

Pioneer Natural Resources

Andrews County, TX (NAD 27 TC)

Universtiy 7-43

#21H

OH - Job #321114-MPH-1348

Survey: SDI MWD #1

Regulatory Report (Grid North)

22 January, 2015

Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #321114-MPH-1348	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Project	Andrews County, TX (NAD 27 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	Universtiy 7-43		
Site Position:		Northing:	982,143.61 usft
From:	Map	Easting:	1,405,965.42 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 21' 10.084 N
		Longitude:	102° 15' 23.840 W
		Grid Convergence:	-0.99 °

Well	#21H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 21' 16.819 N
		Longitude:	102° 15' 3.341 W
		Ground Level:	2,952.0 usft

Wellbore	OH - Job #321114-MPH-1348				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	11/12/2014	6.63	60.42	48,476

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	164.73	

Survey Program	Date	12/8/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
237.0	8,276.0	SDI MWD #1 (OH - Job #321114-MPH-134	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
237.0	0.95	0.19	237.0	2.0	0.0	0.19	2.0	
303.0	0.72	3.21	303.0	2.9	0.0	0.62	2.9	
396.0	0.75	15.92	396.0	4.1	0.2	3.23	4.1	
488.0	0.81	46.53	488.0	5.1	0.9	9.62	5.2	
581.0	2.88	73.35	580.9	6.2	3.6	29.86	7.2	
765.0	2.67	89.29	764.7	7.6	12.3	58.22	14.5	
950.0	2.07	81.16	949.5	8.2	19.9	67.65	21.5	
1,140.0	2.91	74.23	1,139.4	10.0	27.9	70.26	29.7	
1,329.0	2.56	69.75	1,328.1	12.8	36.5	70.70	38.7	
1,519.0	1.74	80.88	1,518.0	14.7	43.3	71.25	45.8	
1,708.0	2.30	97.35	1,706.9	14.7	49.9	73.61	52.1	

Regulatory Report (Grid North)

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Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #321114-MPH-1348	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,810.0	2.62	96.98	1,808.8	14.1	54.3	75.40	56.1	
1,900.0	2.80	95.50	1,898.7	13.7	58.5	76.84	60.1	
1,995.0	2.86	97.95	1,993.6	13.1	63.2	78.26	64.5	
2,089.0	2.74	97.76	2,087.5	12.5	67.7	79.54	68.9	
2,184.0	3.89	93.07	2,182.3	12.0	73.2	80.67	74.2	
2,279.0	5.55	89.94	2,277.0	11.9	81.0	81.67	81.9	
2,373.0	6.61	89.22	2,370.5	11.9	91.0	82.53	91.7	
2,468.0	7.25	83.59	2,464.8	12.7	102.4	82.94	103.2	
2,562.0	7.66	82.73	2,558.0	14.1	114.5	82.96	115.4	
2,657.0	8.53	81.29	2,652.0	16.0	127.7	82.86	128.7	
2,752.0	8.25	73.93	2,746.0	19.0	141.2	82.36	142.5	
2,846.0	7.29	68.57	2,839.1	23.0	153.3	81.47	155.0	
2,941.0	5.88	66.96	2,933.5	27.1	163.4	80.58	165.6	
3,036.0	4.21	68.87	3,028.1	30.3	171.1	79.97	173.8	
3,130.0	4.51	69.14	3,121.9	32.8	177.8	79.54	180.8	
3,225.0	4.49	69.42	3,216.6	35.5	184.7	79.13	188.1	
3,320.0	4.71	69.73	3,311.3	38.1	191.9	78.76	195.6	
3,414.0	3.26	68.34	3,405.0	40.4	198.0	78.45	202.1	
3,509.0	3.28	68.61	3,499.9	42.4	203.0	78.19	207.4	
3,604.0	2.36	74.08	3,594.8	44.0	207.4	78.03	212.1	
3,698.0	2.17	77.84	3,688.7	44.9	211.0	78.00	215.8	
3,793.0	0.69	73.35	3,783.7	45.4	213.4	77.98	218.1	
3,983.0	0.67	85.12	3,973.7	45.8	215.6	78.00	220.4	
4,172.0	0.59	81.63	4,162.6	46.1	217.6	78.05	222.4	
4,361.0	0.57	78.61	4,351.6	46.4	219.5	78.06	224.4	
4,551.0	0.50	77.30	4,541.6	46.8	221.2	78.06	226.1	
4,740.0	0.57	120.52	4,730.6	46.5	222.9	78.22	227.6	
4,929.0	0.59	117.12	4,919.6	45.5	224.5	78.53	229.1	
5,118.0	0.79	111.65	5,108.6	44.6	226.6	78.86	231.0	
5,308.0	0.67	117.37	5,298.6	43.6	228.8	79.20	232.9	
5,497.0	0.65	129.45	5,487.6	42.4	230.6	79.57	234.5	
5,687.0	0.91	118.94	5,677.5	41.0	232.8	80.00	236.4	
6,065.0	0.86	126.84	6,055.5	37.9	237.7	80.95	240.7	
6,254.0	1.14	126.33	6,244.5	35.9	240.3	81.50	243.0	
6,444.0	1.43	136.49	6,434.4	33.1	243.5	82.27	245.7	
6,633.0	1.52	153.10	6,623.4	29.1	246.2	83.25	247.9	
6,823.0	1.39	160.81	6,813.3	24.7	248.1	84.32	249.4	
7,012.0	1.06	138.82	7,002.3	21.2	250.0	85.15	250.9	
7,201.0	0.71	126.42	7,191.2	19.2	252.1	85.64	252.9	
7,390.0	0.41	177.97	7,380.2	17.8	253.1	85.97	253.7	
7,579.0	0.41	147.81	7,569.2	16.6	253.5	86.26	254.0	
7,768.0	0.48	124.70	7,758.2	15.6	254.5	86.50	255.0	
7,958.0	0.28	192.54	7,948.2	14.7	255.0	86.71	255.5	
8,147.0	1.45	97.04	8,137.2	13.9	257.3	86.90	257.7	

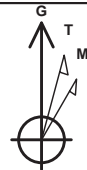
Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #321114-MPH-1348	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

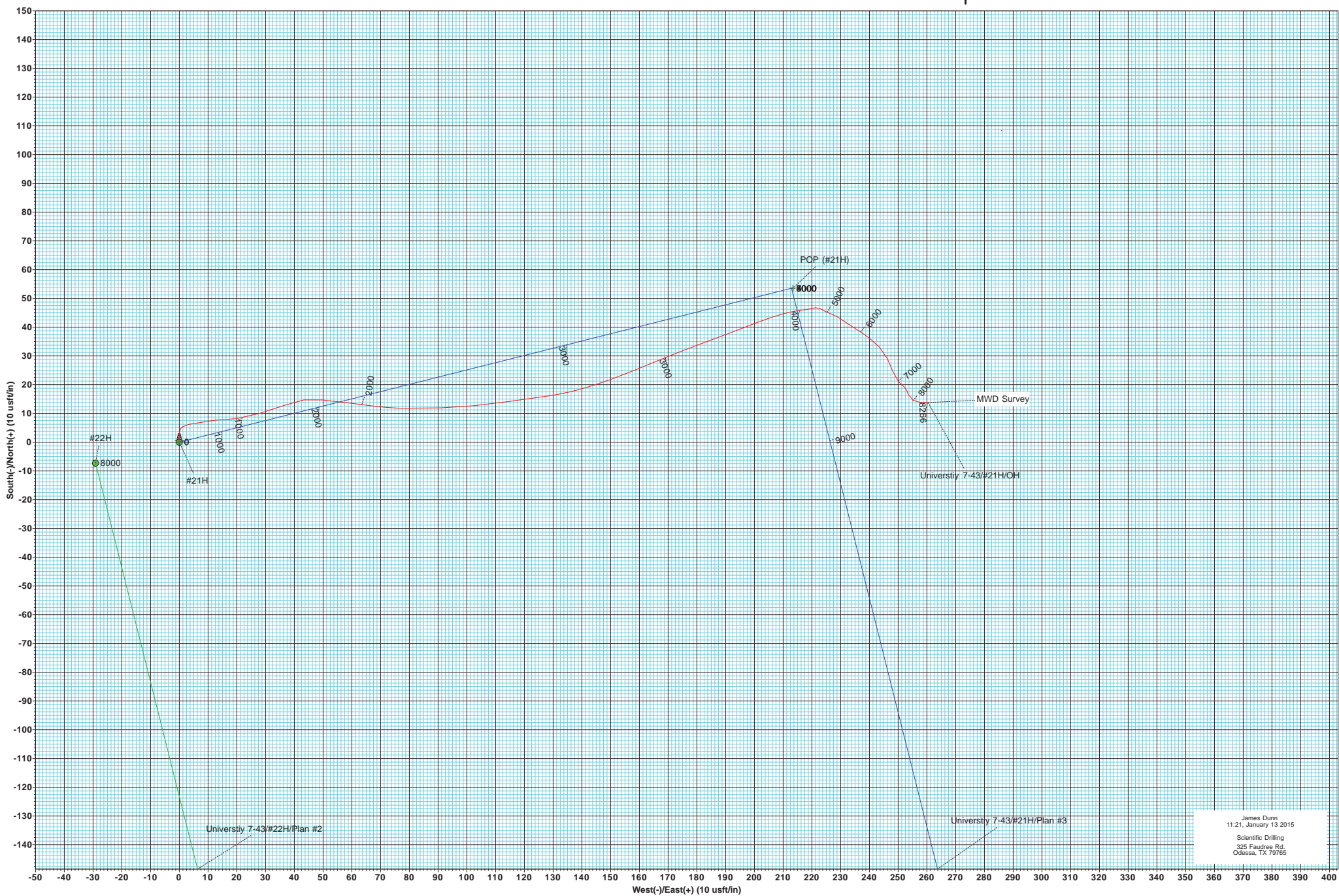
Survey							
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
8,276.0	1.36	86.62	8,266.2	13.8	260.5	86.97	260.8
MWD Survey							

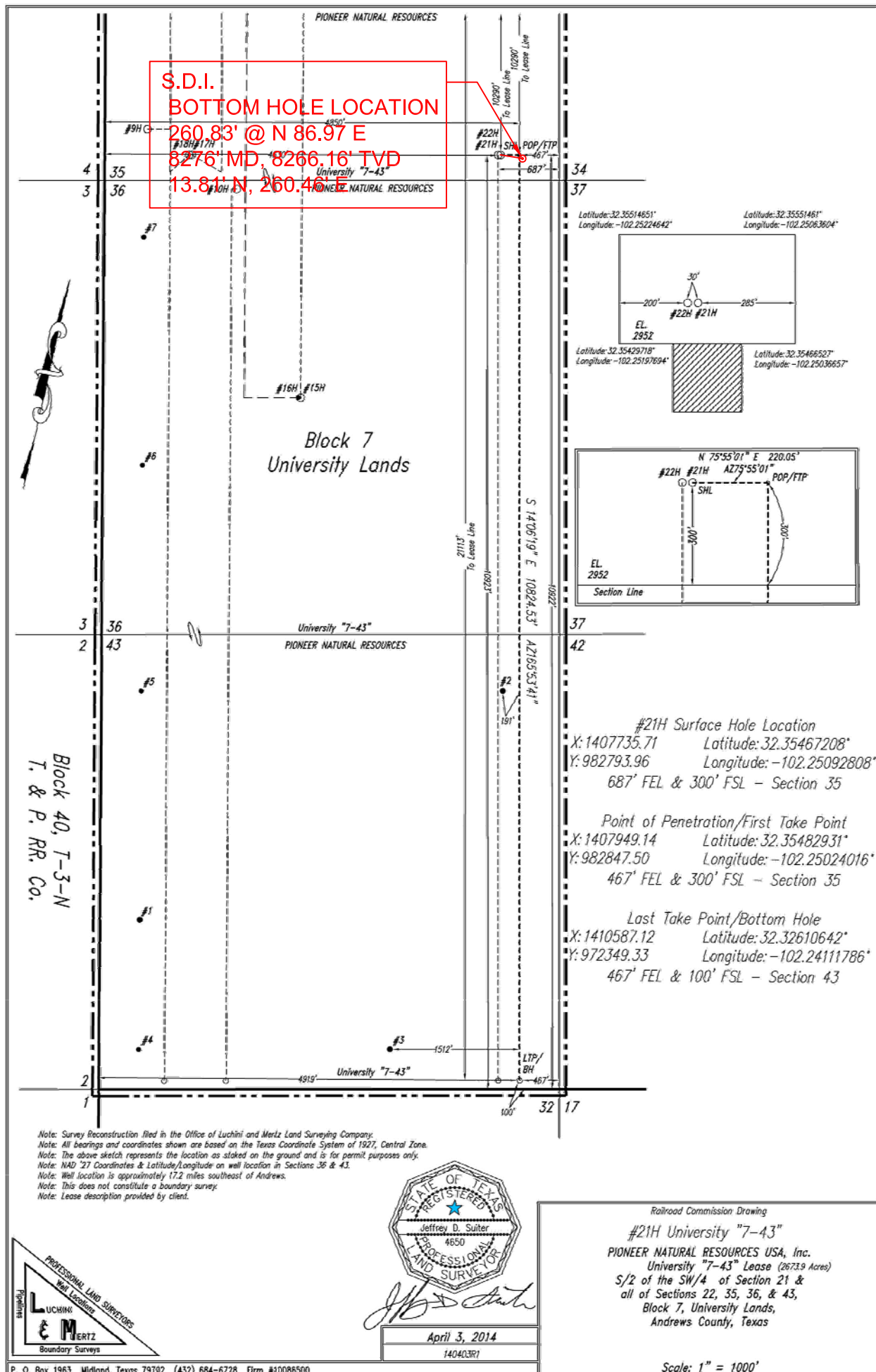
Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,276.0	8,266.2	13.8	260.5	MWD Survey	

Checked By: _____ Approved By: _____ Date: _____



To convert Magnetic North to Grid, Add 7.61°
To convert True North to Grid, Add 0.99°





Pioneer Natural Resources

Andrews County, TX (NAD 27 TC)

Universtiy 7-43

#21H

OH - Job #320115-MPH-0042

Survey: SDI MWD #2

Regulatory Report (Grid North)

25 March, 2015

Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0042	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Project	Andrews County, TX (NAD 27 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	Universtiy 7-43		
Site Position:		Northing:	982,143.61 usft
From:	Map	Easting:	1,405,965.42 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 21' 10.084 N
		Longitude:	102° 15' 23.840 W
		Grid Convergence:	-0.99 °

Well	#21H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 21' 16.819 N
		Longitude:	102° 15' 3.341 W
		Ground Level:	2,952.0 usft

Wellbore	OH - Job #320115-MPH-0042				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	11/12/2014	6.63	60.42	48,476

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	164.73

Survey Program	Date	3/24/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
237.0	8,147.0	SDI MWD #1 (OH - Job #320115-MPH-00	SDI MWD	SDI MWD - Standard ver 1.0.1
8,276.0	19,913.0	SDI MWD #2 (OH - Job #320115-MPH-00	SDI MWD	SDI MWD - Standard ver 1.0.1

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
8,276.0	1.36	86.62	8,266.2	14.1	260.4	86.91	260.8	
8,382.0	1.19	77.52	8,372.1	14.4	262.8	86.87	263.2	
8,476.0	1.32	75.30	8,466.1	14.9	264.8	86.79	265.2	
8,571.0	1.17	86.05	8,561.1	15.2	266.8	86.74	267.2	
8,666.0	1.14	90.66	8,656.1	15.3	268.7	86.75	269.1	
8,697.0	2.87	138.80	8,687.1	14.7	269.5	86.89	269.9	
8,729.0	5.88	154.08	8,719.0	12.6	270.8	87.34	271.1	
8,761.0	8.47	157.35	8,750.7	8.9	272.4	88.12	272.5	
8,792.0	10.51	159.38	8,781.3	4.2	274.3	89.13	274.3	
8,824.0	12.06	162.12	8,812.7	-1.7	276.3	90.36	276.3	
8,855.0	12.84	161.67	8,842.9	-8.1	278.4	91.66	278.5	

Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0042	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
8,887.0	13.60	165.90	8,874.1	-15.1	280.4	93.08	280.9	
8,919.0	15.39	166.73	8,905.1	-22.9	282.3	94.63	283.3	
8,950.0	17.27	167.09	8,934.8	-31.4	284.3	96.30	286.0	
8,982.0	19.89	168.71	8,965.1	-41.3	286.4	98.21	289.4	
9,013.0	22.60	169.27	8,994.0	-52.4	288.6	100.29	293.3	
9,045.0	23.75	170.69	9,023.4	-64.8	290.8	102.56	297.9	
9,076.0	24.61	172.05	9,051.7	-77.3	292.7	104.80	302.7	
9,108.0	27.05	173.54	9,080.5	-91.2	294.4	107.20	308.2	
9,139.0	29.58	175.64	9,107.8	-105.8	295.8	109.68	314.1	
9,171.0	32.86	175.37	9,135.2	-122.3	297.1	112.38	321.3	
9,203.0	34.92	175.56	9,161.7	-140.1	298.5	115.15	329.7	
9,234.0	37.64	174.68	9,186.7	-158.4	300.1	117.83	339.3	
9,266.0	41.31	173.40	9,211.4	-178.6	302.2	120.59	351.0	
9,297.0	44.13	171.85	9,234.2	-199.5	304.9	123.19	364.3	
9,329.0	47.62	171.11	9,256.5	-222.2	308.3	125.78	380.0	
9,360.0	51.15	171.04	9,276.7	-245.4	311.9	128.19	396.9	
9,392.0	54.50	170.85	9,296.0	-270.6	316.0	130.58	416.0	
9,423.0	57.60	170.98	9,313.3	-296.0	320.0	132.77	435.9	
9,455.0	61.25	169.15	9,329.6	-323.1	324.8	134.85	458.1	
9,487.0	63.93	166.66	9,344.3	-350.9	330.7	136.69	482.2	
9,518.0	66.65	164.83	9,357.3	-378.2	337.7	138.24	507.0	
9,549.0	69.37	164.07	9,368.9	-405.9	345.4	139.60	532.9	
9,581.0	73.47	163.54	9,379.1	-435.0	353.8	140.87	560.7	
9,612.0	76.47	163.12	9,387.1	-463.7	362.4	141.99	588.5	
9,707.0	79.40	162.32	9,407.0	-552.4	390.0	144.77	676.2	
9,802.0	82.64	165.20	9,421.8	-642.4	416.2	147.06	765.5	
9,896.0	85.53	166.68	9,431.5	-733.1	439.0	149.09	854.5	
9,991.0	87.74	166.10	9,437.0	-825.3	461.3	150.80	945.5	
10,086.0	87.32	165.62	9,441.1	-917.3	484.5	152.16	1,037.4	
10,181.0	86.74	164.63	9,446.1	-1,009.0	508.8	153.24	1,130.0	
10,276.0	88.26	164.12	9,450.2	-1,100.4	534.4	154.10	1,223.3	
10,370.0	89.06	163.53	9,452.4	-1,190.7	560.6	154.79	1,316.0	
10,465.0	91.44	164.61	9,452.0	-1,282.0	586.6	155.41	1,409.9	
10,560.0	89.46	165.15	9,451.2	-1,373.7	611.4	156.01	1,503.6	
10,655.0	91.14	165.76	9,450.7	-1,465.7	635.3	156.57	1,597.4	
10,750.0	91.55	166.57	9,448.5	-1,557.9	658.0	157.10	1,691.1	
10,844.0	88.76	165.82	9,448.3	-1,649.2	680.4	157.58	1,784.0	
10,939.0	90.40	166.80	9,449.0	-1,741.5	702.9	158.02	1,878.0	
11,034.0	91.07	167.69	9,447.7	-1,834.1	723.9	158.46	1,971.8	
11,129.0	90.64	165.54	9,446.3	-1,926.5	745.8	158.84	2,065.8	
11,223.0	90.74	165.85	9,445.2	-2,017.6	769.1	159.13	2,159.2	
11,318.0	89.60	166.38	9,444.9	-2,109.8	791.9	159.43	2,253.5	
11,413.0	89.63	167.65	9,445.5	-2,202.4	813.2	159.73	2,347.7	
11,505.0	89.60	168.09	9,446.2	-2,292.3	832.5	160.04	2,438.8	

Regulatory Report (Grid North)

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Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0042	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
11,598.0	89.46	168.39	9,446.9	-2,383.4	851.5	160.34	2,530.9	
11,690.0	90.20	168.25	9,447.2	-2,473.5	870.1	160.62	2,622.0	
11,783.0	90.37	169.37	9,446.7	-2,564.7	888.2	160.90	2,714.1	
11,875.0	91.65	171.87	9,445.1	-2,655.4	903.2	161.22	2,804.8	
11,968.0	91.14	168.28	9,442.9	-2,747.0	919.2	161.50	2,896.7	
12,060.0	88.05	164.02	9,443.5	-2,836.3	941.2	161.64	2,988.4	
12,155.0	87.08	164.51	9,447.5	-2,927.6	966.9	161.72	3,083.2	
12,250.0	85.26	162.78	9,453.9	-3,018.6	993.6	161.78	3,177.9	
12,344.0	85.67	163.28	9,461.3	-3,108.2	1,021.0	161.82	3,271.6	
12,439.0	86.67	162.42	9,467.7	-3,198.8	1,048.9	161.85	3,366.4	
12,534.0	91.44	163.03	9,469.2	-3,289.5	1,077.1	161.87	3,461.3	
12,628.0	91.41	163.29	9,466.9	-3,379.4	1,104.3	161.90	3,555.3	
12,723.0	92.18	163.99	9,463.9	-3,470.5	1,131.1	161.95	3,650.2	
12,818.0	91.14	162.97	9,461.2	-3,561.5	1,158.1	161.99	3,745.1	
12,913.0	88.72	164.38	9,461.3	-3,652.7	1,184.8	162.03	3,840.1	
13,007.0	91.95	163.89	9,460.7	-3,743.1	1,210.5	162.08	3,934.0	
13,102.0	93.36	165.94	9,456.3	-3,834.7	1,235.2	162.15	4,028.8	
13,197.0	93.16	165.13	9,450.9	-3,926.6	1,258.9	162.22	4,123.4	
13,291.0	91.85	163.02	9,446.8	-4,016.9	1,284.6	162.27	4,217.3	
13,386.0	94.74	165.82	9,441.4	-4,108.2	1,310.1	162.31	4,312.0	
13,481.0	92.86	168.41	9,435.1	-4,200.6	1,331.2	162.42	4,406.5	
13,575.0	92.08	168.09	9,431.0	-4,292.5	1,350.4	162.54	4,499.9	
13,670.0	91.85	169.18	9,427.8	-4,385.6	1,369.1	162.66	4,594.4	
13,764.0	93.50	168.46	9,423.4	-4,477.7	1,387.3	162.79	4,687.7	
13,859.0	93.67	167.34	9,417.4	-4,570.4	1,407.2	162.89	4,782.2	
13,954.0	91.21	168.00	9,413.4	-4,663.2	1,427.4	162.98	4,876.7	
14,048.0	88.76	168.07	9,413.4	-4,755.1	1,446.9	163.08	4,970.4	
14,143.0	89.40	167.66	9,414.9	-4,848.0	1,466.9	163.17	5,065.0	
14,237.0	87.68	164.72	9,417.3	-4,939.2	1,489.3	163.22	5,158.9	
14,332.0	88.55	163.76	9,420.5	-5,030.6	1,515.1	163.24	5,253.8	
14,427.0	87.55	164.01	9,423.7	-5,121.8	1,541.4	163.25	5,348.7	
14,522.0	87.31	163.42	9,427.9	-5,212.9	1,568.1	163.26	5,443.6	
14,617.0	87.78	162.63	9,432.0	-5,303.7	1,595.8	163.25	5,538.5	
14,712.0	89.66	164.75	9,434.1	-5,394.8	1,622.4	163.26	5,633.5	
14,807.0	88.45	166.04	9,435.7	-5,486.7	1,646.4	163.30	5,728.4	
14,901.0	89.13	164.65	9,437.7	-5,577.7	1,670.2	163.33	5,822.3	
14,996.0	89.53	163.19	9,438.8	-5,668.9	1,696.5	163.34	5,917.3	
15,091.0	89.90	163.47	9,439.3	-5,759.9	1,723.7	163.34	6,012.3	
15,186.0	89.56	166.23	9,439.7	-5,851.6	1,748.5	163.36	6,107.3	
15,280.0	89.43	167.13	9,440.5	-5,943.1	1,770.2	163.41	6,201.1	
15,375.0	90.17	167.70	9,440.9	-6,035.8	1,790.9	163.47	6,295.9	
15,470.0	88.15	166.40	9,442.3	-6,128.4	1,812.2	163.53	6,390.7	
15,565.0	89.66	165.34	9,444.1	-6,220.5	1,835.4	163.56	6,485.6	
15,660.0	92.19	167.17	9,442.6	-6,312.7	1,857.9	163.60	6,580.5	
15,754.0	91.64	168.13	9,439.4	-6,404.5	1,878.0	163.66	6,674.2	

Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0042	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
15,849.0	87.41	167.65	9,440.2	-6,497.4	1,898.0	163.72	6,768.9	
15,944.0	90.27	165.98	9,442.1	-6,589.8	1,919.6	163.76	6,863.7	
16,039.0	92.15	167.95	9,440.1	-6,682.4	1,941.0	163.80	6,958.6	
16,133.0	92.52	167.56	9,436.3	-6,774.1	1,961.0	163.86	7,052.3	
16,228.0	91.58	167.82	9,432.9	-6,866.9	1,981.2	163.91	7,147.0	
16,322.0	88.29	166.97	9,433.0	-6,958.6	2,001.7	163.95	7,240.8	
16,417.0	86.33	166.71	9,437.5	-7,051.0	2,023.3	163.99	7,335.6	
16,512.0	87.71	166.17	9,442.4	-7,143.2	2,045.6	164.02	7,430.4	
16,606.0	92.45	166.12	9,442.3	-7,234.5	2,068.1	164.05	7,524.3	
16,701.0	93.63	165.27	9,437.2	-7,326.4	2,091.5	164.07	7,619.1	
16,796.0	91.41	166.00	9,433.0	-7,418.3	2,115.0	164.09	7,714.0	
16,890.0	90.94	167.05	9,431.1	-7,509.7	2,136.9	164.12	7,807.9	
16,985.0	92.22	164.67	9,428.5	-7,601.8	2,160.1	164.14	7,902.8	
17,080.0	89.19	162.15	9,427.3	-7,692.8	2,187.3	164.13	7,997.7	
17,174.0	87.31	165.99	9,430.2	-7,783.2	2,213.0	164.13	8,091.7	
17,269.0	88.38	165.40	9,433.8	-7,875.1	2,236.5	164.15	8,186.6	
17,364.0	87.54	165.93	9,437.2	-7,967.1	2,260.0	164.16	8,281.5	
17,459.0	88.15	167.06	9,440.7	-8,059.4	2,282.2	164.19	8,376.3	
17,553.0	88.65	167.89	9,443.4	-8,151.2	2,302.5	164.23	8,470.1	
17,648.0	89.87	168.39	9,444.6	-8,244.1	2,322.1	164.27	8,564.9	
17,743.0	91.21	167.06	9,443.7	-8,336.9	2,342.3	164.31	8,659.7	
17,837.0	90.81	166.46	9,442.0	-8,428.4	2,363.8	164.33	8,753.6	
17,932.0	92.12	165.56	9,439.6	-8,520.6	2,386.8	164.35	8,848.5	
18,027.0	91.44	164.40	9,436.6	-8,612.3	2,411.4	164.36	8,943.5	
18,121.0	90.97	164.48	9,434.7	-8,702.8	2,436.6	164.36	9,037.5	
18,216.0	91.58	163.68	9,432.6	-8,794.1	2,462.6	164.36	9,132.4	
18,311.0	89.33	162.15	9,431.8	-8,884.9	2,490.5	164.34	9,227.4	
18,405.0	92.36	162.57	9,430.4	-8,974.5	2,519.0	164.32	9,321.3	
18,500.0	92.32	164.72	9,426.5	-9,065.6	2,545.7	164.31	9,416.2	
18,595.0	90.64	165.63	9,424.1	-9,157.4	2,570.0	164.32	9,511.2	
18,689.0	92.81	167.71	9,421.3	-9,248.8	2,591.7	164.35	9,605.1	
18,784.0	90.57	164.98	9,418.5	-9,341.1	2,614.1	164.37	9,699.9	
18,878.0	91.85	166.64	9,416.5	-9,432.2	2,637.1	164.38	9,793.9	
18,973.0	90.13	167.20	9,414.8	-9,524.7	2,658.6	164.40	9,888.8	
19,068.0	89.56	167.06	9,415.1	-9,617.3	2,679.8	164.43	9,983.7	
19,162.0	90.78	168.38	9,414.8	-9,709.1	2,699.8	164.46	10,077.5	
19,257.0	89.50	167.05	9,414.6	-9,802.0	2,720.0	164.49	10,172.4	
19,351.0	89.43	166.92	9,415.4	-9,893.5	2,741.2	164.51	10,266.3	
19,446.0	89.12	166.92	9,416.7	-9,986.1	2,762.7	164.54	10,361.2	
19,541.0	91.61	170.40	9,416.0	-10,079.2	2,781.3	164.57	10,455.9	
19,635.0	86.73	168.42	9,417.4	-10,171.5	2,798.6	164.62	10,549.5	
19,730.0	87.99	169.09	9,421.8	-10,264.6	2,817.1	164.65	10,644.2	
19,824.0	90.81	169.24	9,422.8	-10,356.9	2,834.8	164.69	10,737.9	

Regulatory Report (Grid North)

Company:	Pioneer Natural Resources	Local Co-ordinate Reference:	Well #21H
Project:	Andrews County, TX (NAD 27 TC)	TVD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Site:	Universtiy 7-43	MD Reference:	KB= 26' @ 2978.0usft (H&P 637)
Well:	#21H	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0042	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
19,862.0	88.08	166.25	9,423.1	-10,394.1	2,842.8	164.70	10,775.8	
Final MWD Survey								
19,913.0	88.08	166.25	9,424.8	-10,443.6	2,855.0	164.71	10,826.8	
Final Projection to Bit								

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
19,862.0	9,423.1	-10,394.1	2,842.8	Final MWD Survey	
19,913.0	9,424.8	-10,443.6	2,855.0	Final Projection to Bit	

Checked By: _____ Approved By: _____ Date: _____

University 7-43 #21H
Andrews County, TX (NAD 27 TC)
Northing (Y) 982143.61
Easting (X) 1405965.42
Plan #5



To convert Magnetic North to Grid, Add 7.61°
To convert True North to Grid, Add 0.99°

Azimuths to Grid North
True North: 0.99°
Magnetic North: 7.61°
Magnetic Field
Strength: 48476.0nT
Dip Angle: 60.42°
Date: 11/12/2014
Model: BGGM2013



KB= 26' @ 2978.00usft (H&P 637)

GL 2952.00

WELL DETAILS: University 7-43

+N/-S	+E/-W	Northing	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	982793.96	2952.00	32° 21' 16.819 N	102° 15' 3.341 W	
			Easting			
			1407735.71			

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
15470.00	88.15	166.40	9442.27	-6128.36	1812.19	0.00	0.00	6389.29	
15522.00	88.15	166.40	9443.95	-6178.89	1824.41	0.00	0.00	6441.24	
15751.75	90.43	172.90	9446.79	-6404.75	1865.64	3.00	70.71	6669.98	
15987.92	90.43	172.90	9445.00	-6639.11	1894.82	0.00	0.00	6903.75	
16237.27	90.58	165.42	9442.79	-6883.83	1941.66	3.00	-86.84	7152.17	
17988.59	90.58	165.42	9425.00	-8578.70	2382.37	0.00	0.00	8903.27	Tgt 1 (#21H)
18004.18	90.60	165.89	9424.84	-8593.80	2386.23	3.00	88.31	8918.85	Tgt 2 (#21H)
19912.88	90.60	165.89	9405.00	-10444.63	2851.41	0.00	0.00	10828.86	PBHL (#21H Plan #5)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
POP (#21H)	6737.00	53.54	213.43	982847.50	1407949.14	32° 21' 17.385 N	102° 15' 0.864 W
PBHL (#21H Plan #5)	9405.00	-10444.63	2851.41	972349.33	1410587.12	32° 19' 33.983 N	102° 14' 28.024 W
Tgt 2 (#21H)	9425.00	-8578.70	2382.37	974215.26	1410118.08	32° 19' 52.362 N	102° 14' 33.862 W
Tgt 1 (#21H)	9445.00	-6639.11	1894.82	976154.85	1409630.53	32° 20' 11.466 N	102° 14' 38.930 W
COT SPBY L C1 @ 0 VS	9448.00	0.00	0.00	982793.96	1407735.71	32° 21' 16.819 N	102° 15' 3.341 W

CASING DETAILS

TVD	MD	Name	Size
1850.00	1851.24	13 3/8"	13-3/8
8320.00	8328.85	9 5/8"	9-5/8

PROJECT DETAILS: Andrews County, TX (NAD 27 TC)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Texas Central 4203
System Datum: Mean Sea Level

SITE DETAILS: University 7-43

Site Centre Northing: 982143.61
Easting: 1405965.42
Positional Uncertainty: 0.00
Convergence: 0.99
Local North: Grid

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

Local Origin: Well #21H, Grid North

Latitude: 32° 21' 16.819 N
Longitude: 102° 15' 3.341 W

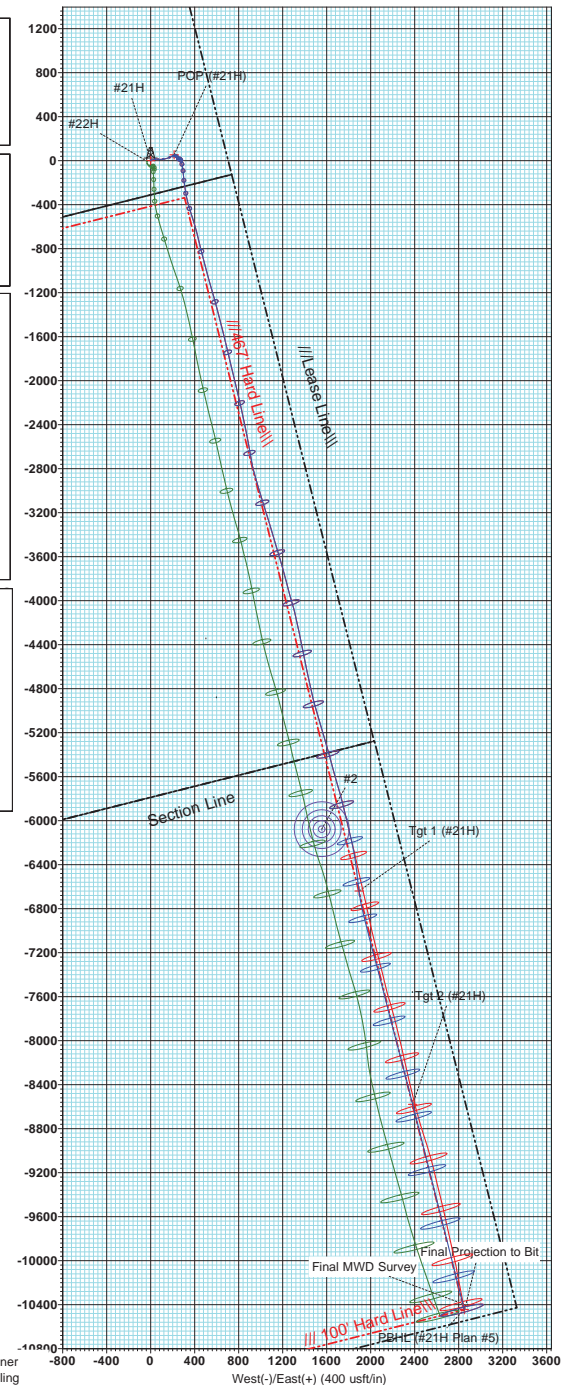
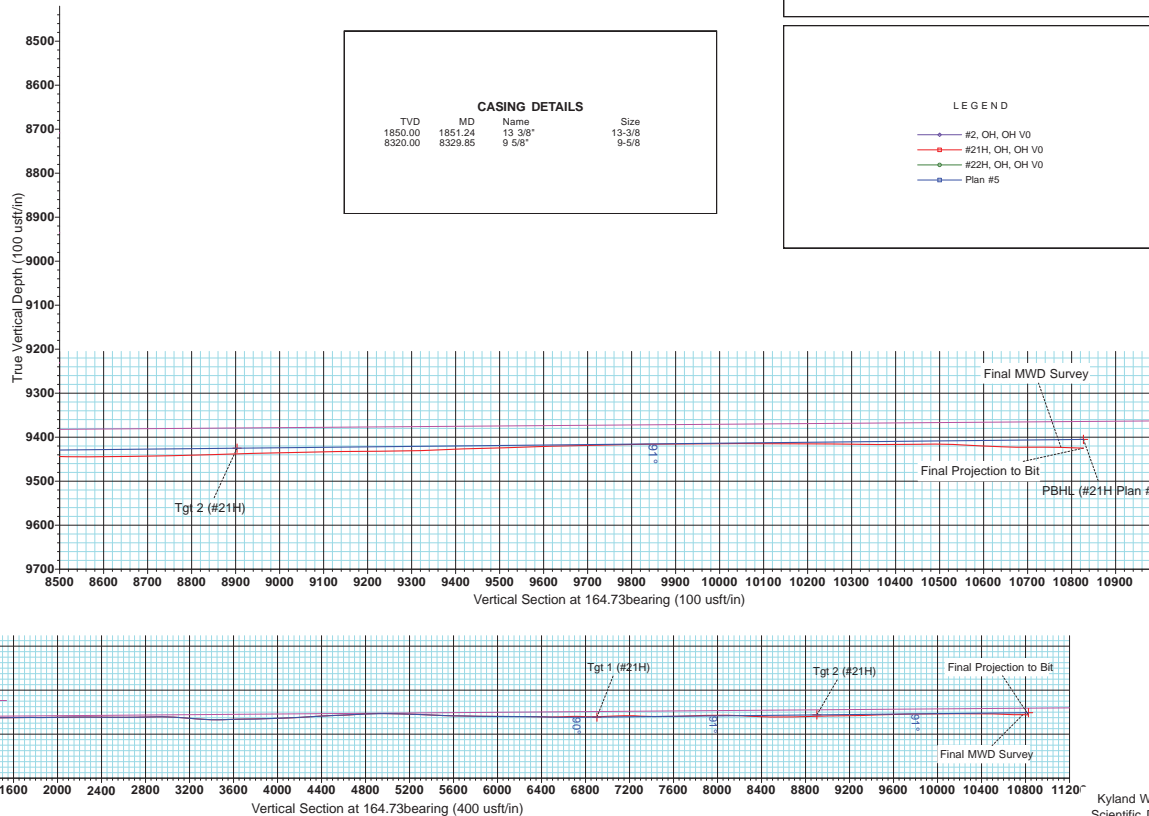
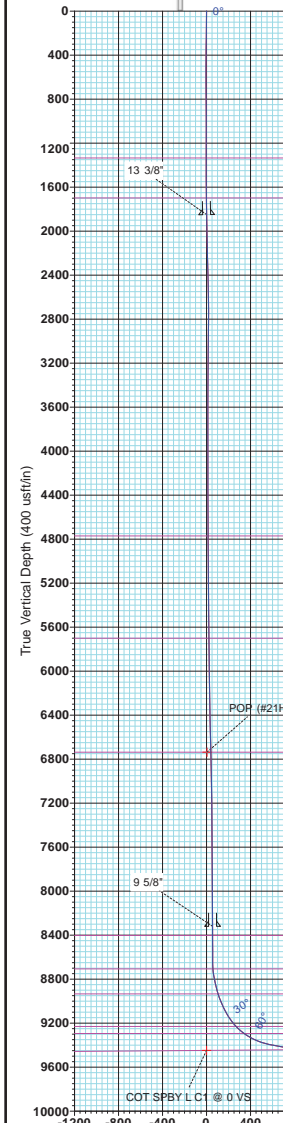
Grid East: 1407735.71
Grid North: 982793.96
Scale Factor: 1.000

Geomagnetic Model: BGGM2013
Sample Date: 12-Nov-14
Magnetic Declination: 6.63°
Dip Angle from Horizontal: 60.42°
Magnetic Field Strength: 48476

To convert Magnetic North to Grid, Add 7.61°
To convert Magnetic North to True, Add 6.63° East
To convert True North to Grid, Add 0.99°

LEGEND

- #2, OH, OH V0
- #21H, OH, OH V0
- #22H, OH, OH V0
- Plan #5



Kyland Wegner
Scientific Drilling
325 Faudree Rd.
Odessa, TX 79765

