531.46	181.03	1.58	-0.53
78	9,461	89.90	180.60	8028.15	-1626.21	-26.91	1626.42	1626.43	180.95	2.25	0.42
79	9,554	90.20	182.50	8028.07	-1719.17	-29.42	1719.41	1719.42	180.98	2.07	0.32
80	9,647	90.80	183.50	8027.25	-1812.03	-34.29	1812.36	1812.36	181.08	1.25	0.65
81	9,742	89.10	180.40	8027.34	-1906.96	-37.52	1907.33	1907.33	181.13	3.72	-1.79
82	9,836	89.10	180.30	8028.81	-2000.95	-38.09	2001.31	2001.31	181.09	0.11	0.00
83	9,929	88.60	180.70	8030.68	-2093.93	-38.91	2094.29	2094.29	181.06	0.69	-0.54
84	10,023	89.60	181.50	8032.16	-2187.90	-40.71	2188.27	2188.28	181.07	1.36	1.06
85	10,118	89.50	182.20	8032.90	-2282.84	-43.78	2283.26	2283.26	181.10	0.74	-0.11
86	10,210	88.80	182.10	8034.27	-2374.77	-47.23	2375.24	2375.24	181.14	0.77	-0.76
87	10,305	90.20	182.10	8035.10	-2469.70	-50.71	2470.22	2470.22	181.18	1.47	1.47
88	10,399	90.00	182.80	8034.93	-2563.61	-54.73	2564.19	2564.20	181.22	0.77	-0.21
89	10,493	90.70	181.40	8034.36	-2657.54	-58.17	2658.18	2658.18	181.25	1.67	0.74
90	10,587	90.60	181.50	8033.29	-2751.51	-60.55	2752.17	2752.17	181.26	0.15	-0.11
91	10,683	90.50	180.60	8032.37	-2847.49	-62.31	2848.16	2848.17	181.25	0.94	-0.10
92	10,777	90.00	179.60	8031.96	-2941.48	-62.47	2942.15	2942.15	181.22	1.19	-0.53
93	10,871	89.30	179.20	8032.53	-3035.48	-61.49	3036.10	3036.10	181.16	0.86	-0.74
94	10,966	90.20	182.00	8032.95	-3130.46	-62.48	3131.08	3131.08	181.14	3.10	0.95
95	11,060	90.10	182.00	8032.70	-3224.40	-65.76	3225.07	3225.07	181.17	0.11	-0.11
96	11,155	90.10	182.30	8032.54	-3319.33	-69.33	3320.06	3320.06	181.20	0.32	0.00

V09.04.02

Company:		Apache Corporation												
Well Name:		University 2505 2HU												
Location:		Reagan County, TX												
Rig:		Patterson #173				Magnetic Declination:		6.89		REFERENCED TO GRID NORTH				
Job Number:		DDMO-140545												
API #:		42-383-38545												
Vertical Section Azimuth:		181.15				Proposed Direction:		181.15						
Survey Calculation Method:		Minimum Curvature												
PTB:	MD		INC		AZM		TVD		N/S		E/W		VS	
	15,483		90.8		180.5		8013.33		-7646.17		-125.06		7647.14	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'			
97	11,250	90.60	181.40	8031.96	-3414.28	-72.40	3415.05	3415.05	181.21	1.08	0.53			
98	11,344	90.20	180.00	8031.30	-3508.27	-73.54	3509.04	3509.04	181.20	1.55	-0.43			
99	11,439	89.50	179.20	8031.55	-3603.27	-72.88	3604.00	3604.00	181.16	1.12	-0.74			
100	11,533	90.10	180.30	8031.88	-3697.26	-72.47	3697.97	3697.97	181.12	1.33	0.64			
101	11,627	90.10	180.90	8031.71	-3791.26	-73.45	3791.97	3791.97	181.11	0.64	0.00			
102	11,721	89.70	180.30	8031.88	-3885.25	-74.44	3885.96	3885.96	181.10	0.77	-0.43			
103	11,815	89.80	181.10	8032.29	-3979.24	-75.59	3979.96	3979.96	181.09	0.86	0.11			
104	11,908	89.30	181.70	8033.02	-4072.21	-77.86	4072.95	4072.96	181.10	0.84	-0.54			
105	12,002	89.20	180.70	8034.25	-4166.18	-79.83	4166.94	4166.95	181.10	1.07	-0.11			
106	12,096	89.60	181.50	8035.23	-4260.16	-81.63	4260.94	4260.94	181.10	0.95	0.43			
107	12,190	89.60	180.50	8035.89	-4354.14	-83.27	4354.93	4354.94	181.10	1.06	0.00			
108	12,284	89.40	181.30	8036.71	-4448.12	-84.75	4448.93	4448.93	181.09	0.88	-0.21			
109	12,378	90.10	181.90	8037.12	-4542.09	-87.37	4542.92	4542.93	181.10	0.98	0.74			
110	12,472	90.40	182.40	8036.71	-4636.02	-90.90	4636.91	4636.91	181.12	0.62	0.32			
111	12,566	90.50	181.40	8035.97	-4729.96	-94.02	4730.90	4730.90	181.14	1.07	0.11			
112	12,660	90.30	182.10	8035.31	-4823.92	-96.89	4824.89	4824.89	181.15	0.77	-0.21			
113	12,755	90.60	181.80	8034.57	-4918.86	-100.12	4919.88	4919.88	181.17	0.45	0.32			
114	12,849	90.20	180.10	8033.91	-5012.84	-101.68	5013.87	5013.87	181.16	1.86	-0.43			
115	12,943	90.80	181.20	8033.09	-5106.83	-102.74	5107.86	5107.86	181.15	1.33	0.64			
116	13,037	90.30	181.50	8032.19	-5200.80	-104.96	5201.86	5201.86	181.16	0.62	-0.53			
117	13,131	89.90	181.00	8032.02	-5294.77	-107.01	5295.85	5295.85	181.16	0.68	-0.43			
118	13,226	89.60	178.80	8032.44	-5389.77	-106.84	5390.83	5390.83	181.14	2.34	-0.32			
119	13,320	89.90	179.00	8032.85	-5483.75	-105.04	5484.75	5484.75	181.10	0.38	0.32			
120	13,414	91.00	181.70	8032.11	-5577.73	-105.61	5578.73	5578.73	181.08	3.10	1.17			
121	13,508	91.10	181.00	8030.39	-5671.69	-107.83	5672.71	5672.72	181.09	0.75	0.11			
122	13,602	91.30	181.40	8028.42	-5765.65	-109.80	5766.69	5766.69	181.09	0.48	0.21			
123	13,696	90.30	180.80	8027.11	-5859.62	-111.60	5860.68	5860.68	181.09	1.24	-1.06			
124	13,790	89.90	180.90	8026.94	-5953.61	-112.99	5954.68	5954.68	181.09	0.44	-0.43			
125	13,885	89.70	179.30	8027.28	-6048.61	-113.16	6049.66	6049.67	181.07	1.70	-0.21			
126	13,979	89.70	180.00	8027.77	-6142.60	-112.59	6143.63	6143.63	181.05	0.74	0.00			
127	14,073	91.00	181.70	8027.19	-6236.59	-113.98	6237.62	6237.63	181.05	2.28	1.38			
128	14,168	91.20	182.20	8025.37	-6331.51	-117.21	6332.59	6332.60	181.06	0.57	0.21			



<b>Company:</b>		Apache Corporation									
<b>Well Name:</b>		University 2505 2HU									
<b>Location:</b>		Reagan County, TX									
<b>Rig:</b>		Patterson #173		<b>Magnetic Declination:</b>		6.89		REFERENCED TO GRID NORTH			
<b>Job Number:</b>		DDMO-140545									
<b>API #:</b>		42-383-38545									
<b>Vertical Section Azimuth:</b>		181.15		<b>Proposed Direction:</b>		181.15					
<b>Survey Calculation Method:</b>		Minimum Curvature									
<b>PTB:</b>	<b>MD</b>	<b>INC</b>	<b>AZM</b>	<b>TVD</b>	<b>N/S</b>	<b>E/W</b>	<b>VS</b>				
	15,483	90.8	180.5	8013.33	-7646.17	-125.06	7647.14				
<b>#</b>	<b>Depth Feet</b>	<b>Inc Degrees</b>	<b>Azm Degrees</b>	<b>TVD Feet</b>	<b>N/S Feet</b>	<b>E/W Feet</b>	<b>Surface Vert Sec</b>	<b>Closure Distance</b>	<b>Azm</b>	<b>DLS/ 100</b>	<b>BUR/ 100'</b>
129	14,262	91.20	181.60	8023.40	-6425.44	-120.33	6426.56	6426.57	181.07	0.64	0.00
130	14,356	91.40	181.80	8021.27	-6519.37	-123.12	6520.53	6520.54	181.08	0.30	0.21
131	14,450	91.10	181.50	8019.22	-6613.31	-125.82	6614.51	6614.51	181.09	0.45	-0.32
132	14,545	91.20	181.20	8017.31	-6708.27	-128.06	6709.49	6709.49	181.09	0.33	0.11
133	14,639	90.40	180.60	8016.00	-6802.25	-129.54	6803.47	6803.48	181.09	1.06	-0.85
134	14,734	90.20	179.40	8015.50	-6897.24	-129.54	6898.45	6898.46	181.08	1.28	-0.21
135	14,829	89.90	179.90	8015.42	-6992.24	-128.96	6993.42	6993.43	181.06	0.61	-0.32
136	14,923	89.40	178.60	8015.99	-7086.23	-127.73	7087.36	7087.38	181.03	1.48	-0.53
137	15,017	89.70	179.00	8016.73	-7180.20	-125.76	7181.28	7181.31	181.00	0.53	0.32
138	15,111	90.20	179.60	8016.81	-7274.20	-124.61	7275.23	7275.26	180.98	0.83	0.53
139	15,205	90.60	180.60	8016.16	-7368.19	-124.77	7369.21	7369.25	180.97	1.15	0.43
140	15,300	90.40	179.50	8015.33	-7463.19	-124.86	7464.19	7464.23	180.96	1.18	-0.21
141	15,394	90.60	180.00	8014.51	-7557.18	-124.45	7558.16	7558.21	180.94	0.57	0.21
142	15,430	90.80	180.50	8014.07	-7593.18	-124.60	7594.15	7594.20	180.94	1.50	0.56