

PIONEER

NATURAL RESOURCES

Pioneer Natural Resources

Upton County, TX (NAD27 TC)

University 3-15A

University 3-15C #103H

API: 42-461-40896

OH

Design: Final Surveys

Standard Survey Report

07 November, 2018

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well University 3-15C #103H
Project:	Upton County, TX (NAD27 TC)	TVD Reference:	GL @ 2705.00usft (Integrity 1)
Site:	University 3-15A	MD Reference:	GL @ 2705.00usft (Integrity 1)
Well:	University 3-15C #103H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.14 Single User Db

Project	Upton 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 3-15A				
Site Position:		Northing:	587,494.80 usft	Latitude:	31° 16' 23.950 N
From:	Map	Easting:	1,530,058.90 usft	Longitude:	101° 50' 15.456 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.77 °

Well	University 3-15C #103H					
Well Position	+N/-S	0.00 usft	Northing:	587,492.90 usft	Latitude:	31° 16' 23.943 N
	+E/-W	0.00 usft	Easting:	1,530,148.90 usft	Longitude:	101° 50' 14.419 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,705.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/21/17	6.01	59.44	47,494.14728613

Design	Final Surveys				
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	96.48	

Survey Program	Date	11/07/18			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
133.00	1,215.00	Corrected Bit-Sensor (OH)	MWD	MWD - Standard	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
133.00	0.26	151.17	133.00	-0.26	0.15	0.17	0.20	0.20	0.00	0.00
133' MD First MWD Survey										
222.00	0.35	160.67	222.00	-0.70	0.33	0.41	0.12	0.10	10.67	
324.00	0.57	144.00	323.99	-1.40	0.73	0.89	0.25	0.22	-16.34	
419.00	1.05	115.00	418.99	-2.15	1.80	2.03	0.65	0.51	-30.53	
514.00	1.27	72.42	513.97	-2.20	3.59	3.82	0.91	0.23	-44.82	
609.00	1.19	63.11	608.95	-1.44	5.48	5.60	0.23	-0.08	-9.80	
705.00	1.27	71.46	704.92	-0.65	7.37	7.40	0.20	0.08	8.70	
800.00	2.33	162.51	799.89	-2.16	8.95	9.14	2.81	1.12	95.84	
895.00	3.03	81.92	894.81	-3.65	12.02	12.36	3.69	0.74	-84.83	

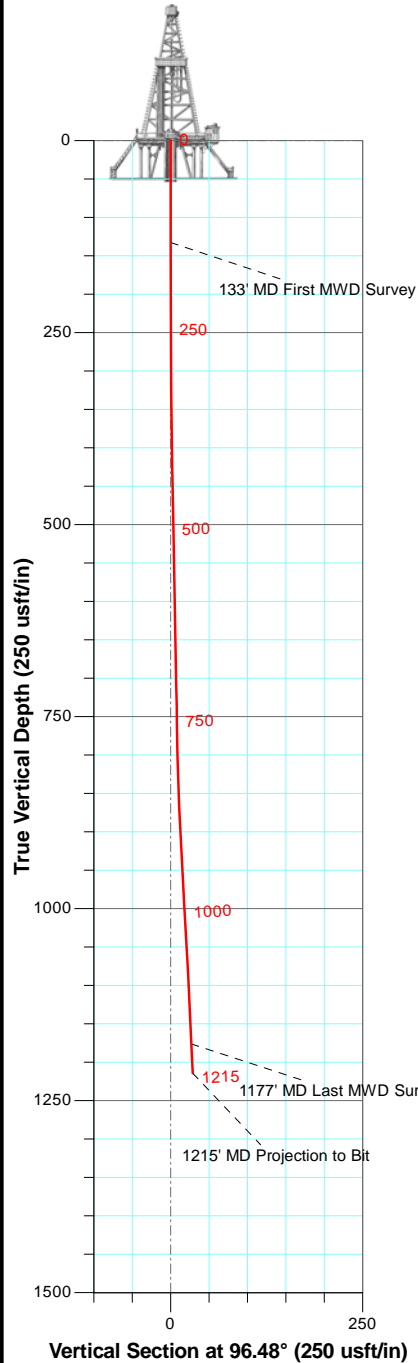
Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well University 3-15C #103H
Project:	Upton County, TX (NAD27 TC)	TVD Reference:	GL @ 2705.00usft (Integrity 1)
Site:	University 3-15A	MD Reference:	GL @ 2705.00usft (Integrity 1)
Well:	University 3-15C #103H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.14 Single User Db

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)
990.00	3.47	92.55	989.66	-3.42	17.38	17.65	0.78	0.46	11.19
1,085.00	2.81	88.37	1,084.52	-3.48	22.58	22.83	0.73	-0.69	-4.40
1,177.00	2.68	87.76	1,176.41	-3.33	26.98	27.19	0.14	-0.14	-0.66
1177' MD Last MWD Survey									
1,215.00	2.68	87.76	1,214.37	-3.26	28.76	28.94	0.00	0.00	0.00
1215' MD Projection to Bit									

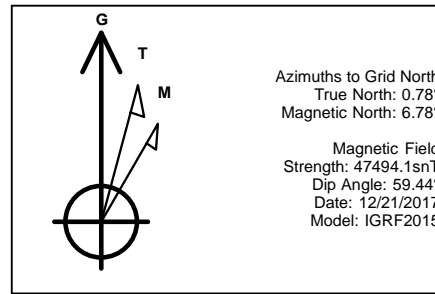
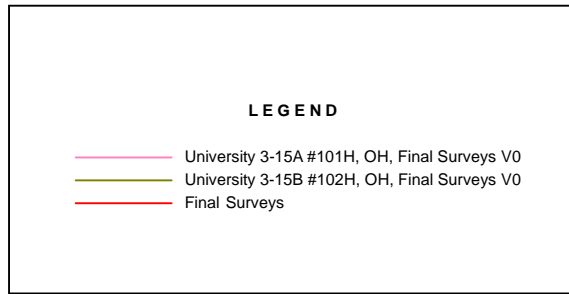
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
University 3-15B #102H - hit/miss target - Shape	0.00	360.00	0.00	0.90	-45.00	587,493.80	1,530,103.90	31° 16' 23.946 N	101° 50' 14.938 W
- actual wellpath misses target center by 45.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 10.00)									
University 3-15A #101H - hit/miss target - Shape	0.00	360.00	0.00	1.90	-90.00	587,494.80	1,530,058.90	31° 16' 23.950 N	101° 50' 15.456 W
- actual wellpath misses target center by 90.02usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 10.00)									
University 3-15C #103H - hit/miss target - Shape	0.00	360.00	0.00	0.00	0.00	587,492.90	1,530,148.90	31° 16' 23.943 N	101° 50' 14.419 W
- actual wellpath hits target center									
- Circle (radius 10.00)									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
133.00	133.00	-0.26	0.15	133' MD First MWD Survey
1,177.00	1,176.41	-3.33	26.98	1177' MD Last MWD Survey
1,215.00	1,214.37	-3.26	28.76	1215' MD Projection to Bit

Checked By: _____ Approved By: _____ Date: _____



WELL DETAILS					
Depth Reference: GL @ 2705.00usft (Integrity 1)					
GL at Surface: 2705.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	587492.90	1530148.90	31° 16' 23.943 N	101° 50' 14.419 W



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

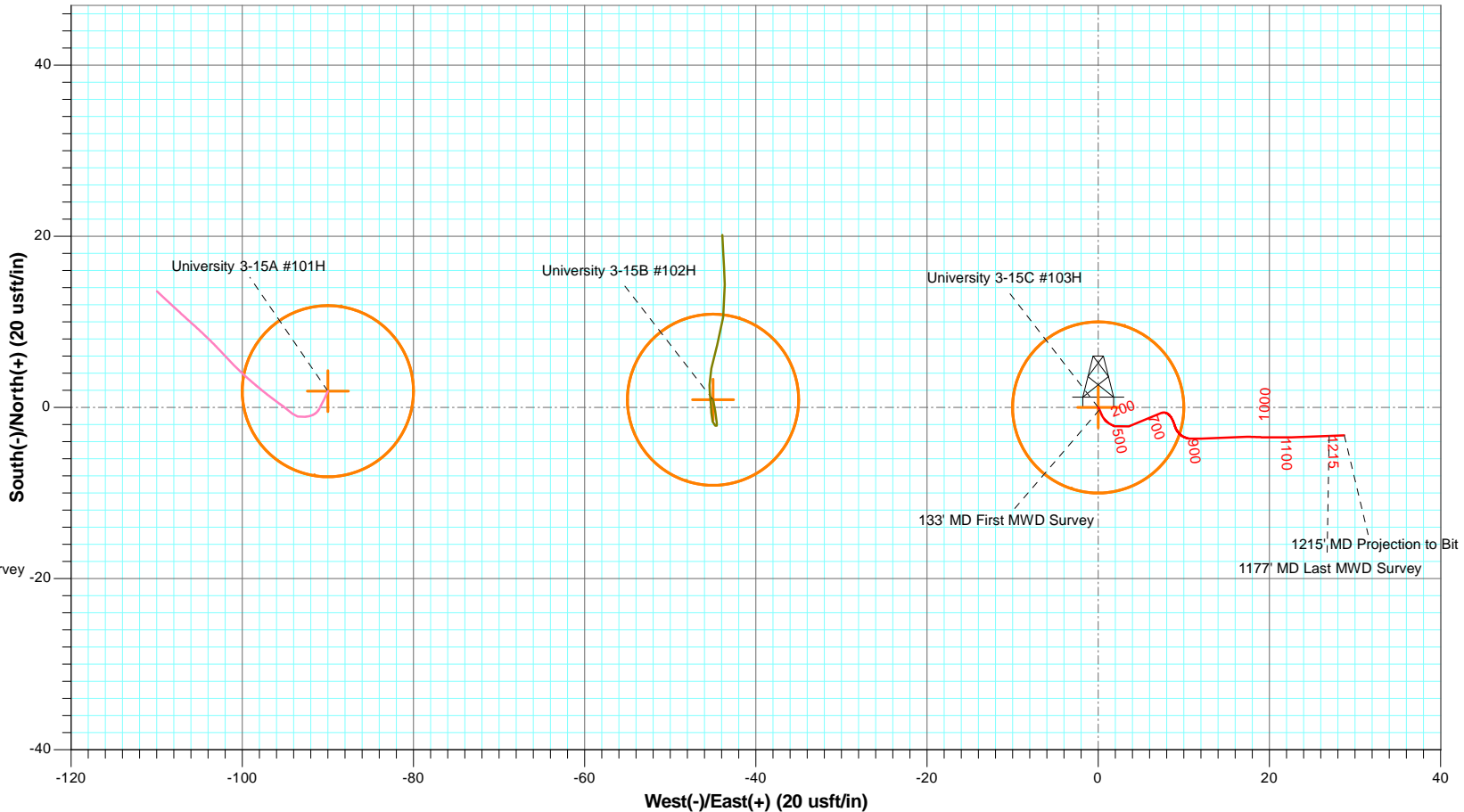
Local Origin: Well University 3-15C #103H, Grid North

Latitude: 31° 16' 23.943 N
 Longitude: 101° 50' 14.419 W

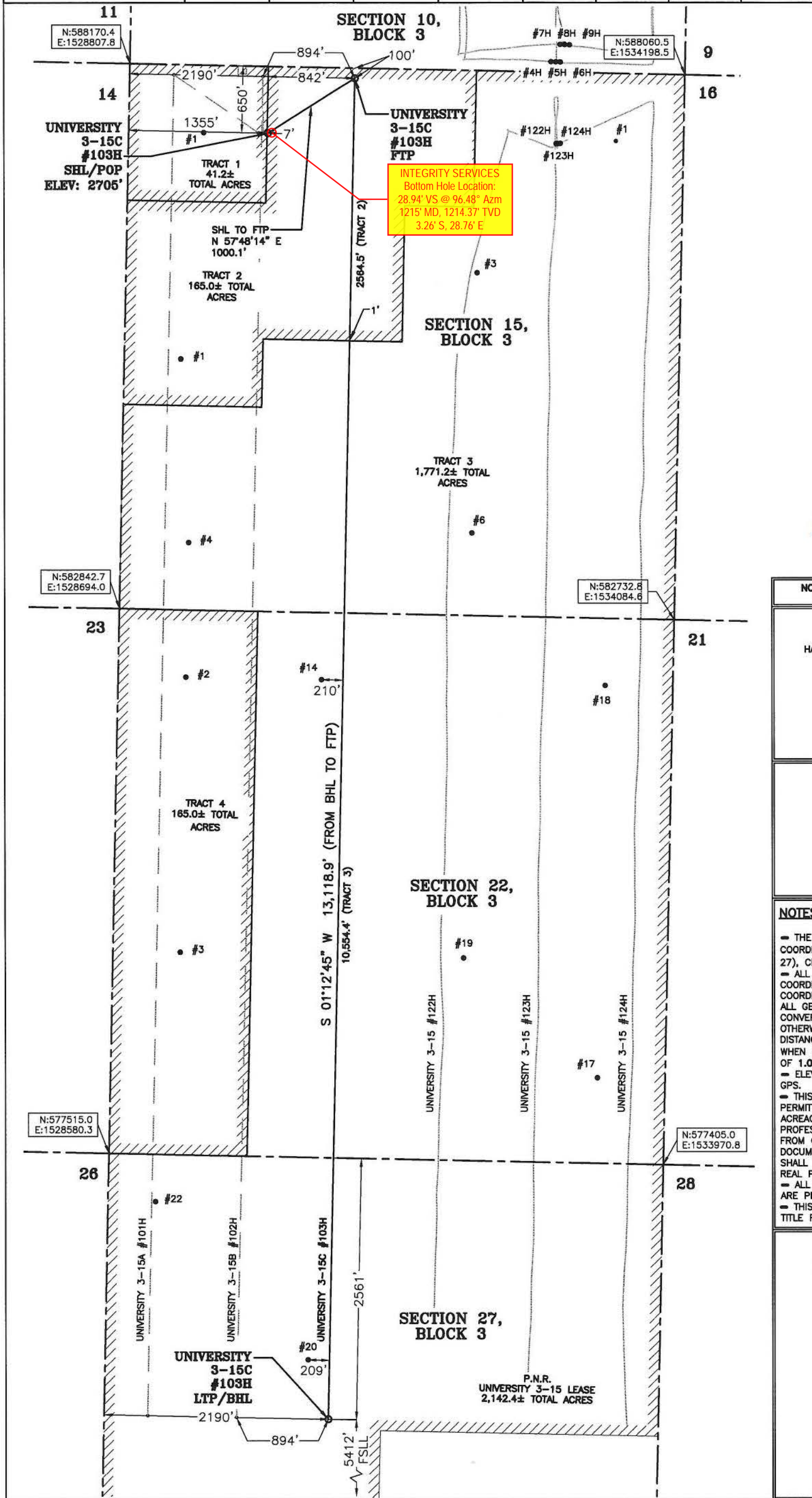
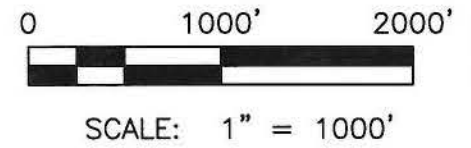
Grid East: 1530148.90
 Grid North: 587492.90
 Scale Factor: 1.000
 Positional Uncertainty: 0.00
 Convergence: -0.77

Geomagnetic Model: IGRF2015
 Sample Date: 21-Dec-17
 Magnetic Declination: 6.01°
 Dip Angle from Horizontal: 59.44°
 Magnetic Field Strength: 47494.14728612nT

To convert a Magnetic Direction to a Grid Direction, Add 6.78°
 To convert a Magnetic Direction to a True Direction, Add 6.01° East
 To convert a True Direction to a Grid Direction, Add 0.77°



UNIVERSITY 3-15C #103H	NORTHING (NAD27)	EASTING (NAD27)	LATITUDE (NAD 27)	LONGITUDE (NAD27)	SECTION LINE		LEASE LINE	
SURFACE HOLE LOCATION (SHL/POP)	587492.9	1530148.9	31.273318	101.837339	650' N (SEC. 15)	1355' W (SEC. 15)	650' N (SEC. 15)	7' W (SEC. 15)
FIRST TAKE POINT (FTP)	588025.8	1530995.2	31.274814	101.834653	100' N (SEC. 15)	2190' W (SEC.15)	100' N (SEC. 15)	842' W (SEC.15)
LAST TAKE POINT/BOTTOM HOLE (LTP/BHL)	574909.9	1530717.6	31.238745	101.834975	2561' N (SEC. 27)	2190' W (SEC. 27)	5412' S (SEC. 34)	2190' W (SEC. 27)



NOTE: WELL IS LOCATED APPROXIMATELY 6.9 MILES NORTHEAST OF RANKIN, UPTON COUNTY, TEXAS

DATED: 03/28/2018
 BY: JERRAD KAUFFMAN
 TBPLS FIRM NO. 10193998
HALFF ASSOCIATES INC., ENGINEERS - SURVEYORS
 3300 N. A STREET, BLDG. 2 STE. 120,
 MIDLAND, TX 79705
 (432) 253-3255
 SCALE: 1" = 1000' AVO 29678-W0630

LEGEND

○	PROPOSED WELL
●	EXISTING WELL
---	LABOR LINE
---	LEAGUE LINE
---	LEASE LINE
---	SUBJECT LATERAL
---	AS-DRILLED LATERAL
---	PROPOSED WELL BORE

NOTES:

- THE BASIS OF BEARING OF THE SURVEY IS THE TEXAS COORDINATE SYSTEM, NORTH AMERICAN DATUM 1927 (NAD 27), CENTRAL ZONE (4203).
- ALL TEXAS STATE PLANE COORDINATES AND GEOGRAPHIC COORDINATES SHOWN HEREON ARE NAD 27 GRID COORDINATES AS COMPUTED BY CORPSCON VERSION 6.0.1. ALL GEOGRAPHIC COORDINATES SHOWN HEREON WERE CONVERTED USING CORPSCON VERSION 6.0.1. UNLESS OTHERWISE NOTED, ALL DISTANCES SHOWN HEREON ARE GRID DISTANCES AND THEY CAN BE CONVERTED TO SURFACE WHEN MULTIPLIED WITH A "SURFACE ADJUSTMENT FACTOR" OF 1.000232818, AS CALCULATED BY CORPSCON.
- ELEVATIONS SHOWN HEREON ARE NAVD88 AS DERIVED BY GPS.
- THIS EXHIBIT IS FOR TEXAS RAILROAD COMMISSION WELL PERMITTING PURPOSES ONLY. BOUNDARY LINES AND ACREAGE SHOWN HEREON REFLECT THE SURVEYORS PROFESSIONAL OPINION OF MINERAL RIGHTS AS DETERMINED FROM CLIENT-PROVIDED OIL AND GAS MINERAL LEASE DOCUMENTATION. THE INFORMATION DEPICTED HEREON SHALL NOT BE USED IN THE CONVEYANCE OF FEE TITLE TO REAL PROPERTY.
- ALL MEASUREMENTS TO LEASE, UNIT, AND SURVEY LINES ARE PERPENDICULAR TO SAID LINES.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.

PIONEER NATURAL RESOURCES USA, INC.
WELL PLAT
UNIVERSITY 3-15C #103H

TRACT 2 - 165.0± ACRES
 TRACT 3 - 1,771.2± ACRES

TOTAL UNIVERSITY 3-15 LEASE
1,936.2± ACRES

LOCATED IN:
 SECTIONS 15, 22 & 27,
 BLOCK 3,
 UNIVERSITY LAND SURVEY,
 UPTON COUNTY, TEXAS



Survey Certification Letter

December 5, 2018

State of Texas
County of Upton

I, Chris Harris, certify that; I am employed by **Integrity Services, LLC**; that I did on the day(s) of 11/4/2018 through 11/7/2018 conducted and / or supervised the MWD survey(s) taken from the depth of 133 feet to depth of 1177 feet; that the data is true, correct, complete and within the specifications and limitations of the survey tool provided by **Integrity Services, LLC**; that I am authorized and qualified to make this survey report; that was requested by Pioneer Natural Resources for the surveys performed on the University 3-15C #103H well, API No. 42-461-40896. In Upton County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures set forth by **Integrity Services, LLC**.

Chris Harris

Chris Harris
Performance Supervisor
P.O. Box 5989 | Midland, TX 79704
Office: 432-682-0703
chris@integrity-serv.com

DIRECTIONAL SURVEY REPORT



Report Date: 5/7/2019	Job Start Date: 11/18/2018	Time Zone: GMT -06:00	North Reference: GridNorth
Operator: Pioneer Natural Resources	Map System: US State Plane 1927 (Exact solution)	Reference Datum: Rotary/Tabular	Vertical Section Az (deg): 181.21
Well Name: University 3-15C 103H	Map Ellipsoid: NAD 1927 (NADCON CONUS)	Survey Calc. Method: Minimum Curvature	Magnetic Model: IFR
Rig: Patterson 807	Map Zone: Texas Central 4203	Ground Elevation (ft.): 2705	Calc. Date: 47442
Job Number: HD1118DPM231	Well Latitude: 31° 16' 23.952" N	RKB Above MSL (ft.): 28.5	Field Strength (nT): 47442
State: Texas	Well Longitude: 101° 50' 14.424" W	Non Mag Above (ft.): 0	Dip Angle (deg): 59.46
County: Upton Co	Well Northings: Well Eastings:	Non Mag Below (ft.): 0	Mag. Declination (deg): 6.33
Field: Upton County, TX			Grid Convergence (deg): -0.77
Survey Correction Co.: Gyrodata Inc.			Total Correction (deg): 7.1

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (+/-) (ft.)	E/W (+/-) (ft.)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC		Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time	
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)							Gravity Total (g)
10539.00	90.19	180.82	3.44	8991.71	-1392.14	799.48	1374.95	0.929670	0.373382	-0.003663	-36978	-17674	-25000	58.63	48008	58.63	48008	1.00175	152.60	Oil	MWD+IFR1+SAG+MS	112	2	1/16/19 18:36
10633.00	88.82	180.11	1.64	8992.52	-1486.13	798.72	1468.94	0.999512	-0.067643	0.020269	-41593	-128	-23974	58.64	48008	58.64	48008	1.00189	152.60	Oil	MWD+IFR1+SAG+MS	113	2	1/16/19 19:37
10726.00	88.65	179.99	0.22	8994.57	-1579.11	798.64	1561.89	-0.638584	0.771429	0.023199	28773	-29945	-24011	58.38	47970	58.38	47970	1.00160	156.20	Oil	MWD+IFR1+SAG+MS	114	2	1/16/19 20:22
10821.00	88.79	179.21	0.83	8996.69	-1674.08	799.30	1656.83	-0.631258	-0.776801	0.020757	23498	34304	-24084	58.41	48052	58.41	48052	1.00106	159.80	Oil	MWD+IFR1+SAG+MS	115	2	1/16/19 21:12
10915.00	88.85	183.20	4.24	8998.63	-1768.02	797.33	1750.79	0.311844	0.951160	0.019780	-11337	-39835	-24267	58.43	48003	58.43	48003	1.00106	159.80	Oil	MWD+IFR1+SAG+MS	116	2	1/16/19 22:18
11010.00	89.02	183.60	0.46	9000.39	-1862.84	791.69	1845.71	-0.553114	-0.833944	0.016850	21557	35293	-24451	58.38	48043	58.38	48043	1.00073	163.40	Oil	MWD+IFR1+SAG+MS	117	2	1/16/19 23:07
11104.00	89.49	184.12	0.75	9001.62	-1956.62	785.36	1939.60	0.761661	-0.650794	0.008547	-32180	25806	-24670	58.58	48063	58.58	48063	1.00175	158.00	Oil	MWD+IFR1+SAG+MS	118	2	1/17/19 2:51
11198.00	88.04	182.87	2.04	9003.64	-2050.42	779.64	2033.50	0.605861	0.796337	0.033944	-23865	-34267	-23608	58.49	47970	58.49	47970	1.00108	156.20	Oil	MWD+IFR1+SAG+MS	119	2	1/17/19 4:37
11292.00	88.01	180.44	2.58	9006.88	-2144.32	776.92	2127.43	-0.210745	-0.978022	0.034432	5989	41447	-23535	58.47	48037	58.47	48037	1.00095	159.80	Oil	MWD+IFR1+SAG+MS	120	2	1/17/19 5:39
11386.00	89.04	181.06	1.28	9009.30	-2238.27	775.69	2221.40	-0.874481	-0.487179	0.016361	34780	22399	-24524	58.21	48092	58.21	48092	1.00105	165.20	Oil	MWD+IFR1+SAG+MS	121	2	1/17/19 7:20
11422.00	89.23	181.06	0.53	9009.85	-2274.26	775.03	2257.39	0.190232	-0.980952	0.012454	-10202	40092	-23571	59.45	47613	59.45	47613	0.99919	158.00	Oil	MWD+IFR1+SAG+MS	122	3	1/18/19 2:30
11516.00	91.41	182.57	2.82	9009.32	-2368.21	772.05	2351.38	-0.290692	-0.860317	-0.025641	-21960	33865	-25256	59.35	47612	59.35	47612	0.99917	163.40	Oil	MWD+IFR1+SAG+MS	123	3	1/18/19 4:04
11610.00	88.53	180.45	3.80	9009.37	-2462.16	769.57	2445.36	-0.594139	-0.803663	0.024664	22363	35183	-23242	59.20	47730	59.20	47730	0.99963	172.40	Oil	MWD+IFR1+SAG+MS	124	3	1/18/19 6:21
11704.00	87.46	180.47	1.14	9012.66	-2556.10	768.82	2539.29	0.944811	0.321612	0.043224	-38700	-16502	-22473	59.13	47697	59.13	47697	0.99887	176.00	Oil	MWD+IFR1+SAG+MS	125	3	1/18/19 8:06
11799.00	91.05	180.40	3.78	9013.89	-2651.07	768.10	2634.26	0.365568	0.930159	-0.019292	-12033	-38773	-25037	59.19	47697	59.19	47697	0.99949	177.80	Oil	MWD+IFR1+SAG+MS	126	3	1/18/19 10:26
11893.00	89.03	177.77	3.53	9013.83	-2745.05	769.60	2728.18	0.538950	-0.841758	0.015873	-25550	32692	-23498	59.14	47684	59.14	47684	0.99953	176.00	Oil	MWD+IFR1+SAG+MS	127	3	1/18/19 12:21
11987.00	90.57	179.06	2.14	9014.16	-2839.00	772.20	2822.07	-0.159463	-0.986813	-0.010899	3169	40714	-24707	59.13	47730	59.13	47730	0.99956	174.20	Oil	MWD+IFR1+SAG+MS	128	3	1/18/19 14:50
12082.00	92.56	180.81	2.79	9011.56	-2933.96	772.31	2917.00	-0.627839	0.776801	-0.045665	27125	-29286	-26209	59.12	47752	59.12	47752	0.99973	179.60	Oil	MWD+IFR1+SAG+MS	129	3	1/18/19 16:33
12176.00	92.28	182.26	1.57	9007.59	-3027.84	769.79	3101.91	-0.469109	0.881807	-0.040781	20604	-34267	-26062	59.11	47729	59.11	47729	0.99954	183.20	Oil	MWD+IFR1+SAG+MS	130	3	1/18/19 17:23
12269.00	90.71	180.98	2.18	9005.17	-3120.77	767.16	3103.87	0.589744	-0.807082	-0.013431	-26062	31300	-25440	58.59	48022	58.59	48022	0.99957	154.40	Oil	MWD+IFR1+SAG+MS	131	4	1/19/19 14:05
12364.00	90.96	180.66	0.43	9003.78	-3215.75	765.80	3198.86	-0.969719	-0.242491	-0.017827	38663	12509	-25623	58.57	48040	58.57	48040	0.99963	161.60	Oil	MWD+IFR1+SAG+MS	132	4	1/19/19 16:17
12459.00	89.37	180.26	1.73	9003.51	-3310.74	765.04	3293.85	-0.129182	-0.990721	0.010022	8260	-40495	-24377	58.65	47982	58.65	47982	0.99905	168.80	Oil	MWD+IFR1+SAG+MS	133	4	1/19/19 18:53
12553.00	91.91	180.97	2.81	9002.46	-3404.72	764.03	3387.83	-0.921856	0.385592	-0.034432	38004	-13059	-26319	58.56	48036	58.56	48036	0.99973	172.40	Oil	MWD+IFR1+SAG+MS	134	4	1/19/19 22:14
12646.00	92.31	180.68	0.53	8999.03	-3497.65	762.69	3480.76	0.998535	0.008059	-0.041270	-39872	-3059	-26539	58.58	47994	58.58	47994	0.99931	176.00	Oil	MWD+IFR1+SAG+MS	135	4	1/19/19 23:07
12741.00	89.48	180.72	2.98	8997.55	-3592.62	761.53	3575.74	-0.149206	-0.988767	0.008059	3498	41154	-24560	58.60	48053	58.60	48053	0.99988	176.00	Oil	MWD+IFR1+SAG+MS	136	4	1/20/19 0:40
12837.00	91.05	183.18	3.04	8997.11	-3688.55	758.27	3671.72	0.086620	-0.997070	-0.019292	-4414	40311	-25769	58.60	48047	58.60	48047	0.99950	177.80	Oil	MWD+IFR1+SAG+MS	137	4	1/20/19 1:26
12931.00	89.03	180.49	3.19	8996.47	-3782.49	755.26	3765.70	0.850128	-0.592674	0.003663	-34670	22070	-24817	58.45	48010	58.45	48010	0.99964	176.00	Oil	MWD+IFR1+SAG+MS	138	4	1/20/19 3:29
13026.00	90.43	182.03	1.78	8996.33	-3877.46	753.17	3860.70	-0.504273	-0.863736	-0.008547	18700	36355	-25330	58.58	48093	58.58	48093	1.00009	179.60	Oil	MWD+IFR1+SAG+MS	139	4	1/20/19 4:20
13120.00	88.92	182.06	1.61	8996.87	-3971.40	749.82	3954.68	0.854945	0.517949	0.017827	-34267	-23315	-24231	58.53	48010	58.53	48010	0.99965	179.60	Oil	MWD+IFR1+SAG+MS	140	4	1/20/19 6:07
13214.00	88.64	182.06	0.30	8998.87	-4065.32	746.44	4048.65	-0.987302	-0.157998	0.022711	40678	8700	-24048	58.54	48048	58.54	48048	1.00001	181.40	Oil	MWD+IFR1+SAG+MS	141	4	1/20/19 6:58
13310.00	89.23	181.89	0.64	9000.65	-4161.24	743.13	4144.62	-0.924298	-0.380220	0.012454	37344	17784	-24487	58.52	48068	58.52	48068	0.99941	183.20	Oil	MWD+IFR1+SAG+MS	142	4	1/20/19 7:47
13405.00	94.58	183.87	6.00	8997.50	-4256.03	738.36	4239.49	-0.476923	-0.874969	-0.080830	17418	34817	-28333	58.54	48149	58.54	48149	0.99967	183.20	Oil	MWD+IFR1+SAG+MS	143	4	1/20/19 9:17
13499.00	93.12	181.46	2.99	8991.18	-4349.71	734.00	4333.24	-0.771917	-0.633211	-0.055433	29103	26978	-27271	58.51	48151	58.51	48151	0.99983	183.20	Oil	MWD+IFR1+SAG+MS	144	4	1/20/19 11:03
13594.00	93.63	181.51	0.54	8985.59	-4444.51	731.55	4428.07	-0.594628	0.801710	-0.064225	25366	-30128	-27564	58.52	48072	58.52	48072	1.00011	185.00	Oil	MWD+IFR1+SAG+MS	145	4	1/20/19 12:02
13688.00	91.78	180.52	2.23	8981.15	-4538.39	729.88	4521.96	-0.661538	-0.748962	-0.031990	24524	31996	-26245	58.55	48104	58.55	48104	0.99969	185.00	Oil	MWD+IFR1+SAG+MS	146	4	1/20/19 13:52
13782.00	90.49	180.51	1.37	8979.29	-4632.36	729.04	4615.94	0.797976	-0.199512	-0.009524	-40421	5403	-25330	58.48	48007	58.48	48007	1.00001	186.80	Oil	MWD+IFR1+SAG+MS	147	4	1/20/19 15:26
13876.00	90.93	180.66	0.49	8978.13	-4726.35	728.08	4709.92	-0.458364	-0.888156	-0.017338	21044	-24707	-25659	58.47	48019	58.47	48019	0.99950	186.80	Oil	MWD+IFR1+SAG+MS	148	4	1/20/19 16:52
13969.00	90.57	179.99	0.82	8976.91	-4819.34	727.55	4802.90	-0.976557	-0.213187	-0.010989	39139	11667	-25403	58.49	48097	58.49	48097	0.99951	188.60	Oil	MWD+IFR1+SAG+MS	149	4	1/20/19 18:12
14063.00	88.75	180.14	1.94	8977.47	-4913.34	727.45	4896.88	0.030037	0.999023	0.020757	1740	-41520	-24048	58.51	48013	58.51	48013	0.99958	188.60	Oil	MWD+IFR1+SAG+MS	150	4	1/20/19 19:33
14157.00	91.61	181.10	3.21	8977.17	-5007.32	726.43	4990.86	0.726007	0.685959	-0.029600	-27454	-29469	-26172	58.46	48033	58.46	48033	0.99912	190.40	Oil	MWD+IFR1+SAG+MS	151	4	1/20/19 21:36
14252.00	91.75	180.27	0.89	8974.39	-5102.27	725.29	5085.82	-0.906227	-0.421734	-0.														

DIRECTIONAL SURVEY REPORT



Report Date: 5/7/2019	Job Start Date: 11/18/2018	Time Zone: GMT -06:00	North Reference: GridNorth
Operator: Pioneer Natural Resources	Map System: US State Plane 1927 (Exact solution)	Reference Datum: Rotary/Tabular	Vertical Section Az (deg): 181.21
Well Name: University 3-15C 103H	Map Ellipsoid: 959463	Survey Calc. Method: Minimum Curvature	Magnetic Model: IFR
Rig: Patterson 807	Map Datum: NAD 1927 (NADCON CONUS)	Ground Elevation (ft.): 2705	Calc. Date: 47442
Job Number: HD1118DPM231	Map Zone: Texas Central 4203	RKB Above MSL (ft.): 28.5	Field Strength (NT): 59.46
State: Texas	Well Latitude: 31° 16' 23.952" N	Non Mag Above (ft.): 0	Dip Angle (deg): 6.33
County: Upton Co	Well Longitude: 101° 50' 14.424" W	Non Mag Below (ft.): 0	Mag. Declination (deg): -0.77
Field: Upton County, TX	Well Northings: Well Eastings:		Grid Convergence (deg): 7.1
Survey Correction Co.: Gyrodata Inc.			Total Correction (deg): 7.1

Depth (ft.)	Inclination (°)	Azimuth (°)	DLS (°/100)	TVD (ft.)	N/S (+/-) (ft.)	E/W (+/-) (ft.)	Vertical Section (ft.)	Accelerometer (g)			Magnetometer (nT)			Corrected Survey QC		Raw Survey QC			Temp (°F)	Mud Type	Survey Type	Survey #	Run #	Date & Time	
								Ax	Ay	Az	Mx	My	Mz	Magnetic Dip Angle (°)	Mag Field (nT)	Magnetic Dip Angle (°)	Mag Field (nT)	Gravity Total (g)							
15760.00	89.70	185.10	2.18	8989.84	-6608.19	687.86	6592.19	-0.177045	0.983395	0.004151	8150	-40165	-24927	58.43	47969	58.43	47969	0.99910	186.80	Oil	MWD+IFR1+SAG+MS	168	4	1/22/19 5:30	
15853.00	87.77	181.38	4.51	8991.89	-6701.00	682.61	6685.09	0.599512	0.798779	0.037851	-23095	-34854	-23425	58.41	47926	58.41	47926	0.99934	192.20	Oil	MWD+IFR1+SAG+MS	169	4	1/22/19 7:55	
15947.00	88.50	181.29	0.78	8994.95	-6794.92	680.42	6779.04	0.713309	-0.700122	0.025153	-31337	27344	-23974	58.43	48005	58.43	48005	0.99970	188.60	Oil	MWD+IFR1+SAG+MS	170	4	1/22/19 9:52	
16040.00	88.81	181.91	0.75	8997.13	-6887.86	677.82	6872.01	0.280098	0.959463	0.019780	-9432	-40311	-24231	58.39	47970	58.39	47970	0.99960	188.60	Oil	MWD+IFR1+SAG+MS	171	4	1/22/19 12:08	
16136.00	88.44	182.54	0.76	8999.44	-6983.76	674.10	6967.97	0.936020	-0.350916	0.026129	-39615	12473	-27930	54.46	50050	54.46	50050	0.99987	188.60	Oil	MWD+IFR1+SAG+MS	172	4	1/22/19 14:05	
16230.00	92.00	181.80	3.87	8999.07	-7077.67	670.54	7061.94	-0.993651	-0.105739	-0.035897	39579	6502	-26502	58.46	48074	58.46	48074	0.99980	194.00	Oil	MWD+IFR1+SAG+MS	173	4	1/22/19 15:56	
16324.00	90.35	181.20	1.87	8997.15	-7171.62	668.08	7155.91	-0.983394	-0.178999	-0.007082	39652	9762	-25073	58.68	47919	58.68	47919	0.99947	194.00	Oil	MWD+IFR1+SAG+MS	174	4	1/22/19 17:39	
16418.00	90.51	179.82	1.48	8996.44	-7265.61	667.24	7249.90	0.269353	-0.962882	-0.010012	-13901	38333	-25403	58.39	48042	58.39	48042	0.99979	195.80	Oil	MWD+IFR1+SAG+MS	175	4	1/22/19 18:43	
16512.00	90.65	178.90	0.99	8995.49	-7359.60	668.29	7343.85	-0.779243	-0.626374	-0.012454	29469	28150	-25440	58.40	48042	58.40	48042	0.99975	195.80	Oil	MWD+IFR1+SAG+MS	176	4	1/22/19 19:46	
16607.00	89.56	180.64	2.16	8995.32	-7454.59	668.67	7438.81	-0.427106	0.903785	0.006593	20055	-35916	-24670	58.45	47966	58.45	47966	0.99954	195.80	Oil	MWD+IFR1+SAG+MS	177	4	1/22/19 21:32	
16701.00	88.36	178.97	2.19	8997.02	-7548.57	668.99	7532.76	0.129670	-0.990720	0.027595	-8773	40788	-23681	58.52	47973	58.52	47973	0.99944	197.60	Oil	MWD+IFR1+SAG+MS	178	4	1/22/19 22:31	
16795.00	88.86	181.21	2.44	8999.30	-7642.54	668.84	7626.71	0.917949	-0.395849	0.018803	-38919	14084	-24231	58.41	47961	58.41	47961	0.99973	195.80	Oil	MWD+IFR1+SAG+MS	179	4	1/23/19 1:07	
16888.00	89.06	180.71	0.58	9000.99	-7735.51	667.29	7719.69	-0.301099	-0.953114	0.015385	9872	40202	-24377	58.42	48040	58.42	48040	0.99955	199.40	Oil	MWD+IFR1+SAG+MS	180	4	1/23/19 2:17	
16982.00	90.71	182.10	2.30	9001.18	-7829.47	664.98	7813.69	-0.205861	0.978022	-0.013431	10458	-39176	-25586	58.39	47945	58.39	47945	0.99943	199.40	Oil	MWD+IFR1+SAG+MS	181	4	1/23/19 3:24	
17076.00	91.33	182.60	0.85	8999.51	-7923.38	661.13	7907.65	0.995116	-0.088156	-0.024176	-40238	1667	-26099	58.34	47990	58.34	47990	0.99920	201.20	Oil	MWD+IFR1+SAG+MS	182	4	1/23/19 4:58	
17169.00	86.39	179.25	6.42	9001.36	-8016.31	659.63	8000.59	0.816850	0.572161	0.061783	-32729	-26978	-22289	58.43	47915	58.43	47915	0.99910	201.20	Oil	MWD+IFR1+SAG+MS	183	4	1/23/19 7:21	
17263.00	89.37	181.14	3.75	9004.83	-8110.23	659.30	8094.50	-0.884249	0.466178	0.010012	37528	-16868	-24634	58.33	47955	58.33	47955	0.99955	197.60	Oil	MWD+IFR1+SAG+MS	184	4	1/23/19 9:41	
17357.00	90.60	182.60	2.03	9004.86	-8204.17	656.24	8188.49	0.991209	-0.129670	-0.011477	-40421	3388	-25513	58.39	47919	58.39	47919	0.99961	192.20	Oil	MWD+IFR1+SAG+MS	185	4	1/23/19 12:27	
17451.00	89.87	179.97	2.90	9004.47	-8298.14	654.13	8282.48	-0.946764	-0.320635	0.001221	37821	16026	-24890	58.46	48028	58.46	48028	0.99948	197.60	Oil	MWD+IFR1+SAG+MS	186	4	1/23/19 14:01	
17545.00	89.53	178.40	1.71	9004.96	-8392.13	655.47	8376.41	0.727473	0.685470	0.007082	-27308	-30788	-24524	58.42	47906	58.42	47906	0.99946	199.40	Oil	MWD+IFR1+SAG+MS	187	4	1/23/19 14:54	
17639.00	88.97	179.36	1.18	9006.20	-8486.10	657.30	8470.33	0.103297	-0.994628	0.016850	-7491	40714	-24231	58.40	47968	58.40	47968	1.00001	201.20	Oil	MWD+IFR1+SAG+MS	188	4	1/23/19 16:01	
17733.00	88.55	178.98	0.60	9008.23	-8580.07	658.66	8564.24	-0.369963	0.928205	0.024176	18553	-37161	-23828	58.44	47885	58.44	47885	0.99940	192.20	Oil	MWD+IFR1+SAG+MS	189	4	1/23/19 17:50	
17827.00	89.87	179.28	1.44	9009.53	-8674.04	660.09	8658.17	-0.121367	-0.992674	0.001221	1703	41007	-24854	58.43	47981	58.43	47981	0.99996	192.20	Oil	MWD+IFR1+SAG+MS	190	4	1/23/19 19:48	
17920.00	92.42	181.84	3.88	9007.67	-8767.01	659.18	8751.13	0.903785	0.424664	-0.043223	-35037	-18919	-26758	58.44	47974	58.44	47974	0.99941	192.20	Oil	MWD+IFR1+SAG+MS	191	4	1/23/19 21:01	
18014.00	91.13	180.13	2.28	9004.76	-8860.94	657.57	8845.08	-0.588278	-0.808059	-0.020757	21374	34377	-25806	58.43	48006	58.43	48006	0.99962	190.40	Oil	MWD+IFR1+SAG+MS	192	4	1/23/19 22:14	
18109.00	89.48	179.62	1.82	9004.25	-8955.94	657.78	8940.05	-0.129670	-0.991209	0.008059	2216	41154	-24560	58.47	47977	58.47	47977	0.99958	188.60	Oil	MWD+IFR1+SAG+MS	193	4	1/23/19 23:57	
18204.00	93.57	181.72	4.84	9001.72	-9050.87	656.67	9034.99	-0.131135	-0.989255	-0.063248	2912	39213	-27637	58.38	48062	58.38	48062	0.99980	192.20	Oil	MWD+IFR1+SAG+MS	194	4	1/24/19 4:24	
18298.00	94.19	182.15	0.80	8995.36	-9144.60	653.50	9128.76	0.707448	-0.702564	-0.073993	-29103	25989	-28004	58.45	48027	58.45	48027	0.99967	194.00	Oil	MWD+IFR1+SAG+MS	195	4	1/24/19 6:43	
18391.00	92.73	182.28	1.58	8989.75	-9237.36	649.91	9221.58	0.648352	0.758730	-0.048596	-24121	-31410	-27051	58.33	47960	58.33	47960	0.99909	188.60	Oil	MWD+IFR1+SAG+MS	196	4	1/24/19 9:00	
18485.00	92.45	183.07	0.89	8985.50	-9331.16	645.53	9315.45	-0.363126	-0.930647	-0.043712	12876	37674	-26905	58.37	48052	58.37	48052	0.99983	186.80	Oil	MWD+IFR1+SAG+MS	197	4	1/24/19 11:52	
18579.00	89.23	181.89	3.65	8984.12	-9425.05	641.47	9409.40	0.758242	-0.651282	0.012454	-32619	25147	-24487	58.42	47916	58.42	47916	0.99952	185.00	Oil	MWD+IFR1+SAG+MS	198	4	1/24/19 14:37	
18672.00	90.23	182.04	1.09	8984.56	-9517.99	638.28	9502.39	0.233211	-0.972650	-0.005128	-11557	39103	-25256	58.39	47963	58.39	47963	1.00012	192.20	Oil	MWD+IFR1+SAG+MS	199	4	1/24/19 16:00	
18766.00	89.65	181.75	0.69	8984.66	-9611.94	635.17	9596.38	0.642003	0.765568	0.005128	-24560	-32839	-24780	58.42	47913	58.42	47913	0.99903	195.80	Oil	MWD+IFR1+SAG+MS	200	4	1/24/19 17:12	
18859.00	90.15	181.73	0.54	8984.82	-9704.90	632.34	9689.38	-0.695238	-0.718681	-0.003663	26722	30897	-25183	58.41	47988	58.41	47988	0.99983	197.60	Oil	MWD+IFR1+SAG+MS	201	4	1/24/19 18:29	
18953.00	90.18	179.79	2.06	8984.55	-9798.88	631.10	9783.37	0.790476	0.580464	-0.004151	-30934	-26575	-25183	58.28	47931	58.28	47931	0.98061	192.20	Oil	MWD+IFR1+SAG+MS	202	4	1/24/19 20:57	
19020.00	89.39	181.79	3.21	8984.80	-9865.87	630.17	9850.36	0.900366	0.433944	0.009524	-35989	-19835	-24597	58.41	47892	58.41	47892	0.99942	194.00	Oil	MWD+IFR1+SAG+MS	203	4	1/24/19 21:55	
19075.00	89.45	181.97	0.34	8985.36	-9920.84	628.37	9905.36																		

Projection To Bit