

March 5, 2015

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

Attn: Pam Johns

RE: Approach Operating, LLC
University 42 2111 HC (Permit No. 801440)
Survey: University Land / Abstract: Not Available
Field: Holt Ranch (Consolidated)
Crockett County, TX
API number: 42-105-42183

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
Clayton Turner	Original	Surface - 1205'	1/7/2015 - 1/7/2015	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 801440	DATE PERMIT ISSUED OR AMENDED Dec 10, 2014	DISTRICT * 7C	
API NUMBER 42-105-42183	FORM W-1 RECEIVED Dec 09, 2014	COUNTY CROCKETT	
TYPE OF OPERATION NEW DRILL	WELLBORE PROFILE(S) Horizontal	ACRES 7780.13	
OPERATOR APPROACH OPERATING LLC ONE RIDGMAR CENTRE 6500 WEST FREEWAY SUITE 800 FORT WORTH, TX 76116-0000		028625 NOTICE 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: (325) 657-7450	
LEASE NAME UNIVERSITY 42		WELL NUMBER 2111HC	
LOCATION 14 miles NE direction from OZONA		TOTAL DEPTH 7800	
Section, Block and/or Survey SECTION 21 BLOCK 42 ABSTRACT SURVEY UNIVERSITY LAND			
DISTANCE TO SURVEY LINES 440 ft. S 1790 ft. W		DISTANCE TO NEAREST LEASE LINE 100 ft.	
DISTANCE TO LEASE LINES 440 ft. S 3501 ft. E		DISTANCE TO NEAREST WELL ON LEASE See FIELD(s) Below	
FIELD(s) and LIMITATIONS: * SEE FIELD DISTRICT FOR REPORTING PURPOSES *			
FIELD NAME LEASE NAME		ACRES NEAREST LEASE	DEPTH NEAREST WE
HOLT RANCH (CONSOLIDATED)		7780.13	7,800
UNIVERSITY 42		100	2111HC 7C
WELLBORE PROFILE(s) FOR FIELD: Horizontal			
RESTRICCTIONS: Lateral: TH1 Penetration Point Location Lease Lines: 440.0 F S L 3501.0 F E L Terminus Location BH County: CROCKETT Section: 16 Block: 42 Abstract: Survey: UNIVERSITY LAND Lease Lines: 20.0 F N L 3501.0 F E L Survey Lines: 20.0 F N L 1790.0 F W L			
THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS 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-150018
 Company: Approach Operating, LLC
 Lease/Well: University 42 2111 HC
 Location: Crockett County, TX
 Rig Name: Nabors #M23
 RKB: 22'
 G.L. or M.S.L.: GL

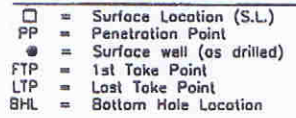
State/Country: Texas/USA
 Declination: 6.00°
 Grid: East To Grid North
 File name: S:\2015SU~1\APPROA~1\MO\UNIVER~1\42\2111HC.SVY
 Date/Time: 07-Jan-15 / 14:44
 Curve Name: Surface - 1205' M.D. (Rate Gyro)

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	.55	344.26	100.00	.46	-.13	.46	.48	344.26	.55
200.00	.56	341.81	199.99	1.39	-.41	1.39	1.45	343.43	.03
300.00	.47	343.33	299.99	2.25	-.68	2.25	2.35	343.08	.09
400.00	.42	322.22	399.99	2.93	-1.03	2.93	3.10	340.70	.17
500.00	.65	307.36	499.98	3.56	-1.70	3.56	3.95	334.48	.27
600.00	.75	303.11	599.97	4.26	-2.70	4.26	5.05	327.66	.11
700.00	.95	308.61	699.96	5.14	-3.90	5.14	6.45	322.83	.22
800.00	1.13	303.95	799.95	6.21	-5.36	6.21	8.20	319.18	.20
900.00	.97	307.52	899.93	7.27	-6.85	7.27	9.99	316.71	.17

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	.95	304.59	999.92	8.26	-8.20	8.26	11.64	315.19	.05
1100.00	.97	299.84	1099.90	9.15	-9.62	9.15	13.28	313.56	.08
1200.00	.89	307.86	1199.89	10.05	-10.97	10.05	14.88	312.49	.15
Last Survey Depth Recorded									
1205.00	.93	307.64	1204.89	10.10	-11.03	10.10	14.95	312.47	.80



Y = 453,651 ft.
X = 1,742,301 ft.
Latitude : 30.9114° N.
Longitude : 101.1551° W.
440 ft. FSL and 1790 ft. FWL
University Land Survey 21, Block 42
440 ft. FSL and 3501 ft. FEL of lease

Y = 453,651 ft.
X = 1,742,301 ft.
Latitude : 30.9114' N.
Longitude : 101.1551' W.
440 ft. FSL and 1790 ft. FWL
University Land Survey 21, Block 42
440 ft. FSL and 3501 ft. FEL of lease

550 ft. from Surf. 2111HC
990 ft. FSL and 3501 ft. FEL of lease
990 ft. FSL and 1790 ft. FWL
University Land Survey 21, Block 42
Y = 454,201 ft.
X = 1,742,303 ft.
Latitude : 30.9129° N.
Longitude : 101.1551° W.

80 ft. from BHL 2111HC
100 ft. FNL and 3501 ft. FEL of lease
100 ft. FNL and 1790 ft. FWL
University Land Survey 16, Block 42
Y = 463,923 ft.
X = 1,742,327 ft.
Latitude : 30.9397° N.
Longitude : 101.1553° W.

Y = 464,003 ft.
X = 1,742,327 ft.
Latitude : 30.9399° N.
Longitude : 101.1553° W.
20 ft. FNL and 1790 ft. FWL
University Land Survey 16, Block 42
20 ft. FNL and 3501 ft. FEL of lease

FTP 2113HB (proposed) = 360'
LTP 2113HB (proposed) = 360'
BHL 2113HB (proposed) = 360'
BHL 2102H (proposed) = 800'

SCALE: 1"=2000'

NOTES

Position of surveys shown hereon is based on Frank Friends survey of University Lands Blocks 38 to 57 dated July 24, 1937 on file in the General Land Office.

STATE OF TEXAS
REGISTERED
THOMAS J. HOUSTON
4281
PROFESSIONAL
LAND SURVEYOR

1514 W. BEAUREGARD AVE.
P. O. BOX 3326 PH. 325-653-3916
SAN ANGELO, TEXAS 76902

Approach Resources, LLC

Crockett County, TX (NAD27 TC)

University 42

2111HC

OH - Job #320115-MPH-0013

Survey: SDI MWD #1

Regulatory Report (Grid North)

19 February, 2015

Regulatory Report (Grid North)

Company:	Approach Resources, LLC	Local Co-ordinate Reference:	Well 2111HC
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Site:	University 42	MD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Well:	2111HC	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0013	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	MID_Regulatory

Project	Crockett 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 42			
Site Position:		Northing:	453,651.00 usft	Latitude:	30° 54' 41.140 N
From:	Map	Easting:	1,742,301.00 usft	Longitude:	101° 9' 18.376 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.42 °

Well	2111HC					
Well Position	+N/-S	0.0 usft	Northing:	453,651.00 usft	Latitude:	30° 54' 41.140 N
	+E/-W	0.0 usft	Easting:	1,742,301.00 usft	Longitude:	101° 9' 18.376 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	2,596.0 usft

Wellbore	OH - Job #320115-MPH-0013				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/18/2014	6.00	59.24	47,669

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	0.14	

Survey Program	Date	2/19/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	1,205.0	MS Gyro #1 (OH - Job #320115-MPH-001	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,433.0	16,445.0	SDI MWD #1 (OH - Job #320115-MPH-00	SDI MWD	Scientific Drilling Intl. 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)	
1,205.0	0.93	307.64	1,204.9	10.1	-11.0	312.47	15.0	
1,433.0	0.64	289.97	1,432.9	11.7	-13.7	310.42	18.0	
1,624.0	1.03	281.69	1,623.8	12.4	-16.4	307.07	20.5	
1,814.0	0.94	277.49	1,813.8	12.9	-19.6	303.41	23.5	
2,003.0	0.67	273.02	2,002.8	13.2	-22.2	300.66	25.8	
2,194.0	0.26	136.13	2,193.8	12.9	-23.1	299.29	26.4	
2,384.0	0.97	130.94	2,383.8	11.6	-21.5	298.24	24.4	
2,575.0	0.85	115.44	2,574.8	9.9	-19.0	297.47	21.5	
2,766.0	1.42	119.80	2,765.7	8.1	-15.7	297.32	17.7	
2,957.0	1.42	118.32	2,956.7	5.8	-11.6	296.69	12.9	
3,147.0	1.48	111.17	3,146.6	3.8	-7.2	297.87	8.2	

Regulatory Report (Grid North)

Company:	Approach Resources, LLC	Local Co-ordinate Reference:	Well 2111HC
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Site:	University 42	MD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Well:	2111HC	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0013	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)	
3,337.0	0.89	126.23	3,336.6	2.1	-3.7	298.84	4.3	
3,528.0	0.80	121.95	3,527.5	0.5	-1.4	288.58	1.5	
3,718.0	0.77	181.70	3,717.5	-1.5	-0.3	191.67	1.5	
3,908.0	0.51	204.75	3,907.5	-3.6	-0.7	191.20	3.6	
4,098.0	1.12	242.49	4,097.5	-5.2	-2.7	207.58	5.8	
4,288.0	1.54	252.60	4,287.4	-6.8	-6.8	224.95	9.6	
4,478.0	1.01	249.20	4,477.4	-8.2	-10.8	232.91	13.5	
4,668.0	0.72	241.18	4,667.4	-9.3	-13.4	235.16	16.3	
4,859.0	0.57	237.20	4,858.4	-10.4	-15.3	235.66	18.5	
5,049.0	0.52	229.04	5,048.4	-11.5	-16.7	235.45	20.3	
5,239.0	0.48	214.91	5,238.3	-12.7	-17.8	234.46	21.9	
5,429.0	0.29	229.32	5,428.3	-13.7	-18.6	233.70	23.1	
5,619.0	0.34	212.54	5,618.3	-14.5	-19.3	233.13	24.1	
5,672.0	0.49	208.57	5,671.3	-14.8	-19.5	232.78	24.5	
5,733.0	0.76	355.13	5,732.3	-14.6	-19.6	233.33	24.5	
5,783.0	4.39	2.58	5,782.3	-12.4	-19.6	237.69	23.2	
5,828.0	8.35	357.52	5,827.0	-7.4	-19.6	249.37	21.0	
5,875.0	11.44	352.30	5,873.3	0.6	-20.4	271.77	20.4	
5,922.0	15.37	354.11	5,919.0	11.5	-21.7	297.84	24.5	
5,969.0	20.27	0.09	5,963.7	25.8	-22.3	319.15	34.1	
6,014.0	24.94	2.81	6,005.3	43.1	-21.8	333.12	48.3	
6,064.0	30.67	2.97	6,049.5	66.4	-20.7	342.71	69.5	
6,160.0	42.51	1.48	6,126.4	123.4	-18.5	351.46	124.8	
6,258.0	53.81	2.90	6,191.7	196.3	-15.7	355.43	196.9	
6,352.0	68.07	358.09	6,237.2	278.2	-15.2	356.87	278.6	
6,447.0	73.65	358.07	6,268.4	367.9	-18.2	357.17	368.3	
6,542.0	80.27	0.23	6,289.8	460.3	-19.6	357.57	460.8	
6,637.0	83.26	1.12	6,303.4	554.3	-18.5	358.09	554.6	
6,732.0	84.58	0.75	6,313.5	648.8	-16.9	358.51	649.0	
6,827.0	85.45	0.13	6,321.7	743.4	-16.2	358.75	743.6	
6,922.0	86.13	359.51	6,328.7	838.2	-16.5	358.87	838.3	
7,017.0	87.69	0.44	6,333.8	933.0	-16.5	358.99	933.2	
7,113.0	88.72	1.71	6,336.8	1,029.0	-14.7	359.18	1,029.1	
7,208.0	90.37	3.84	6,337.6	1,123.8	-10.1	359.48	1,123.9	
7,303.0	87.08	1.17	6,339.7	1,218.7	-6.0	359.72	1,218.7	
7,398.0	87.48	0.65	6,344.2	1,313.6	-4.5	359.81	1,313.6	
7,493.0	88.99	1.09	6,347.1	1,408.5	-3.0	359.88	1,408.5	
7,588.0	89.16	359.89	6,348.7	1,503.5	-2.2	359.92	1,503.5	
7,683.0	88.59	1.32	6,350.5	1,598.5	-1.2	359.96	1,598.5	
7,778.0	90.67	1.90	6,351.1	1,693.4	1.5	0.05	1,693.4	
7,873.0	87.71	358.16	6,352.5	1,788.4	1.5	0.05	1,788.4	
7,968.0	87.55	357.08	6,356.4	1,883.2	-2.4	359.93	1,883.2	
8,064.0	88.05	357.49	6,360.1	1,979.1	-7.0	359.80	1,979.1	
8,159.0	88.82	358.89	6,362.7	2,074.0	-10.0	359.72	2,074.0	

Regulatory Report (Grid North)

Company:	Approach Resources, LLC	Local Co-ordinate Reference:	Well 2111HC
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Site:	University 42	MD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Well:	2111HC	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0013	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)	
8,254.0	90.00	359.62	6,363.7	2,169.0	-11.2	359.70	2,169.0	
8,349.0	89.60	358.84	6,364.0	2,263.9	-12.5	359.68	2,264.0	
8,444.0	89.36	2.42	6,364.9	2,358.9	-11.4	359.72	2,358.9	
8,539.0	89.83	3.95	6,365.5	2,453.8	-6.2	359.86	2,453.8	
8,634.0	90.50	2.41	6,365.3	2,548.6	-0.9	359.98	2,548.6	
8,729.0	89.53	3.22	6,365.2	2,643.5	3.8	0.08	2,643.5	
8,824.0	88.55	3.85	6,366.8	2,738.3	9.6	0.20	2,738.3	
8,919.0	89.02	4.20	6,368.9	2,833.0	16.3	0.33	2,833.1	
9,014.0	86.47	0.22	6,372.6	2,927.9	20.0	0.39	2,927.9	
9,109.0	86.50	359.51	6,378.4	3,022.7	19.7	0.37	3,022.8	
9,204.0	88.12	358.59	6,382.9	3,117.6	18.2	0.33	3,117.6	
9,298.0	91.88	0.41	6,382.9	3,211.6	17.3	0.31	3,211.6	
9,393.0	90.00	359.20	6,381.3	3,306.5	17.0	0.29	3,306.6	
9,489.0	88.46	358.60	6,382.6	3,402.5	15.2	0.26	3,402.5	
9,588.0	89.80	358.49	6,384.1	3,501.5	12.7	0.21	3,501.5	
9,683.0	89.49	356.57	6,384.7	3,596.4	8.6	0.14	3,596.4	
9,777.0	88.89	357.15	6,386.0	3,690.2	3.4	0.05	3,690.2	
9,872.0	88.69	356.72	6,388.0	3,785.1	-1.7	359.97	3,785.1	
9,967.0	90.84	356.59	6,388.4	3,879.9	-7.2	359.89	3,879.9	
10,063.0	92.48	356.14	6,385.6	3,975.6	-13.3	359.81	3,975.7	
10,157.0	90.37	358.14	6,383.3	4,069.5	-18.0	359.75	4,069.5	
10,252.0	89.66	359.47	6,383.3	4,164.5	-20.0	359.73	4,164.5	
10,347.0	90.17	358.73	6,383.4	4,259.5	-21.4	359.71	4,259.5	
10,442.0	88.99	357.97	6,384.1	4,354.4	-24.2	359.68	4,354.5	
10,534.0	88.75	359.66	6,385.9	4,446.4	-26.1	359.66	4,446.4	
10,626.0	88.22	0.39	6,388.4	4,538.3	-26.0	359.67	4,538.4	
10,717.0	90.91	0.67	6,389.1	4,629.3	-25.2	359.69	4,629.4	
10,809.0	91.71	1.27	6,387.0	4,721.3	-23.6	359.71	4,721.3	
10,901.0	91.08	1.70	6,384.7	4,813.2	-21.3	359.75	4,813.3	
10,991.0	89.09	359.45	6,384.6	4,903.2	-20.4	359.76	4,903.3	
11,083.0	90.94	358.40	6,384.6	4,995.2	-22.1	359.75	4,995.2	
11,174.0	89.16	356.26	6,384.5	5,086.1	-26.3	359.70	5,086.1	
11,267.0	89.80	358.53	6,385.3	5,179.0	-30.5	359.66	5,179.1	
11,358.0	89.87	356.50	6,385.6	5,269.9	-34.5	359.62	5,270.0	
11,479.0	90.00	358.42	6,385.7	5,390.8	-39.9	359.58	5,390.9	
11,570.0	90.50	2.09	6,385.3	5,481.7	-39.5	359.59	5,481.9	
11,661.0	90.13	2.65	6,384.8	5,572.7	-35.7	359.63	5,572.8	
11,752.0	91.75	3.19	6,383.3	5,663.5	-31.1	359.69	5,663.6	
11,844.0	87.41	3.06	6,384.0	5,755.4	-26.0	359.74	5,755.4	
11,907.0	87.96	2.97	6,386.5	5,818.2	-22.7	359.78	5,818.3	
12,003.0	92.68	4.35	6,386.0	5,914.0	-16.6	359.84	5,914.0	
12,098.0	90.37	2.64	6,383.5	6,008.8	-10.8	359.90	6,008.8	
12,193.0	89.16	1.03	6,383.9	6,103.7	-7.8	359.93	6,103.7	
12,288.0	90.74	2.10	6,384.0	6,198.7	-5.2	359.95	6,198.7	
12,383.0	88.52	2.56	6,384.6	6,293.6	-1.3	359.99	6,293.6	

Regulatory Report (Grid North)

Company:	Approach Resources, LLC	Local Co-ordinate Reference:	Well 2111HC
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Site:	University 42	MD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Well:	2111HC	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0013	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)	
12,478.0	89.97	2.45	6,385.8	6,388.5	2.8	0.03	6,388.5	
12,574.0	90.87	1.34	6,385.1	6,484.4	6.0	0.05	6,484.4	
12,669.0	90.37	1.86	6,384.1	6,579.4	8.7	0.08	6,579.4	
12,765.0	90.07	0.03	6,383.7	6,675.4	10.2	0.09	6,675.4	
12,860.0	89.83	359.19	6,383.8	6,770.4	9.6	0.08	6,770.4	
12,955.0	91.01	359.51	6,383.1	6,865.4	8.5	0.07	6,865.4	
13,050.0	90.13	359.22	6,382.2	6,960.4	7.5	0.06	6,960.4	
13,145.0	87.28	359.76	6,384.3	7,055.3	6.6	0.05	7,055.3	
13,240.0	89.02	359.28	6,387.4	7,150.3	5.8	0.05	7,150.3	
13,335.0	88.12	357.87	6,389.7	7,245.2	3.5	0.03	7,245.2	
13,430.0	90.24	359.93	6,391.1	7,340.2	1.6	0.01	7,340.2	
13,526.0	89.97	359.29	6,390.9	7,436.2	1.0	0.01	7,436.2	
13,620.0	92.42	358.74	6,389.0	7,530.1	-0.6	360.00	7,530.1	
13,716.0	92.76	358.26	6,384.6	7,626.0	-3.1	359.98	7,626.0	
13,811.0	93.19	358.04	6,379.7	7,720.8	-6.2	359.95	7,720.8	
13,906.0	90.30	358.71	6,376.8	7,815.7	-8.9	359.93	7,815.7	
14,001.0	88.99	359.49	6,377.4	7,910.7	-10.4	359.92	7,910.7	
14,096.0	87.25	358.84	6,380.5	8,005.6	-11.8	359.92	8,005.6	
14,186.0	90.07	0.96	6,382.6	8,095.6	-11.9	359.92	8,095.6	
14,281.0	89.63	1.73	6,382.9	8,190.6	-9.7	359.93	8,190.6	
14,376.0	90.40	1.06	6,382.8	8,285.5	-7.4	359.95	8,285.5	
14,471.0	91.52	1.61	6,381.2	8,380.5	-5.2	359.96	8,380.5	
14,566.0	92.22	0.95	6,378.1	8,475.4	-3.0	359.98	8,475.4	
14,661.0	90.10	1.69	6,376.2	8,570.4	-0.9	359.99	8,570.4	
14,756.0	87.91	1.17	6,377.9	8,665.3	1.5	0.01	8,665.3	
14,851.0	88.05	0.70	6,381.2	8,760.2	3.1	0.02	8,760.2	
14,946.0	89.13	0.69	6,383.6	8,855.2	4.2	0.03	8,855.2	
15,041.0	89.53	0.67	6,384.7	8,950.2	5.3	0.03	8,950.2	
15,136.0	87.88	359.34	6,386.8	9,045.2	5.3	0.03	9,045.2	
15,231.0	87.01	358.53	6,391.1	9,140.1	3.6	0.02	9,140.1	
15,327.0	87.72	358.91	6,395.5	9,235.9	1.4	0.01	9,235.9	
15,422.0	88.49	359.22	6,398.6	9,330.9	-0.1	360.00	9,330.9	
15,517.0	88.36	358.37	6,401.2	9,425.8	-2.1	359.99	9,425.8	
15,612.0	87.89	359.68	6,404.3	9,520.7	-3.7	359.98	9,520.7	
15,707.0	88.19	358.90	6,407.6	9,615.7	-4.9	359.97	9,615.7	
15,802.0	87.85	358.04	6,410.9	9,710.6	-7.4	359.96	9,710.6	
15,896.0	87.81	357.28	6,414.4	9,804.4	-11.3	359.93	9,804.4	
15,992.0	87.98	355.41	6,417.9	9,900.2	-17.4	359.90	9,900.2	
16,087.0	88.79	354.31	6,420.6	9,994.7	-25.9	359.85	9,994.8	
16,182.0	89.53	353.28	6,422.0	10,089.2	-36.2	359.79	10,089.2	
16,277.0	88.35	352.43	6,423.8	10,183.4	-48.0	359.73	10,183.5	
16,372.0	87.38	350.89	6,427.3	10,277.4	-61.7	359.66	10,277.5	
16,390.0	87.51	350.88	6,428.1	10,295.1	-64.6	359.64	10,295.3	
Final MWD Survey								

Regulatory Report (Grid North)

Company:	Approach Resources, LLC	Local Co-ordinate Reference:	Well 2111HC
Project:	Crockett County, TX (NAD27 TC)	TVD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Site:	University 42	MD Reference:	KB=22' @ 2618.0usft (Nabors M23)
Well:	2111HC	North Reference:	Grid
Wellbore:	OH - Job #320115-MPH-0013	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)
16,445.0	87.51	350.88	6,430.5	10,349.4	-73.3	359.59	10,349.6
Final Projection to Bit							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
16,390.0	6,428.1	10,295.1	-64.6	Final MWD Survey
16,445.0	6,430.5	10,349.4	-73.3	Final Projection to Bit

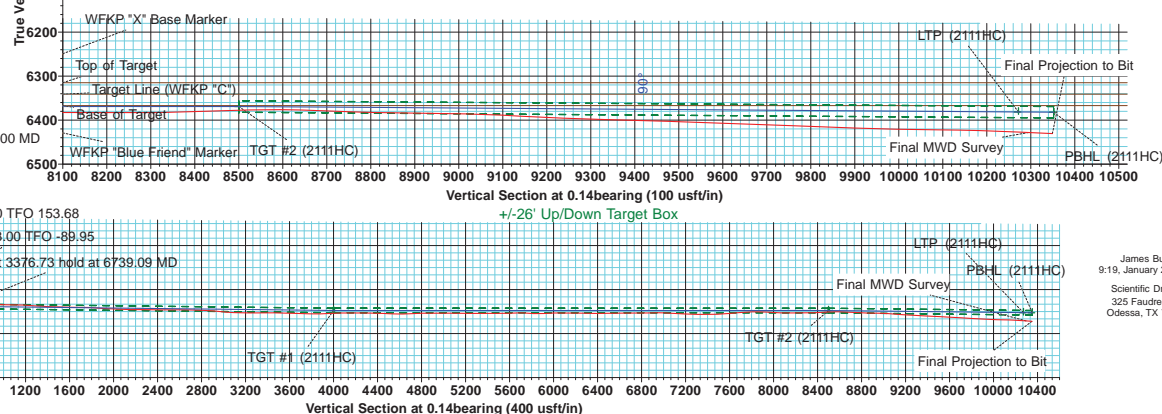
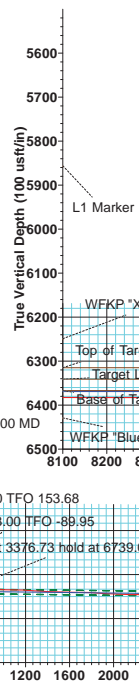
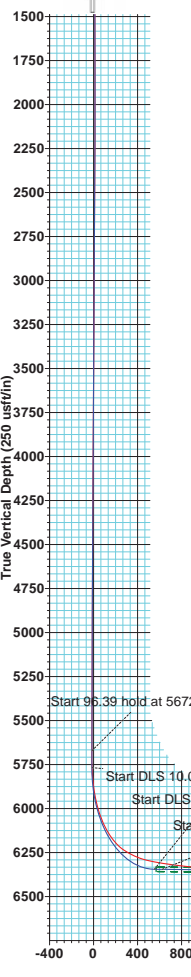
Checked By: _____ Approved By: _____ Date: _____



University 42 2111HC
Crockett County, TX (NAD27 TC)
Northing: (Y) 453651.00
Easting: (X) 1742301.00
Plan #4



KB=22' @ 2618.00usft (Nabors M23)
Ground Level: 2596.00

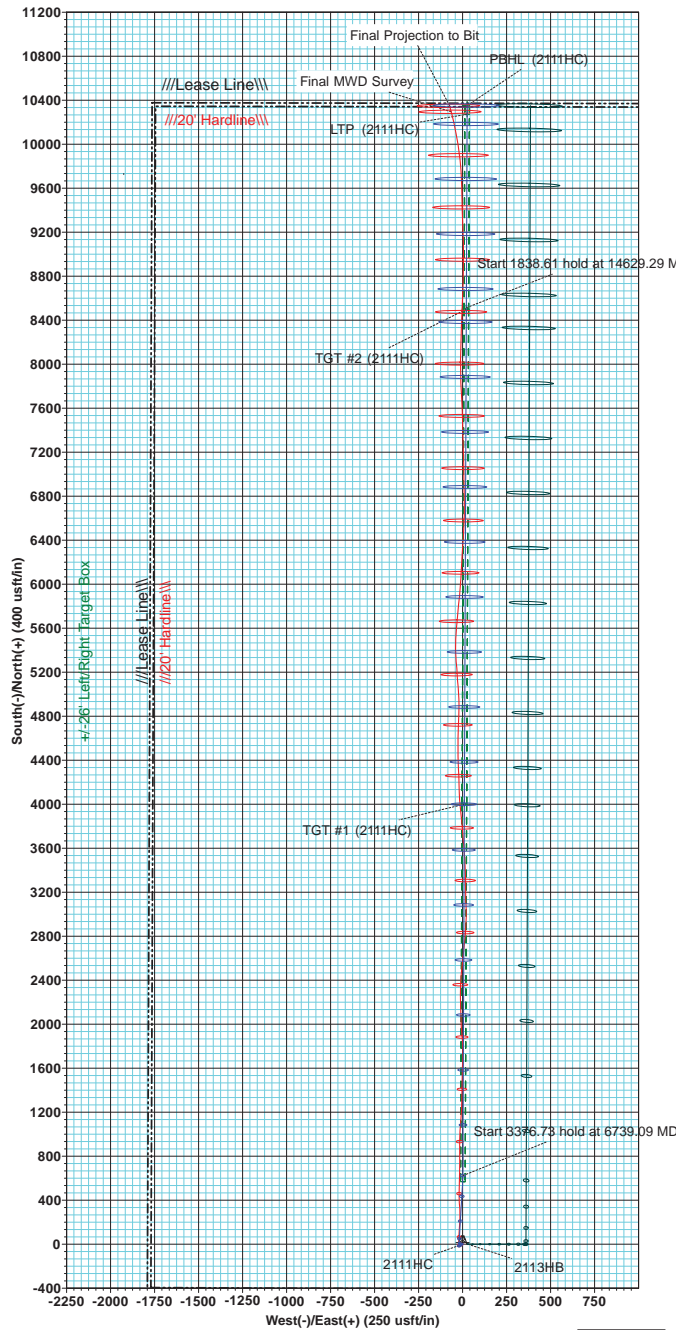


WELL DETAILS:											
+N/-S		+E/-W		Northing		Ground Level: Easting		2596.00 Latitude		Longitude	
0.00		0.00		453651.00		1742301.00		30° 54' 41.140 N		101° 9' 18.376 W	
SECTION DETAILS											
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target		
5672.00	0.49	208.57	5671.34	-14.80	-19.48	0.00	0.00	-14.85			
5768.39	0.49	208.57	5767.72	-15.53	-19.88	0.00	0.00	-15.58			
6668.78	89.60	2.25	6345.05	553.06	0.29	10.00	153.68	553.06			
6739.09	89.60	0.14	6345.54	623.35	1.75	3.00	-89.95	623.35			
10115.82	89.60	0.14	6369.00	3999.99	10.05	0.00	0.00	4000.00	TGT #1 (2111HC)		
10129.11	90.00	0.14	6369.05	4013.28	10.08	3.00	0.46	4013.29			
14615.81	90.00	0.14	6369.00	8499.97	21.35	0.00	0.00	8500.00	TGT #2 (2111HC)		
14629.29	89.60	0.14	6369.05	8513.44	21.38	3.00	-180.00	8513.47			
16467.89	89.60	0.14	6382.00	10352.00	26.00	0.00	0.0010352.03		PBHL (2111HC)		
DESIGN TARGET DETAILS											
Name		TVD		+N/-S		+E/-W		Northing		Easting	
TGT #1 (2111HC)		6369.00		3999.99		10.05		457650.99		1742311.05	
TGT #2 (2111HC)		6369.00		8499.97		21.35		462150.97		1742322.35	
LTP (2111HC)		6381.44		10272.00		26.00		463923.00		1742327.00	
PBHL (2111HC)		6382.00		10352.00		26.00		464003.00		1742327.00	
FORMATION TOP DETAILS											
TVDPath	MDPath	Formation									
1679.00	1679.16	Top of San Andres									
4061.00	4061.50	Top of Clearfork									
5305.00	5305.66	Top of Dean									
5428.00	5428.66	Top of Wolfcamp									
5856.00	5856.97	L1 Marker									
6249.00	6336.17	WFKP "X" Base Marker									
6315.00	6486.34	Top of Target									
6341.00	6604.48	Target Line (WFKP "C")									
6367.00	9827.93	Base of Target									
PROJECT DETAILS: Crockett County, TX (NAD27 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											
Map System: US State Plane 1927 (Exact solution)											
Datum: NAD 1927 (NADCON CONUS)											
Ellipsoid: Clarke 1866											
Zone Name: Texas Central 4203											
Local Origin: Well 2111HC, Grid North											
Latitude: 30° 54' 41.140 N											
Longitude: 101° 9' 18.376 W											
Grid East: 1742301.00											
Grid North: 453651.00											
Scale Factor: 1.000											
Geomagnetic Model: BGGM2014											
Sample Date: 18-Dec-14											
Magnetic Declination: 6.00°											
Dip Angle from Horizontal: 59.24°											
Magnetic Field Strength: 47669											
To convert Magnetic North to Grid, Add 6.43°											
To convert Magnetic North to True, Add 6.00° East											
To convert True North to Grid, Add 0.42°											

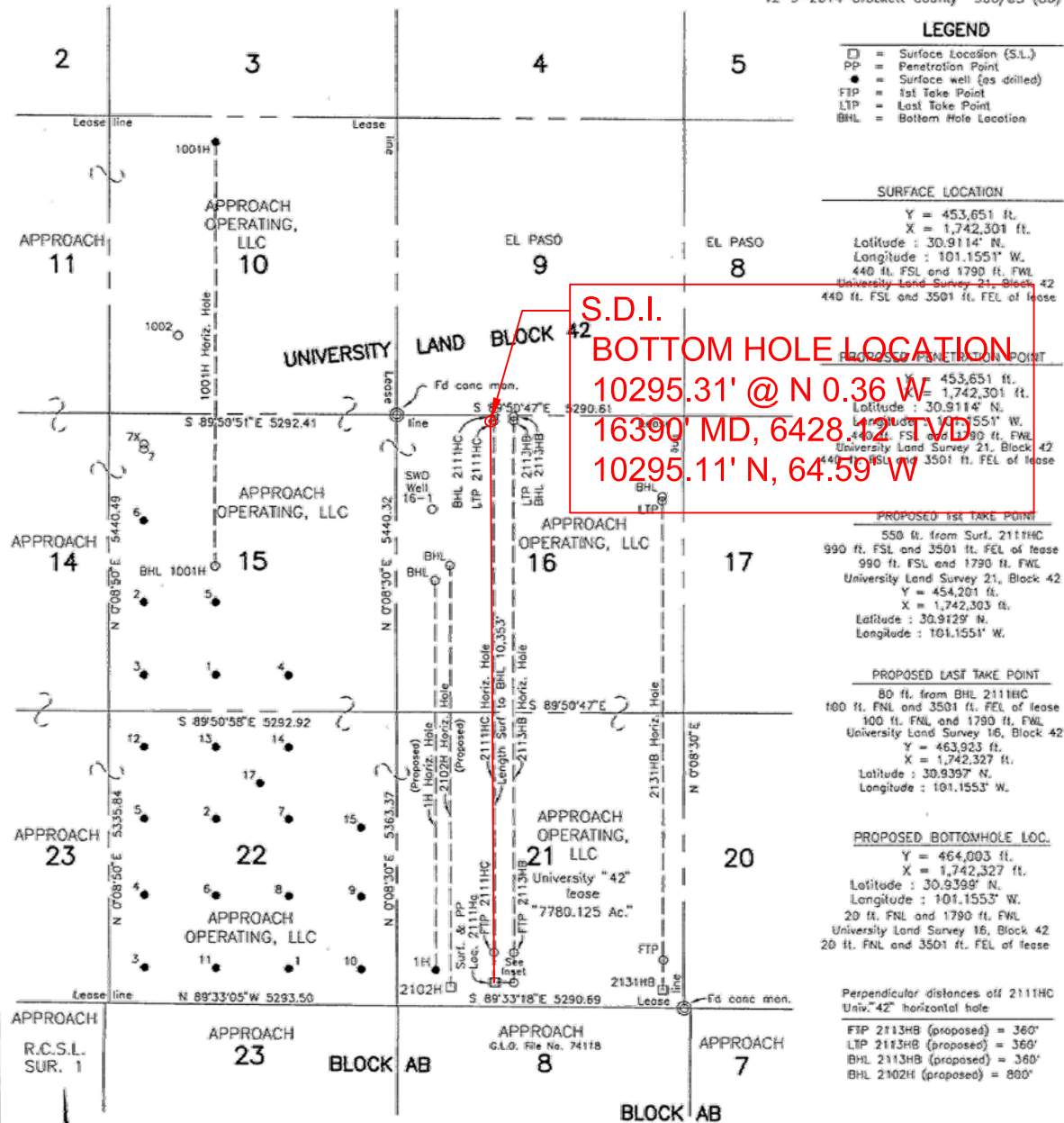


To convert Magnetic North to Grid, Add 6.43°
To convert True North to Grid, Add 0.42°

Azimuths to Grid North
True North: 0.42°
Magnetic North: 6.42°
Magnetic Field
Strength: 47669.3nT
Dip Angle: 59.24°
Date: 12/18/2014
Model: BGGM2014



James Bush
9-19, January 25 2015
Scientific Drilling
325 Faudree Rd
Odessa, TX 79765



Located: N 10°E 14 miles from Ozona, Texas.

"Ac" = Acreage claimed by operator to be in lease.

0 2000 4000

SCALE: 1"=2000'

FIELD :
COUNTY : Crockett
OPERATOR : Approach Operating, LLC
LEASE : University "42"
WELL NO. : 2111HC
ELEVATION : 2596 ft. grd.
LOCATION : 440 ft. FSL and 1790 ft. FWL of University Land Survey 21, Block 42, Crockett County, Texas.

NOTES

Courses, distances and coordinates shown hereon are of the Texas Coordinate System of 1927 - Central Zone.

The survey construction shown hereon is sufficient for staking this location and no other purpose.

The lease information shown hereon is based on information provided by operator or its representatives and was relied upon by surveyor for the purpose of staking this location. Said surveyor was not requested to verify lease and accepts no responsibility for the accuracy or status of this information.

Position of surveys shown hereon is based on Frank Friends survey of University Lands Blocks 38 to 57 dated July 24, 1937 on file in the General Land Office.

The above sketch represents the location as staked on the ground and is for permit purposes only.
Staked the 2nd day of December, 2014.



Thomas J. Houston
Registered Professional Land Surveyor No. 4261
FIRM NO. 10045600
OFFICE OF
WILSON LAND SURVEYING, INC.
1514 W. BEAUREGARD AVE.
P. O. BOX 3326 PH. 325-653-3816
SAN ANGELO, TEXAS 76902

COPYRIGHTED
A2111HC.DWG