



End of Well Report

Advance Energy Partners, LLC Wool Head 20 State Com, Well No. 608H Lea County, New Mexico

Rig: H&P #389

Job No.: WT-19-181

Start Date: 11/22/2019

End Date: 12/30/2019

Directional Drillers:

Advance Directional

Office Support:

Javier Alvarez

Directional Coordinator

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Thomas Rinald

President

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P.O. Box 181015 • Corpus Christi, Texas 78480

Phone: 361-653-6500 • Fax: 361-653-6599

www.aimdir.com





Performance Overview

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)

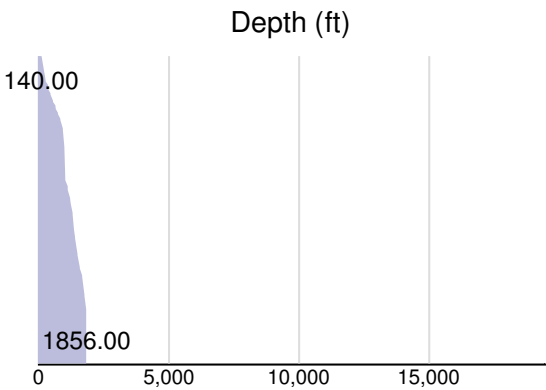
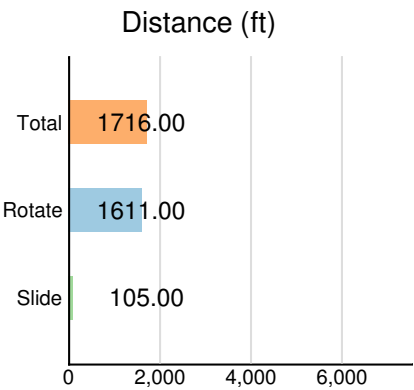
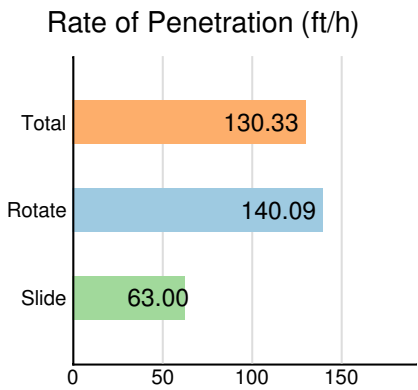
BHA Performance

BHA 1

17.5" SURFACE

In: 11/23/2019 00:30

Out: 11/23/2019 21:45

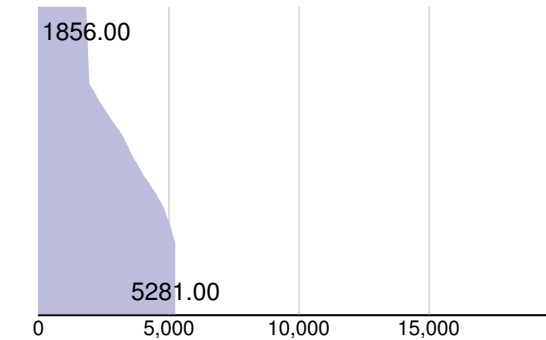
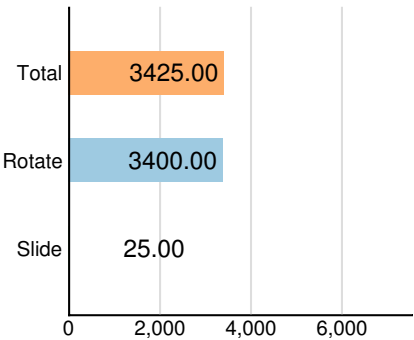
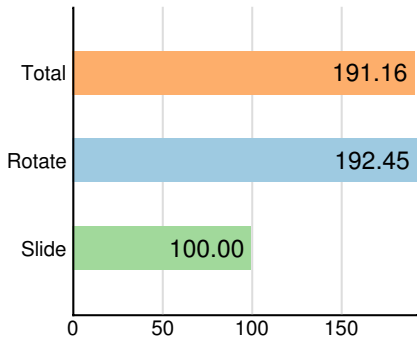


BHA 2

BHA #2 (12.25" Intermediate)

In: 12/03/2019 16:30

Out: 12/05/2019 06:00

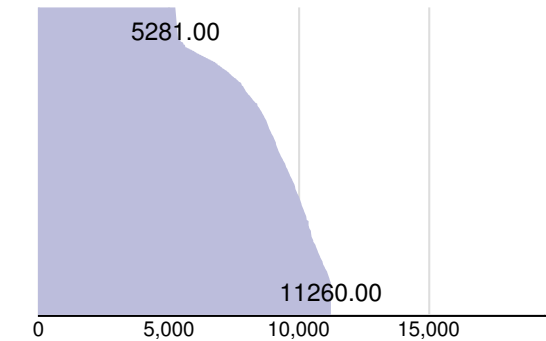
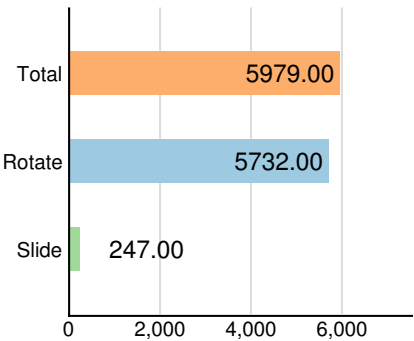
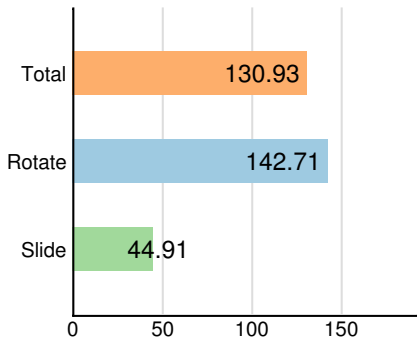


BHA 3

BHA #3 (8.5" Intermediate)

In: 12/08/2019 21:30

Out: 12/11/2019 14:30

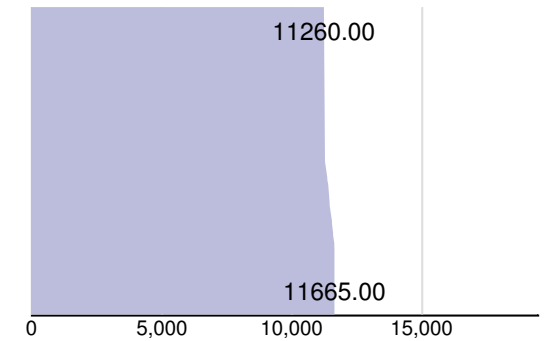
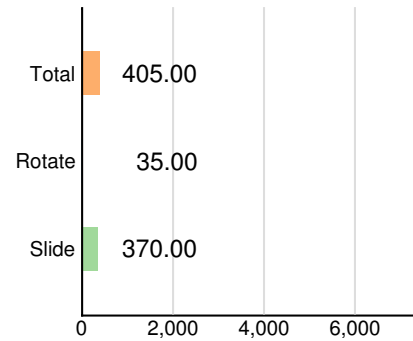
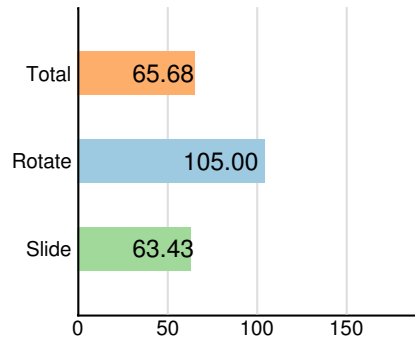


BHA 4

8.5" CURVE

In: 12/22/2019 10:45

Out: 12/23/2019 09:00

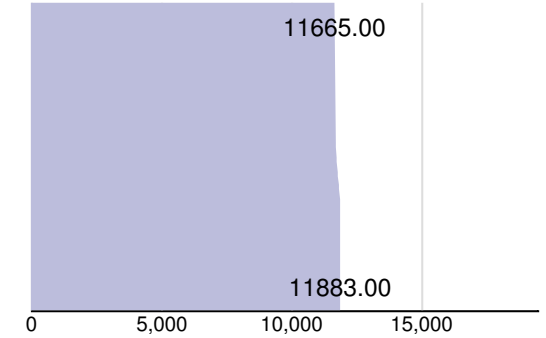
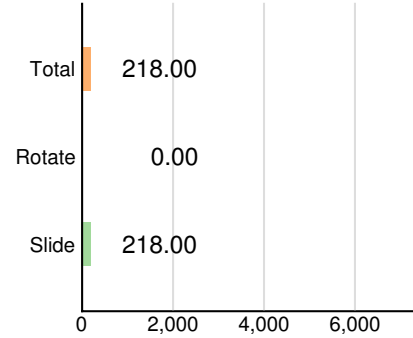
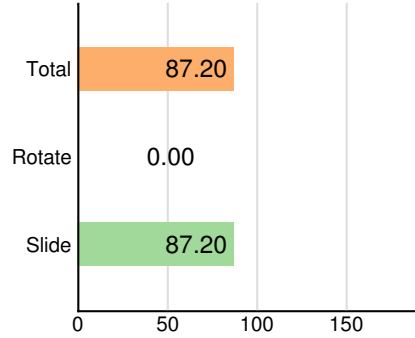


BHA 5

Curve 8.5"

In: 12/23/2019 09:45

Out: 12/23/2019 22:00

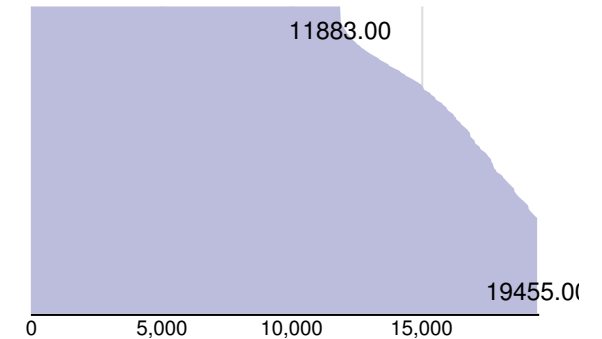
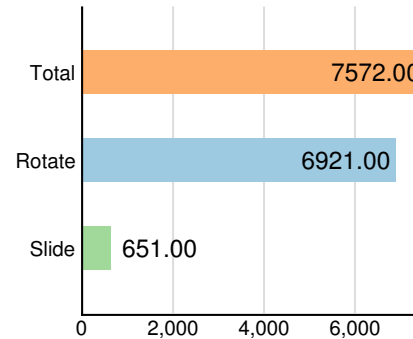
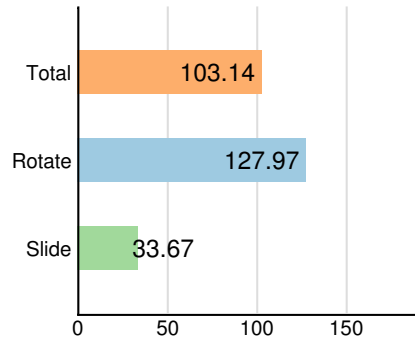


BHA 6

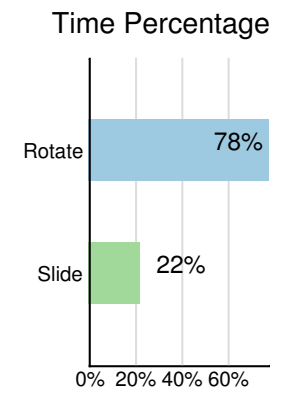
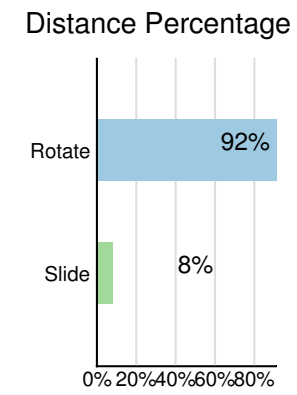
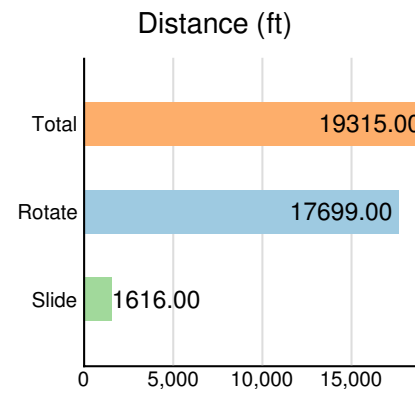
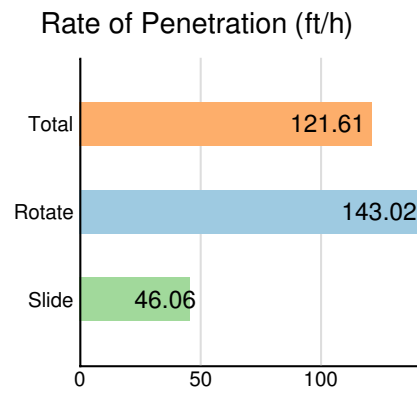
Curve / Lateral

In: 12/23/2019 22:45

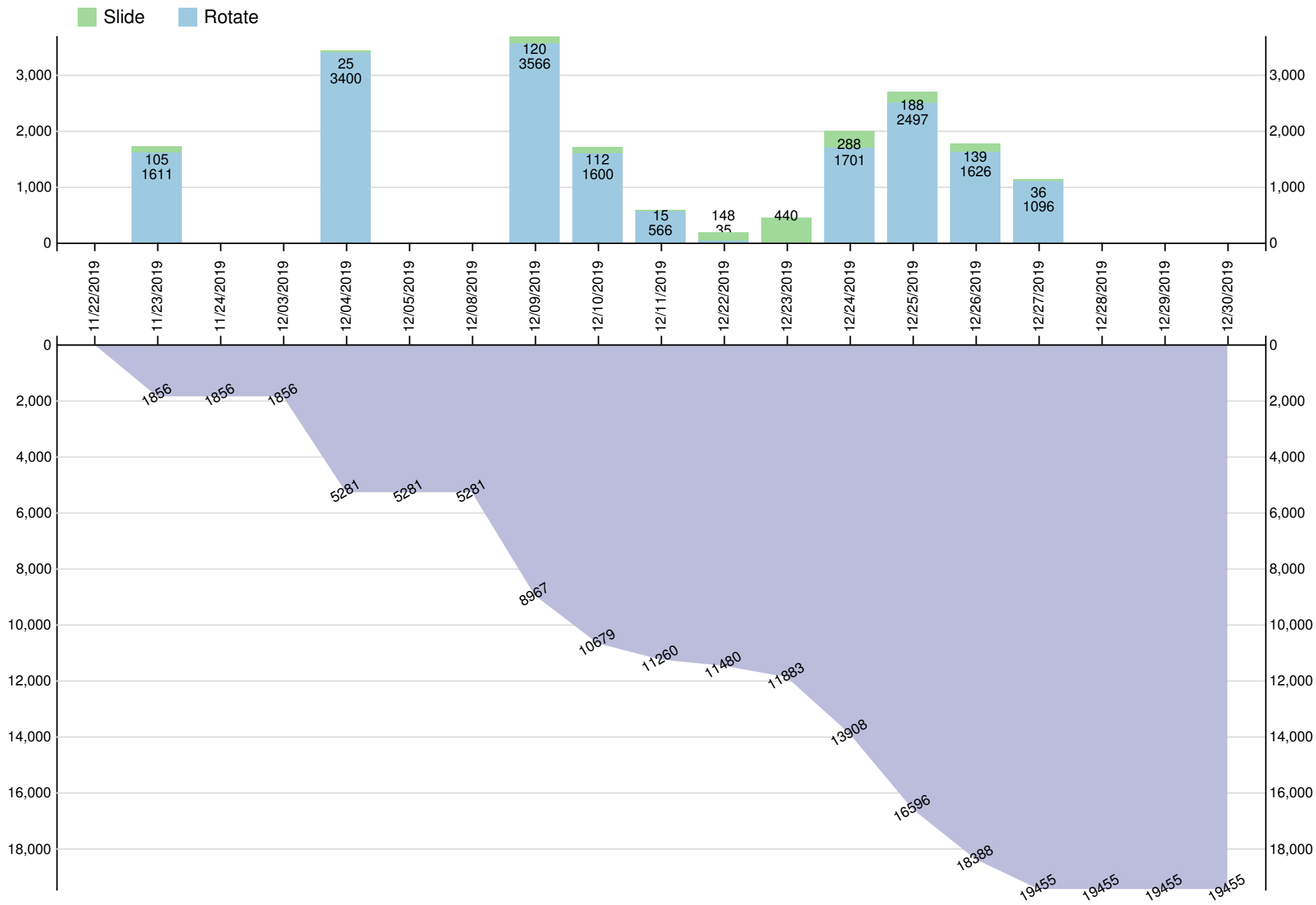
Out: 12/29/2019 06:45



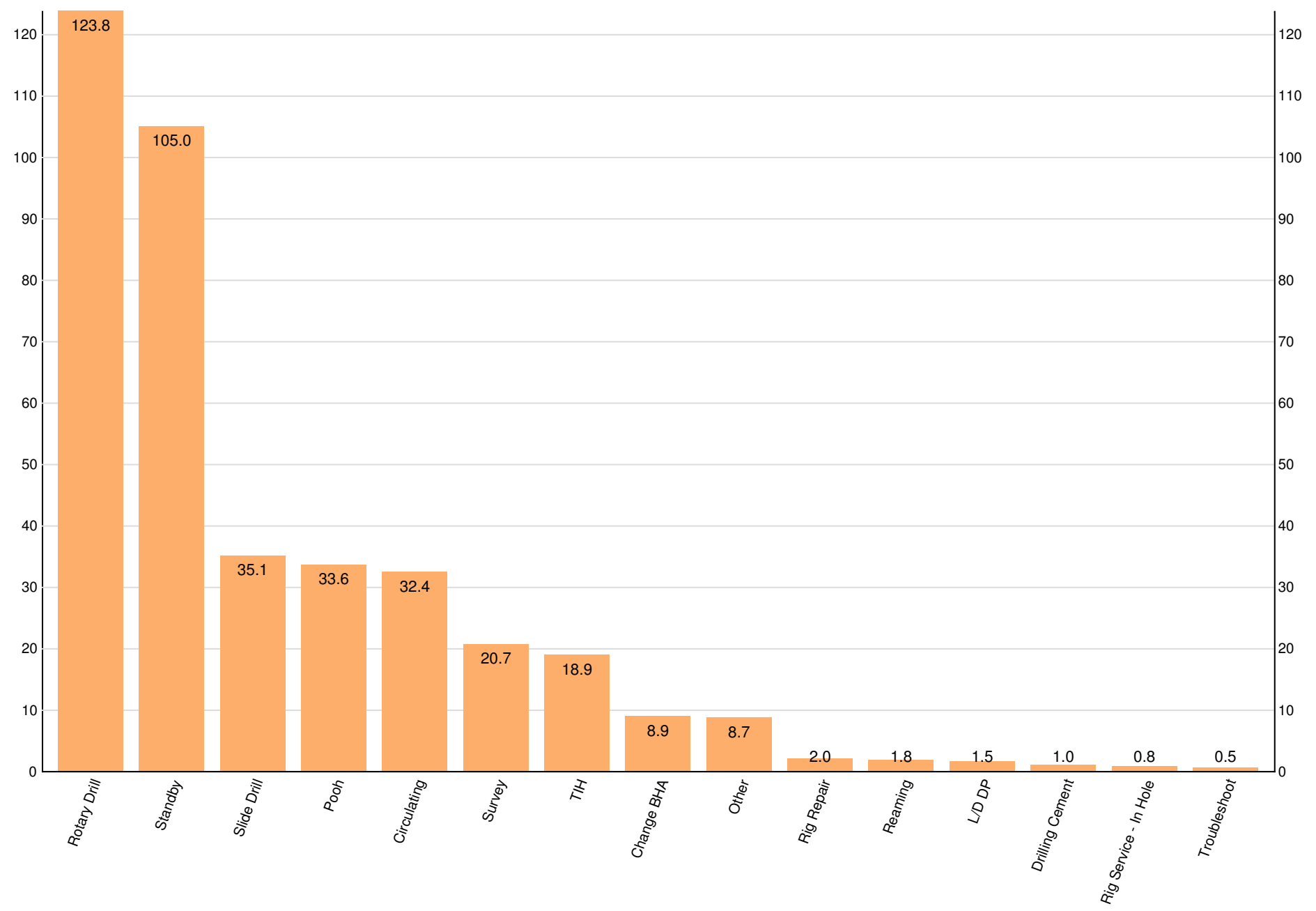
Total



Days vs. Depth



Directional Activity Hours





Proposed vs. As Drilled

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.19°

Magnetic Field
Strength: 48057.7nT
Dip Angle: 60.23°
Date: 12/22/2019
Model: MVHD

Magnetic North: 6.19° to Grid North

SITE DETAILS: Wool Head 20 State Com 608H

Site Centre Northing: 530983.00
Easting: 771020.20

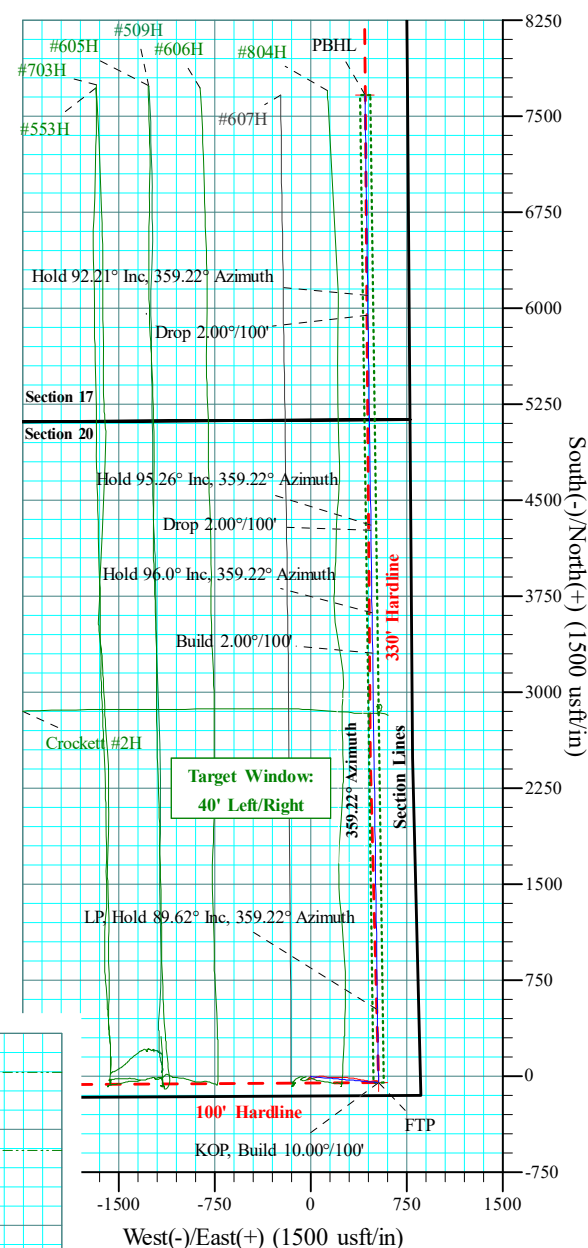
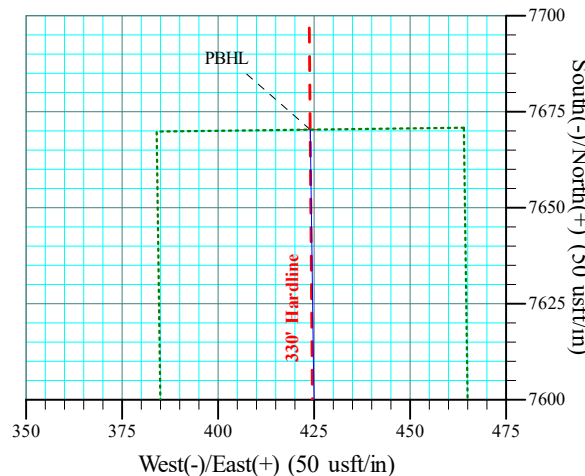
Positional Uncertainty: 0.00
Convergence: 0.40
Local North: Grid

PROJECT DETAILS: Lea County, New Mexico

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

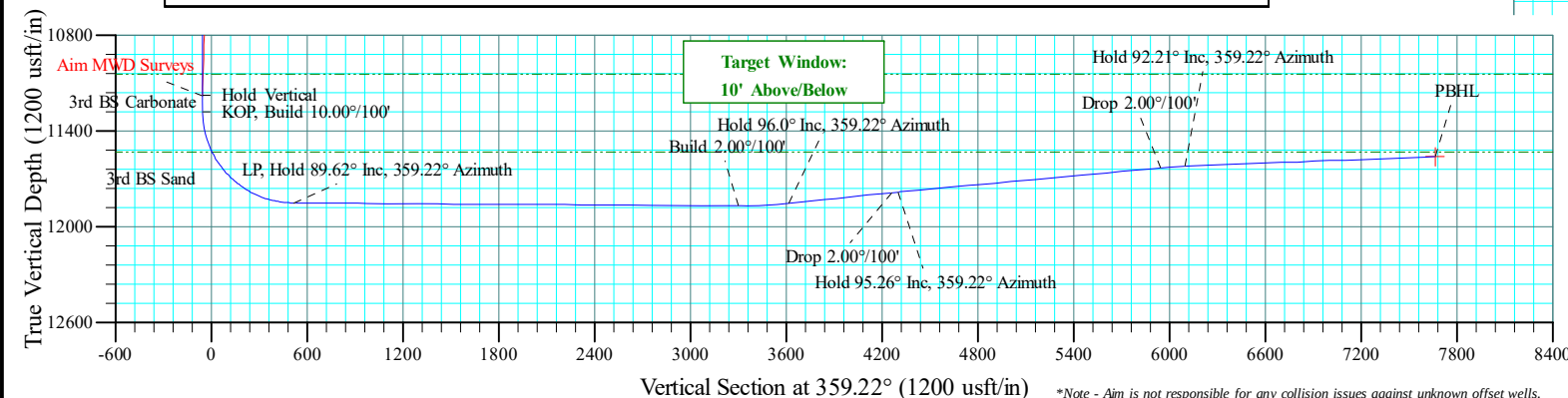
System Datum: Mean Sea Level

Depth Reference:
3721'GL+26.5'KB @ 3747.50usft (H&P 389)



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5400.00	0.00	0.00	5400.00	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	5984.16	5.84	95.09	5983.15	-2.64	29.64	1.00	95.09	-3.04	Hold 5.84° Inc, 95.09° Azimuth
4	10619.59	5.84	95.09	10594.50	-44.46	499.56	0.00	0.00	-51.26	Drop 1.00°/100'
5	11203.74	0.00	0.00	11177.65	-47.10	529.20	1.00	180.00	-54.30	Hold Vertical
6	11303.74	0.00	0.00	11277.65	-47.10	529.20	0.00	0.00	-54.30	KOP, Build 10.00°/100'
7	12199.94	89.62	359.22	11850.60	522.00	521.43	10.00	359.22	514.86	LP, Hold 89.62° Inc, 359.22° Azimuth
8	14985.15	89.62	359.22	11869.07	3306.89	483.44	0.00	0.00	3300.00	Build 2.00°/100'
9	15304.15	96.00	359.22	11853.44	3625.31	479.09	2.00	0.00	3618.45	Hold 96.0° Inc, 359.22° Azimuth
10	15951.24	96.00	359.22	11785.80	4268.80	470.31	0.00	0.00	4262.00	Drop 2.00°/100'
11	15988.07	95.26	359.22	11782.18	4305.44	469.81	2.00	180.00	4298.65	Hold 95.26° Inc, 359.22° Azimuth
12	17639.38	95.26	359.22	11630.70	5949.64	447.38	0.00	0.00	5943.00	Drop 2.00°/100'
13	17792.06	92.21	359.22	11620.75	6101.96	445.30	2.00	-180.00	6095.33	Hold 92.21° Inc, 359.22° Azimuth
14	19361.71	92.21	359.22	11560.22	7670.30	423.90	0.00	0.00	7663.82	PBHL

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH608H)	0.00	-47.10	529.20	530935.90	771549.40	32° 27' 26.621 N	103° 35' 13.077 W
PBHL r2 (WH608H)	11560.22	7670.30	423.90	538653.30	771444.10	32° 28' 42.991 N	103° 35' 13.676 W



Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Project	Lea County, New Mexico		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Wool Head 20 State Com 608H			
Site Position:		Northing:	530,983.00 usft	Latitude:	32° 27' 27.124 N
From:	Map	Easting:	771,020.20 usft	Longitude:	103° 35' 19.249 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#608H - Slot 608H					
Well Position	+N/-S	0.00 usft	Northing:	530,983.00 usft	Latitude:	32° 27' 27.124 N
	+E/-W	0.00 usft	Easting:	771,020.20 usft	Longitude:	103° 35' 19.249 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,721.00 usft

Wellbore	Lateral 1r2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	12/22/2019	6.59	60.23	48,057.65862072

Design	Plan 2.0				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.22	

Survey Tool Program	Date	12/22/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	19,361.71	Plan 2.0 (Lateral 1r2)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Planned 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
FTP (WH608H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00

Aim Directional Services, LLC

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Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned 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)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,799.00	0.00	0.00	1,799.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8"									
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00

Aim Directional Services, LLC

Survey Report

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Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
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Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,202.00	0.00	0.00	5,202.00	0.00	0.00	0.00	0.00	0.00	0.00
Limestone Base									
5,250.00	0.00	0.00	5,250.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.00°/100'									
5,500.00	1.00	95.09	5,500.00	-0.08	0.87	-0.09	1.00	1.00	0.00
5,600.00	2.00	95.09	5,599.96	-0.31	3.48	-0.36	1.00	1.00	0.00
5,700.00	3.00	95.09	5,699.86	-0.70	7.82	-0.80	1.00	1.00	0.00
5,800.00	4.00	95.09	5,799.68	-1.24	13.90	-1.43	1.00	1.00	0.00
5,900.00	5.00	95.09	5,899.37	-1.93	21.72	-2.23	1.00	1.00	0.00
5,984.16	5.84	95.09	5,983.15	-2.64	29.64	-3.04	1.00	1.00	0.00
Hold 5.84° Inc, 95.09° Azimuth									
6,000.00	5.84	95.09	5,998.91	-2.78	31.24	-3.21	0.00	0.00	0.00
6,100.00	5.84	95.09	6,098.39	-3.68	41.38	-4.25	0.00	0.00	0.00
6,200.00	5.84	95.09	6,197.87	-4.59	51.52	-5.29	0.00	0.00	0.00
6,300.00	5.84	95.09	6,297.35	-5.49	61.66	-6.33	0.00	0.00	0.00
6,400.00	5.84	95.09	6,396.83	-6.39	71.79	-7.37	0.00	0.00	0.00
6,500.00	5.84	95.09	6,496.31	-7.29	81.93	-8.41	0.00	0.00	0.00
6,600.00	5.84	95.09	6,595.79	-8.19	92.07	-9.45	0.00	0.00	0.00
6,700.00	5.84	95.09	6,695.27	-9.10	102.21	-10.49	0.00	0.00	0.00
6,800.00	5.84	95.09	6,794.75	-10.00	112.34	-11.53	0.00	0.00	0.00
6,900.00	5.84	95.09	6,894.23	-10.90	122.48	-12.57	0.00	0.00	0.00
7,000.00	5.84	95.09	6,993.71	-11.80	132.62	-13.61	0.00	0.00	0.00
7,100.00	5.84	95.09	7,093.19	-12.71	142.76	-14.65	0.00	0.00	0.00
7,200.00	5.84	95.09	7,192.67	-13.61	152.89	-15.69	0.00	0.00	0.00
7,300.00	5.84	95.09	7,292.16	-14.51	163.03	-16.73	0.00	0.00	0.00
7,400.00	5.84	95.09	7,391.64	-15.41	173.17	-17.77	0.00	0.00	0.00
7,500.00	5.84	95.09	7,491.12	-16.31	183.31	-18.81	0.00	0.00	0.00
7,600.00	5.84	95.09	7,590.60	-17.22	193.45	-19.85	0.00	0.00	0.00
7,700.00	5.84	95.09	7,690.08	-18.12	203.58	-20.89	0.00	0.00	0.00
7,800.00	5.84	95.09	7,789.56	-19.02	213.72	-21.93	0.00	0.00	0.00
7,900.00	5.84	95.09	7,889.04	-19.92	223.86	-22.97	0.00	0.00	0.00
8,000.00	5.84	95.09	7,988.52	-20.83	234.00	-24.01	0.00	0.00	0.00
8,100.00	5.84	95.09	8,088.00	-21.73	244.13	-25.05	0.00	0.00	0.00
8,200.00	5.84	95.09	8,187.48	-22.63	254.27	-26.09	0.00	0.00	0.00
8,300.00	5.84	95.09	8,286.96	-23.53	264.41	-27.13	0.00	0.00	0.00
8,400.00	5.84	95.09	8,386.44	-24.44	274.55	-28.17	0.00	0.00	0.00
8,438.76	5.84	95.09	8,425.00	-24.79	278.48	-28.57	0.00	0.00	0.00
Lower Brushy									

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,500.00	5.84	95.09	8,485.92	-25.34	284.69	-29.21	0.00	0.00	0.00
8,600.00	5.84	95.09	8,585.40	-26.24	294.82	-30.25	0.00	0.00	0.00
8,700.00	5.84	95.09	8,684.89	-27.14	304.96	-31.29	0.00	0.00	0.00
8,800.00	5.84	95.09	8,784.37	-28.04	315.10	-32.33	0.00	0.00	0.00
8,900.00	5.84	95.09	8,883.85	-28.95	325.24	-33.37	0.00	0.00	0.00
8,911.21	5.84	95.09	8,895.00	-29.05	326.37	-33.49	0.00	0.00	0.00
Avalon									
9,000.00	5.84	95.09	8,983.33	-29.85	335.37	-34.41	0.00	0.00	0.00
9,100.00	5.84	95.09	9,082.81	-30.75	345.51	-35.45	0.00	0.00	0.00
9,200.00	5.84	95.09	9,182.29	-31.65	355.65	-36.49	0.00	0.00	0.00
9,300.00	5.84	95.09	9,281.77	-32.56	365.79	-37.53	0.00	0.00	0.00
9,400.00	5.84	95.09	9,381.25	-33.46	375.93	-38.57	0.00	0.00	0.00
9,500.00	5.84	95.09	9,480.73	-34.36	386.06	-39.61	0.00	0.00	0.00
9,600.00	5.84	95.09	9,580.21	-35.26	396.20	-40.65	0.00	0.00	0.00
9,700.00	5.84	95.09	9,679.69	-36.17	406.34	-41.69	0.00	0.00	0.00
9,800.00	5.84	95.09	9,779.17	-37.07	416.48	-42.73	0.00	0.00	0.00
9,900.00	5.84	95.09	9,878.65	-37.97	426.61	-43.77	0.00	0.00	0.00
9,939.55	5.84	95.09	9,918.00	-38.33	430.62	-44.19	0.00	0.00	0.00
1st BS Sand									
10,000.00	5.84	95.09	9,978.13	-38.87	436.75	-44.81	0.00	0.00	0.00
10,100.00	5.84	95.09	10,077.62	-39.77	446.89	-45.85	0.00	0.00	0.00
10,200.00	5.84	95.09	10,177.10	-40.68	457.03	-46.89	0.00	0.00	0.00
10,300.00	5.84	95.09	10,276.58	-41.58	467.17	-47.93	0.00	0.00	0.00
10,400.00	5.84	95.09	10,376.06	-42.48	477.30	-48.97	0.00	0.00	0.00
10,500.00	5.84	95.09	10,475.54	-43.38	487.44	-50.01	0.00	0.00	0.00
10,548.71	5.84	95.09	10,524.00	-43.82	492.38	-50.52	0.00	0.00	0.00
2nd BS Sand									
10,600.00	5.84	95.09	10,575.02	-44.29	497.58	-51.06	0.00	0.00	0.00
10,619.59	5.84	95.09	10,594.50	-44.46	499.56	-51.26	0.00	0.00	0.00
Drop 1.00°/100'									
10,700.00	5.04	95.09	10,674.55	-45.14	507.16	-52.04	1.00	-1.00	0.00
10,800.00	4.04	95.09	10,774.24	-45.84	515.04	-52.85	1.00	-1.00	0.00
10,900.00	3.04	95.09	10,874.05	-46.39	521.18	-53.48	1.00	-1.00	0.00
11,000.00	2.04	95.09	10,973.95	-46.78	525.59	-53.93	1.00	-1.00	0.00
11,071.08	1.33	95.09	11,045.00	-46.96	527.67	-54.14	1.00	-1.00	0.00
3rd BS Carbonate									
11,100.00	1.04	95.09	11,073.91	-47.02	528.26	-54.20	1.00	-1.00	0.00
11,203.74	0.00	0.00	11,177.65	-47.10	529.20	-54.30	1.00	-1.00	0.00
Hold Vertical									
11,303.74	0.00	0.00	11,277.65	-47.10	529.20	-54.30	0.00	0.00	0.00
KOP, Build 10.00°/100'									
11,350.00	4.63	359.22	11,323.86	-45.23	529.17	-52.43	10.00	10.00	0.00
11,400.00	9.63	359.22	11,373.45	-39.03	529.09	-46.23	10.00	10.00	0.00
11,450.00	14.63	359.22	11,422.32	-28.54	528.95	-35.73	10.00	10.00	0.00
11,500.00	19.63	359.22	11,470.09	-13.82	528.75	-21.02	10.00	10.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,550.00	24.63	359.22	11,516.39	5.01	528.49	-2.19	10.00	10.00	0.00
11,565.06	26.13	359.22	11,530.00	11.46	528.40	4.27	10.00	10.00	0.00
3rd BS Sand									
11,600.00	29.63	359.22	11,560.88	27.79	528.18	20.60	10.00	10.00	0.00
11,650.00	34.63	359.22	11,603.21	54.37	527.82	47.18	10.00	10.00	0.00
11,700.00	39.63	359.22	11,643.06	84.54	527.40	77.35	10.00	10.00	0.00
11,750.00	44.63	359.22	11,680.14	118.06	526.95	110.88	10.00	10.00	0.00
11,800.00	49.63	359.22	11,714.15	154.69	526.45	147.51	10.00	10.00	0.00
11,850.00	54.63	359.22	11,744.83	194.14	525.91	186.96	10.00	10.00	0.00
11,900.00	59.63	359.22	11,771.96	236.12	525.34	228.94	10.00	10.00	0.00
11,950.00	64.63	359.22	11,795.33	280.30	524.73	273.13	10.00	10.00	0.00
12,000.00	69.63	359.22	11,814.76	326.35	524.10	319.18	10.00	10.00	0.00
12,050.00	74.63	359.22	11,830.10	373.91	523.46	366.75	10.00	10.00	0.00
12,100.00	79.63	359.22	11,841.24	422.64	522.79	415.48	10.00	10.00	0.00
12,150.00	84.63	359.22	11,848.09	472.14	522.12	464.99	10.00	10.00	0.00
12,199.94	89.62	359.22	11,850.60	522.00	521.43	514.86	10.00	10.00	0.00
LP, Hold 89.62° Inc, 359.22° Azimuth									
12,300.00	89.62	359.22	11,851.26	622.05	520.07	614.91	0.00	0.00	0.00
12,400.00	89.62	359.22	11,851.92	722.04	518.71	714.91	0.00	0.00	0.00
12,500.00	89.62	359.22	11,852.59	822.03	517.34	814.91	0.00	0.00	0.00
12,600.00	89.62	359.22	11,853.25	922.01	515.98	914.91	0.00	0.00	0.00
12,700.00	89.62	359.22	11,853.91	1,022.00	514.61	1,014.90	0.00	0.00	0.00
12,800.00	89.62	359.22	11,854.58	1,121.99	513.25	1,114.90	0.00	0.00	0.00
12,900.00	89.62	359.22	11,855.24	1,221.98	511.88	1,214.90	0.00	0.00	0.00
13,000.00	89.62	359.22	11,855.90	1,321.97	510.52	1,314.90	0.00	0.00	0.00
13,100.00	89.62	359.22	11,856.56	1,421.96	509.16	1,414.89	0.00	0.00	0.00
13,200.00	89.62	359.22	11,857.23	1,521.95	507.79	1,514.89	0.00	0.00	0.00
13,300.00	89.62	359.22	11,857.89	1,621.93	506.43	1,614.89	0.00	0.00	0.00
13,400.00	89.62	359.22	11,858.55	1,721.92	505.06	1,714.89	0.00	0.00	0.00
13,500.00	89.62	359.22	11,859.22	1,821.91	503.70	1,814.89	0.00	0.00	0.00
13,600.00	89.62	359.22	11,859.88	1,921.90	502.33	1,914.88	0.00	0.00	0.00
13,700.00	89.62	359.22	11,860.54	2,021.89	500.97	2,014.88	0.00	0.00	0.00
13,800.00	89.62	359.22	11,861.21	2,121.88	499.61	2,114.88	0.00	0.00	0.00
13,900.00	89.62	359.22	11,861.87	2,221.87	498.24	2,214.88	0.00	0.00	0.00
14,000.00	89.62	359.22	11,862.53	2,321.85	496.88	2,314.87	0.00	0.00	0.00
14,100.00	89.62	359.22	11,863.20	2,421.84	495.51	2,414.87	0.00	0.00	0.00
14,200.00	89.62	359.22	11,863.86	2,521.83	494.15	2,514.87	0.00	0.00	0.00
14,300.00	89.62	359.22	11,864.52	2,621.82	492.78	2,614.87	0.00	0.00	0.00
14,400.00	89.62	359.22	11,865.19	2,721.81	491.42	2,714.87	0.00	0.00	0.00
14,500.00	89.62	359.22	11,865.85	2,821.80	490.06	2,814.86	0.00	0.00	0.00
14,600.00	89.62	359.22	11,866.51	2,921.78	488.69	2,914.86	0.00	0.00	0.00
14,700.00	89.62	359.22	11,867.18	3,021.77	487.33	3,014.86	0.00	0.00	0.00
14,800.00	89.62	359.22	11,867.84	3,121.76	485.96	3,114.86	0.00	0.00	0.00
14,900.00	89.62	359.22	11,868.50	3,221.75	484.60	3,214.85	0.00	0.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned 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)
14,985.15	89.62	359.22	11,869.07	3,306.89	483.44	3,300.00	0.00	0.00	0.00
Build 2.00°/100'									
15,000.00	89.92	359.22	11,869.13	3,321.74	483.23	3,314.85	2.00	2.00	0.00
15,100.00	91.92	359.22	11,867.53	3,421.71	481.87	3,414.83	2.00	2.00	0.00
15,200.00	93.92	359.22	11,862.44	3,521.57	480.51	3,514.70	2.00	2.00	0.00
15,304.15	96.00	359.22	11,853.44	3,625.31	479.09	3,618.45	2.00	2.00	0.00
Hold 96.0° Inc, 359.22° Azimuth									
15,400.00	96.00	359.22	11,843.42	3,720.63	477.79	3,713.78	0.00	0.00	0.00
15,500.00	96.00	359.22	11,832.96	3,820.07	476.43	3,813.23	0.00	0.00	0.00
15,600.00	96.00	359.22	11,822.51	3,919.51	475.08	3,912.68	0.00	0.00	0.00
15,700.00	96.00	359.22	11,812.06	4,018.96	473.72	4,012.14	0.00	0.00	0.00
15,800.00	96.00	359.22	11,801.61	4,118.40	472.36	4,111.59	0.00	0.00	0.00
15,900.00	96.00	359.22	11,791.15	4,217.84	471.01	4,211.04	0.00	0.00	0.00
15,951.24	96.00	359.22	11,785.80	4,268.80	470.31	4,262.00	0.00	0.00	0.00
Drop 2.00°/100'									
15,988.07	95.26	359.22	11,782.18	4,305.44	469.81	4,298.65	2.00	-2.00	0.00
Hold 95.26° Inc, 359.22° Azimuth									
16,000.00	95.26	359.22	11,781.09	4,317.32	469.65	4,310.53	0.00	0.00	0.00
16,100.00	95.26	359.22	11,771.92	4,416.89	468.29	4,410.11	0.00	0.00	0.00
16,200.00	95.26	359.22	11,762.74	4,516.46	466.93	4,509.69	0.00	0.00	0.00
16,300.00	95.26	359.22	11,753.57	4,616.03	465.57	4,609.27	0.00	0.00	0.00
16,400.00	95.26	359.22	11,744.39	4,715.60	464.22	4,708.84	0.00	0.00	0.00
16,500.00	95.26	359.22	11,735.22	4,815.17	462.86	4,808.42	0.00	0.00	0.00
16,600.00	95.26	359.22	11,726.05	4,914.74	461.50	4,908.00	0.00	0.00	0.00
16,700.00	95.26	359.22	11,716.87	5,014.31	460.14	5,007.58	0.00	0.00	0.00
16,800.00	95.26	359.22	11,707.70	5,113.88	458.78	5,107.16	0.00	0.00	0.00
16,900.00	95.26	359.22	11,698.53	5,213.45	457.42	5,206.74	0.00	0.00	0.00
17,000.00	95.26	359.22	11,689.35	5,313.02	456.06	5,306.31	0.00	0.00	0.00
17,100.00	95.26	359.22	11,680.18	5,412.58	454.71	5,405.89	0.00	0.00	0.00
17,200.00	95.26	359.22	11,671.01	5,512.15	453.35	5,505.47	0.00	0.00	0.00
17,300.00	95.26	359.22	11,661.83	5,611.72	451.99	5,605.05	0.00	0.00	0.00
17,400.00	95.26	359.22	11,652.66	5,711.29	450.63	5,704.63	0.00	0.00	0.00
17,500.00	95.26	359.22	11,643.48	5,810.86	449.27	5,804.21	0.00	0.00	0.00
17,600.00	95.26	359.22	11,634.31	5,910.43	447.91	5,903.78	0.00	0.00	0.00
17,639.38	95.26	359.22	11,630.70	5,949.64	447.38	5,943.00	0.00	0.00	0.00
Drop 2.00°/100'									
17,700.00	94.05	359.22	11,625.78	6,010.05	446.55	6,003.42	2.00	-2.00	0.00
17,792.06	92.21	359.22	11,620.75	6,101.96	445.30	6,095.33	2.00	-2.00	0.00
Hold 92.21° Inc, 359.22° Azimuth									
17,800.00	92.21	359.22	11,620.44	6,109.90	445.19	6,103.27	0.00	0.00	0.00
17,900.00	92.21	359.22	11,616.59	6,209.81	443.83	6,203.20	0.00	0.00	0.00
18,000.00	92.21	359.22	11,612.73	6,309.73	442.46	6,303.12	0.00	0.00	0.00
18,100.00	92.21	359.22	11,608.87	6,409.65	441.10	6,403.05	0.00	0.00	0.00
18,200.00	92.21	359.22	11,605.02	6,509.56	439.74	6,502.97	0.00	0.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned 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)
18,300.00	92.21	359.22	11,601.16	6,609.48	438.37	6,602.90	0.00	0.00	0.00
18,400.00	92.21	359.22	11,597.31	6,709.39	437.01	6,702.82	0.00	0.00	0.00
18,500.00	92.21	359.22	11,593.45	6,809.31	435.65	6,802.75	0.00	0.00	0.00
18,600.00	92.21	359.22	11,589.59	6,909.23	434.28	6,902.68	0.00	0.00	0.00
18,700.00	92.21	359.22	11,585.74	7,009.14	432.92	7,002.60	0.00	0.00	0.00
18,800.00	92.21	359.22	11,581.88	7,109.06	431.56	7,102.53	0.00	0.00	0.00
18,900.00	92.21	359.22	11,578.02	7,208.98	430.19	7,202.45	0.00	0.00	0.00
19,000.00	92.21	359.22	11,574.17	7,308.89	428.83	7,302.38	0.00	0.00	0.00
19,100.00	92.21	359.22	11,570.31	7,408.81	427.47	7,402.30	0.00	0.00	0.00
19,200.00	92.21	359.22	11,566.46	7,508.73	426.10	7,502.23	0.00	0.00	0.00
19,300.00	92.21	359.22	11,562.60	7,608.64	424.74	7,602.15	0.00	0.00	0.00
19,361.71	92.21	359.22	11,560.22	7,670.30	423.90	7,663.82	0.00	0.00	0.00
PBHL - PBHL r2 (WH608H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (WH608H)	0.00	0.00	0.00	-47.10	529.20	530,935.90	771,549.40	32° 27' 26.621 N	103° 35' 13.077 W
- hit/miss target									
- Shape									
- plan misses target center by 531.29usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
PBHL r2 (WH608H)	0.00	0.00	11,560.22	7,670.30	423.90	538,653.30	771,444.10	32° 28' 42.991 N	103° 35' 13.676 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,800.00	1,800.00	13 3/8"	13-3/8	17-1/2
5,250.00	5,250.00	9 5/8"	9-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,799.00	1,799.00	Rustler		0.00	
5,202.00	5,202.00	Limestone Base		0.00	
8,438.76	8,425.00	Lower Brushy		0.00	
8,911.21	8,895.00	Avalon		0.00	
9,939.55	9,918.00	1st BS Sand		0.00	
10,548.71	10,524.00	2nd BS Sand		0.00	
11,071.08	11,045.00	3rd BS Carbonate		0.00	
11,565.06	11,530.00	3rd BS Sand		0.00	

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5400	5400	0	0	Build 1.00°/100'
5984	5983	-3	30	Hold 5.84° Inc, 95.09° Azimuth
10,620	10,595	-44	500	Drop 1.00°/100'
11,204	11,178	-47	529	Hold Vertical
11,304	11,278	-47	529	KOP, Build 10.00°/100'
12,200	11,851	522	521	LP, Hold 89.62° Inc, 359.22° Azimuth
14,985	11,869	3307	483	Build 2.00°/100'
15,304	11,853	3625	479	Hold 96.0° Inc, 359.22° Azimuth
15,951	11,786	4269	470	Drop 2.00°/100'
15,988	11,782	4305	470	Hold 95.26° Inc, 359.22° Azimuth
17,639	11,631	5950	447	Drop 2.00°/100'
17,792	11,621	6102	445	Hold 92.21° Inc, 359.22° Azimuth
19,362	11,560	7670	424	PBHL



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.19°

Magnetic Field
Strength: 48057.7nT
Dip Angle: 60.23°
Date: 12/22/2019
Model: MVHD

Magnetic North: 6.19° to Grid North

SITE DETAILS: Wool Head 20 State Com 608H

Site Centre Northing: 530983.00
Easting: 771020.20

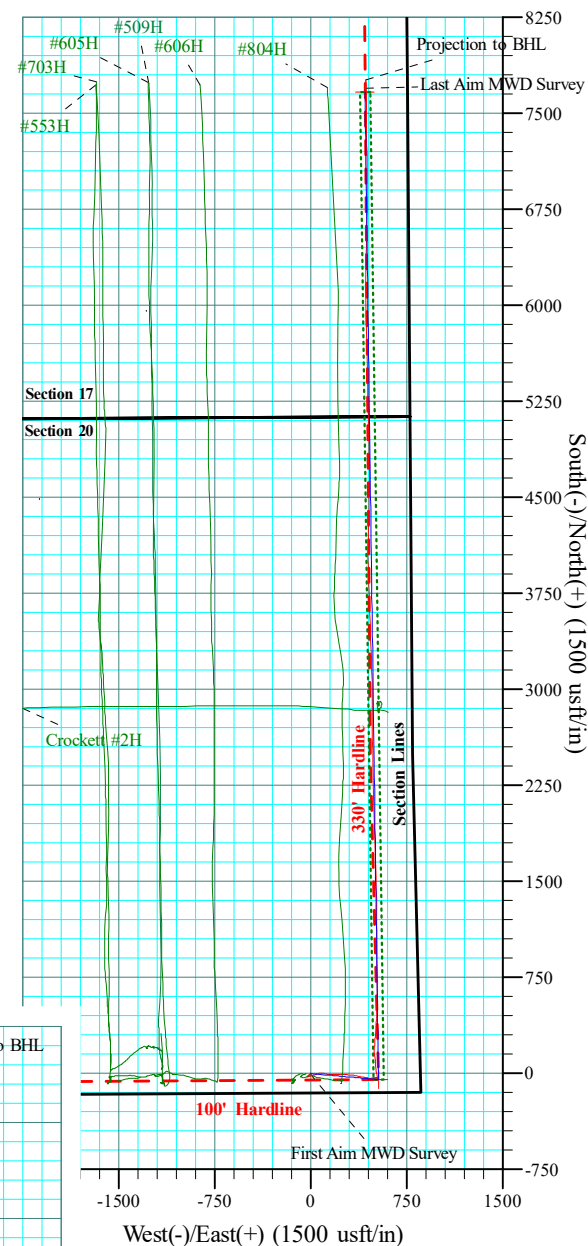
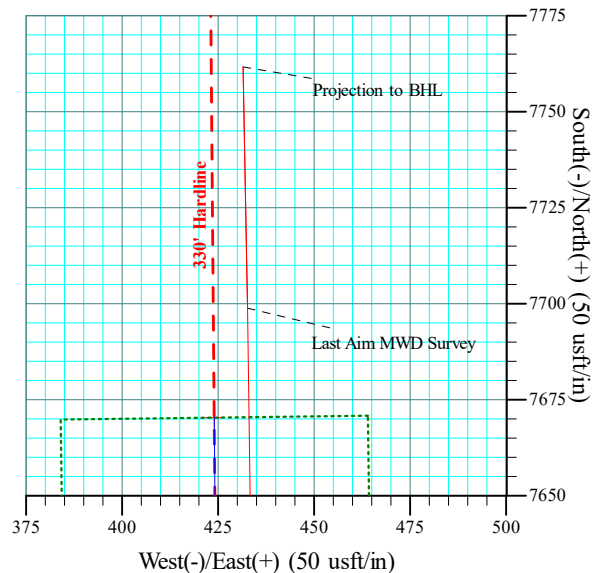
Positional Uncertainty: 0.00
Convergence: 0.40
Local North: Grid

PROJECT DETAILS: Lea County, New Mexico

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

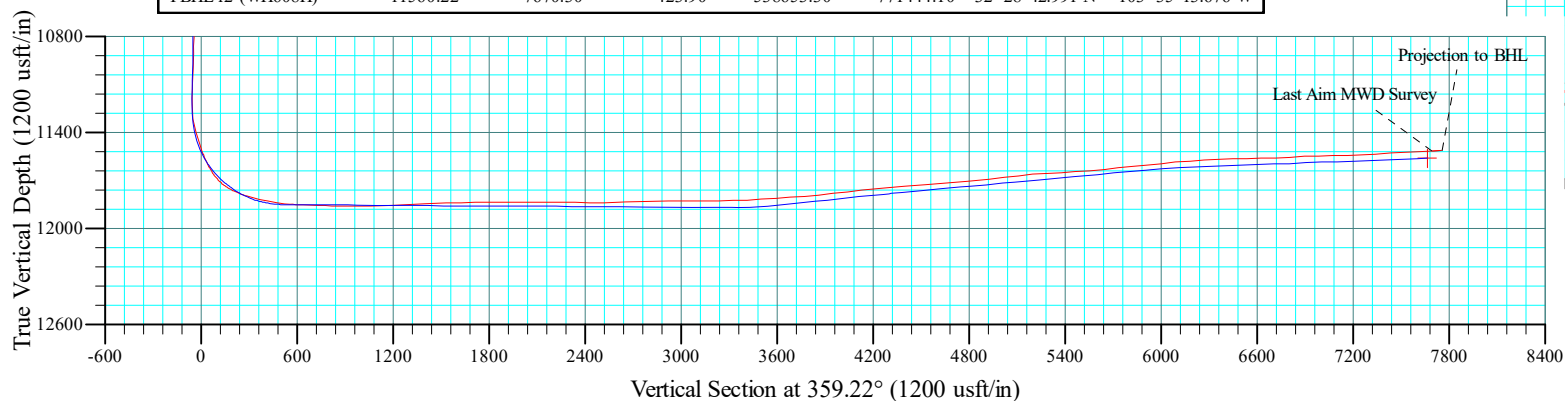
System Datum: Mean Sea Level

Depth Reference:
3721'GL+26.5'KB @ 3747.50usft (H&P 389)



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	19392.00	93.54	358.99	11515.69	7698.83	432.61	0.00	0.00	7692.23	Last Aim MWD Survey
2	19455.00	93.54	358.99	11511.80	7761.70	431.50	0.00	0.00	7755.11	Projection to BHL

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
FTP (WH608H)	0.00	-47.10	529.20	530935.90	771549.40	32° 27' 26.621 N	103° 35' 13.077 W	
PBHL r2 (WH608H)	11560.22	7670.30	423.90	538653.30	771444.10	32° 28' 42.991 N	103° 35' 13.676 W	





Survey Reports

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

Project	Lea County, New Mexico		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Wool Head 20 State Com 608H					
Site Position:		Northing:	530,983.00	usft	Latitude:	32° 27' 27.124 N	
From:	Map	Easting:	771,020.20	usft	Longitude:	103° 35' 19.249 W	
Position Uncertainty:		0.00	usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#608H - Slot 608H					
Well Position	+N/-S	0.00 usft	Northing:	530,983.00 usft	Latitude:	32° 27' 27.124 N
	+E/-W	0.00 usft	Easting:	771,020.20 usft	Longitude:	103° 35' 19.249 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,721.00 usft

Wellbore	Aim MWD Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	11/23/2019	6.60	60.23	48,066.33931644

Design	Aim MWD 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	359.22	

Survey Program	Date	12/30/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
235.00	19,455.00	Aim MWD Surveys (Aim MWD Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

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
235.00	0.88	257.83	234.99	-0.38	-1.76	-0.36	0.37	0.37	0.00
First Aim MWD Survey									
329.00	1.01	242.01	328.98	-0.92	-3.20	-0.88	0.31	0.14	-16.83
424.00	0.48	172.40	423.97	-1.71	-3.89	-1.66	1.01	-0.56	-73.27
518.00	0.40	144.10	517.97	-2.36	-3.64	-2.32	0.24	-0.09	-30.11
613.00	0.22	137.77	612.97	-2.77	-3.33	-2.72	0.19	-0.19	-6.66
707.00	0.79	90.31	706.96	-2.91	-2.56	-2.87	0.70	0.61	-50.49
801.00	0.44	78.62	800.96	-2.84	-1.56	-2.82	0.39	-0.37	-12.44
896.00	0.18	26.94	895.96	-2.63	-1.13	-2.62	0.38	-0.27	-54.40
991.00	0.35	241.31	990.96	-2.64	-1.32	-2.62	0.54	0.18	-153.29

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

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)
1,084.00	0.44	244.82	1,083.95	-2.93	-1.89	-2.90	0.10	0.10	3.77
1,178.00	1.05	252.21	1,177.95	-3.34	-3.04	-3.30	0.66	0.65	7.86
1,272.00	1.49	243.94	1,271.92	-4.14	-4.95	-4.08	0.51	0.47	-8.80
1,365.00	1.49	228.48	1,364.89	-5.48	-6.95	-5.38	0.43	0.00	-16.62
1,459.00	2.02	226.72	1,458.85	-7.42	-9.07	-7.30	0.57	0.56	-1.87
1,548.00	2.33	230.23	1,547.78	-9.66	-11.60	-9.50	0.38	0.35	3.94
1,638.00	2.51	229.88	1,637.70	-12.10	-14.51	-11.90	0.20	0.20	-0.39
1,727.00	3.08	230.85	1,726.60	-14.86	-17.86	-14.62	0.64	0.64	1.09
1,794.00	3.03	226.89	1,793.50	-17.21	-20.55	-16.93	0.32	-0.07	-5.91
1,907.00	1.98	215.12	1,906.39	-20.85	-23.85	-20.52	1.03	-0.93	-10.42
1,997.00	0.97	202.64	1,996.36	-22.82	-25.04	-22.48	1.17	-1.12	-13.87
2,087.00	0.66	139.00	2,086.35	-23.91	-24.99	-23.57	1.00	-0.34	-70.71
2,176.00	0.44	146.47	2,175.35	-24.59	-24.46	-24.25	0.26	-0.25	8.39
2,266.00	0.84	90.49	2,265.34	-24.88	-23.61	-24.56	0.77	0.44	-62.20
2,356.00	1.14	75.99	2,355.33	-24.67	-22.09	-24.37	0.43	0.33	-16.11
2,445.00	1.32	85.65	2,444.31	-24.38	-20.20	-24.10	0.31	0.20	10.85
2,535.00	1.54	75.28	2,534.28	-23.99	-18.00	-23.74	0.38	0.24	-11.52
2,625.00	1.41	68.34	2,624.25	-23.28	-15.80	-23.06	0.25	-0.14	-7.71
2,714.00	1.41	68.16	2,713.23	-22.46	-13.77	-22.27	0.00	0.00	-0.20
2,893.00	1.45	71.77	2,892.17	-20.94	-9.57	-20.80	0.06	0.02	2.02
3,073.00	2.33	83.02	3,072.07	-19.78	-3.78	-19.73	0.53	0.49	6.25
3,162.00	2.68	78.80	3,160.99	-19.15	0.06	-19.15	0.44	0.39	-4.74
3,252.00	2.95	76.25	3,250.88	-18.20	4.37	-18.25	0.33	0.30	-2.83
3,431.00	3.25	73.70	3,429.62	-15.68	13.72	-15.86	0.18	0.17	-1.42
3,520.00	2.81	71.33	3,518.49	-14.27	18.20	-14.52	0.51	-0.49	-2.66
3,610.00	2.42	70.10	3,608.40	-12.92	22.08	-13.22	0.44	-0.43	-1.37
3,789.00	2.29	72.56	3,787.25	-10.56	29.05	-10.95	0.09	-0.07	1.37
3,969.00	2.37	72.47	3,967.10	-8.36	36.03	-8.85	0.04	0.04	-0.05
4,058.00	2.33	69.48	4,056.02	-7.17	39.48	-7.71	0.14	-0.04	-3.36
4,148.00	1.76	67.37	4,145.96	-6.00	42.46	-6.58	0.64	-0.63	-2.34
4,238.00	1.71	71.15	4,235.92	-5.03	45.01	-5.65	0.14	-0.06	4.20
4,327.00	1.89	66.93	4,324.88	-4.03	47.62	-4.68	0.25	0.20	-4.74
4,507.00	1.49	65.88	4,504.80	-1.91	52.48	-2.62	0.22	-0.22	-0.58
4,686.00	1.58	81.35	4,683.74	-0.59	57.05	-1.36	0.24	0.05	8.64
4,776.00	1.54	83.37	4,773.70	-0.26	59.48	-1.07	0.08	-0.04	2.24
4,865.00	1.54	85.39	4,862.67	-0.03	61.86	-0.87	0.06	0.00	2.27
4,955.00	1.45	80.91	4,952.64	0.25	64.19	-0.62	0.16	-0.10	-4.98
5,045.00	1.58	92.07	5,042.61	0.39	66.55	-0.52	0.36	0.14	12.40
5,134.00	1.58	91.37	5,131.58	0.31	69.00	-0.63	0.02	0.00	-0.79
5,212.00	1.36	93.30	5,209.55	0.23	71.00	-0.73	0.29	-0.28	2.47
5,322.00	1.41	70.80	5,319.52	0.60	73.58	-0.40	0.49	0.05	-20.45
5,412.00	3.03	90.75	5,409.45	0.94	77.01	-0.11	1.97	1.80	22.17
5,501.00	4.57	90.14	5,498.25	0.90	82.91	-0.23	1.73	1.73	-0.69

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,591.00	5.49	88.73	5,587.90	0.98	90.80	-0.25	1.03	1.02	-1.57
5,681.00	6.99	99.01	5,677.37	0.22	100.51	-1.15	2.07	1.67	11.42
5,770.00	7.03	100.24	5,765.71	-1.60	111.22	-3.11	0.17	0.04	1.38
5,860.00	6.95	98.66	5,855.04	-3.39	122.02	-5.06	0.23	-0.09	-1.76
5,950.00	6.77	95.15	5,944.39	-4.69	132.69	-6.50	0.51	-0.20	-3.90
6,039.00	6.81	93.48	6,032.77	-5.48	143.18	-7.43	0.23	0.04	-1.88
6,129.00	6.59	93.48	6,122.15	-6.12	153.66	-8.21	0.24	-0.24	0.00
6,219.00	6.73	92.24	6,211.55	-6.64	164.08	-8.87	0.22	0.16	-1.38
6,308.00	6.55	91.98	6,299.95	-7.02	174.37	-9.39	0.21	-0.20	-0.29
6,398.00	6.29	92.86	6,389.39	-7.44	184.42	-9.95	0.31	-0.29	0.98
6,488.00	6.02	92.33	6,478.87	-7.88	194.06	-10.52	0.31	-0.30	-0.59
6,577.00	5.41	91.98	6,567.42	-8.21	202.92	-10.98	0.69	-0.69	-0.39
6,667.00	5.19	90.31	6,657.04	-8.38	211.23	-11.26	0.30	-0.24	-1.86
6,757.00	4.88	89.43	6,746.69	-8.37	219.13	-11.35	0.35	-0.34	-0.98
6,847.00	5.27	87.15	6,836.34	-8.12	227.08	-11.21	0.49	0.43	-2.53
6,936.00	5.36	88.99	6,924.96	-7.85	235.32	-11.05	0.22	0.10	2.07
7,025.00	5.14	89.70	7,013.58	-7.75	243.47	-11.07	0.26	-0.25	0.80
7,115.00	4.92	93.04	7,103.24	-7.94	251.35	-11.36	0.41	-0.24	3.71
7,205.00	4.31	91.63	7,192.94	-8.24	258.59	-11.76	0.69	-0.68	-1.57
7,295.00	5.19	90.84	7,282.63	-8.39	266.04	-12.01	0.98	0.98	-0.88
7,384.00	6.15	90.40	7,371.20	-8.48	274.83	-12.23	1.08	1.08	-0.49
7,474.00	5.93	92.24	7,460.70	-8.70	284.30	-12.57	0.33	-0.24	2.04
7,564.00	5.45	93.39	7,550.25	-9.13	293.21	-13.13	0.55	-0.53	1.28
7,654.00	4.97	92.60	7,639.88	-9.56	301.37	-13.67	0.54	-0.53	-0.88
7,744.00	4.62	91.37	7,729.57	-9.83	308.89	-14.03	0.41	-0.39	-1.37
7,833.00	5.49	95.41	7,818.22	-10.31	316.71	-14.63	1.06	0.98	4.54
7,923.00	6.29	99.01	7,907.74	-11.49	325.86	-15.93	0.98	0.89	4.00
8,013.00	6.37	101.12	7,997.20	-13.23	335.63	-17.80	0.27	0.09	2.34
8,102.00	5.98	102.62	8,085.68	-15.19	345.00	-19.89	0.47	-0.44	1.69
8,192.00	5.63	101.47	8,175.22	-17.10	353.90	-21.91	0.41	-0.39	-1.28
8,282.00	5.10	101.91	8,264.82	-18.80	362.14	-23.73	0.59	-0.59	0.49
8,371.00	4.70	101.74	8,353.50	-20.36	369.58	-25.39	0.45	-0.45	-0.19
8,461.00	4.97	99.72	8,443.18	-21.77	377.04	-26.90	0.35	0.30	-2.24
8,551.00	4.57	99.01	8,532.87	-22.99	384.42	-28.22	0.45	-0.44	-0.79
8,641.00	4.40	102.62	8,622.59	-24.30	391.33	-29.63	0.37	-0.19	4.01
8,730.00	4.04	102.09	8,711.35	-25.70	397.73	-31.12	0.41	-0.40	-0.60
8,820.00	3.78	102.35	8,801.14	-27.00	403.73	-32.50	0.29	-0.29	0.29
8,910.00	3.65	104.11	8,890.95	-28.34	409.40	-33.91	0.19	-0.14	1.96
9,000.00	3.34	103.67	8,980.78	-29.65	414.73	-35.30	0.35	-0.34	-0.49
9,089.00	2.77	105.43	9,069.66	-30.84	419.32	-36.54	0.65	-0.64	1.98
9,179.00	4.22	98.05	9,159.49	-31.88	424.70	-37.66	1.68	1.61	-8.20
9,269.00	4.31	99.54	9,249.24	-32.90	431.31	-38.77	0.16	0.10	1.66
9,358.00	3.65	97.34	9,338.02	-33.82	437.42	-39.77	0.76	-0.74	-2.47

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

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)
9,448.00	2.95	93.91	9,427.87	-34.34	442.57	-40.37	0.81	-0.78	-3.81
9,538.00	4.62	97.61	9,517.67	-34.98	448.47	-41.08	1.87	1.86	4.11
9,627.00	4.79	98.22	9,606.37	-35.99	455.70	-42.19	0.20	0.19	0.69
9,717.00	4.40	93.74	9,696.08	-36.75	462.87	-43.05	0.59	-0.43	-4.98
9,807.00	3.87	83.81	9,785.85	-36.65	469.33	-43.03	0.99	-0.59	-11.03
9,897.00	5.32	80.29	9,875.56	-35.62	476.46	-42.10	1.64	1.61	-3.91
9,986.00	5.41	82.31	9,964.17	-34.36	484.69	-40.96	0.24	0.10	2.27
10,076.00	5.10	84.86	10,053.79	-33.43	492.88	-40.14	0.43	-0.34	2.83
10,166.00	4.22	83.72	10,143.49	-32.71	500.15	-39.52	0.98	-0.98	-1.27
10,255.00	3.96	82.14	10,232.27	-31.93	506.45	-38.83	0.32	-0.29	-1.78
10,345.00	2.95	92.42	10,322.10	-31.61	511.85	-38.57	1.31	-1.12	11.42
10,435.00	2.29	117.38	10,412.01	-32.53	515.76	-39.55	1.45	-0.73	27.73
10,524.00	1.45	124.85	10,500.96	-33.99	518.26	-41.05	0.98	-0.94	8.39
10,614.00	0.92	117.12	10,590.94	-34.97	519.84	-42.05	0.61	-0.59	-8.59
10,703.00	1.05	136.72	10,679.93	-35.89	521.03	-42.98	0.40	0.15	22.02
10,793.00	1.14	159.74	10,769.91	-37.33	521.91	-44.43	0.50	0.10	25.58
10,883.00	1.58	176.53	10,859.89	-39.41	522.29	-46.52	0.65	0.49	18.66
10,972.00	1.63	197.45	10,948.85	-41.84	521.99	-48.95	0.66	0.06	23.51
11,062.00	1.89	184.00	11,038.81	-44.55	521.50	-51.64	0.54	0.29	-14.94
11,152.00	2.02	168.62	11,128.76	-47.58	521.71	-54.68	0.60	0.14	-17.09
11,203.00	1.80	157.55	11,179.73	-49.20	522.19	-56.31	0.84	-0.43	-21.71
11,248.00	1.54	152.98	11,224.71	-50.39	522.74	-57.51	0.65	-0.58	-10.16
11,338.00	9.58	351.17	11,314.35	-44.05	522.13	-51.16	12.28	8.93	-179.79
11,427.00	15.69	348.62	11,401.15	-24.92	518.62	-31.98	6.89	6.87	-2.87
11,517.00	19.69	352.84	11,486.88	2.07	514.33	-4.93	4.66	4.44	4.69
11,560.00	21.32	355.21	11,527.16	17.05	512.77	10.06	4.25	3.79	5.51
11,606.00	23.78	353.63	11,569.64	34.60	511.04	27.64	5.51	5.35	-3.43
11,666.00	28.97	352.14	11,623.37	61.03	507.71	54.12	8.72	8.65	-2.48
11,696.00	32.92	353.72	11,649.10	76.34	505.83	69.45	13.44	13.17	5.27
11,740.00	40.53	355.30	11,684.34	102.51	503.34	95.65	17.43	17.30	3.59
11,785.00	48.97	354.33	11,716.27	134.03	500.46	127.21	18.82	18.76	-2.16
11,830.00	58.20	357.06	11,742.96	170.10	497.80	163.31	21.08	20.51	6.07
11,875.00	64.00	2.77	11,764.71	209.46	497.80	202.66	17.01	12.89	12.69
11,964.00	73.49	4.79	11,796.94	292.12	503.30	285.24	10.87	10.66	2.27
12,054.00	77.58	4.44	11,819.42	378.97	510.31	371.98	4.56	4.54	-0.39
12,143.00	80.48	2.51	11,836.35	466.17	515.60	459.10	3.89	3.26	-2.17
12,233.00	84.92	0.49	11,847.79	555.38	517.93	548.28	5.41	4.93	-2.24
12,323.00	88.18	0.22	11,853.20	645.20	518.48	638.08	3.63	3.62	-0.30
12,413.00	88.40	359.52	11,855.89	735.16	518.28	728.04	0.81	0.24	-0.78
12,502.00	89.58	359.17	11,857.46	824.14	517.26	817.02	1.38	1.33	-0.39
12,592.00	89.14	359.26	11,858.46	914.13	516.03	907.02	0.50	-0.49	0.10
12,681.00	91.12	359.87	11,858.26	1,003.12	515.35	996.01	2.33	2.22	0.69
12,771.00	89.93	359.70	11,857.44	1,093.11	515.02	1,086.00	1.34	-1.32	-0.19
12,860.00	92.22	0.14	11,855.77	1,182.09	514.89	1,174.97	2.62	2.57	0.49

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

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)
12,950.00	92.40	359.43	11,852.14	1,272.02	514.56	1,264.89	0.81	0.20	-0.79
13,039.00	92.44	359.17	11,848.38	1,360.93	513.47	1,353.81	0.30	0.04	-0.29
13,129.00	92.13	358.73	11,844.79	1,450.84	511.82	1,443.74	0.60	-0.34	-0.49
13,218.00	92.13	358.38	11,841.48	1,539.75	509.58	1,532.67	0.39	0.00	-0.39
13,308.00	92.26	357.76	11,838.04	1,629.63	506.55	1,622.59	0.70	0.14	-0.69
13,397.00	90.42	358.99	11,835.96	1,718.57	504.03	1,711.55	2.49	-2.07	1.38
13,487.00	90.42	358.55	11,835.30	1,808.55	502.09	1,801.54	0.49	0.00	-0.49
13,576.00	90.24	357.85	11,834.78	1,897.50	499.30	1,890.53	0.81	-0.20	-0.79
13,666.00	90.15	356.88	11,834.48	1,987.40	495.16	1,980.48	1.08	-0.10	-1.08
13,756.00	90.15	359.26	11,834.24	2,077.35	492.13	2,070.45	2.64	0.00	2.64
13,845.00	89.76	359.26	11,834.31	2,166.34	490.98	2,159.45	0.44	-0.44	0.00
13,934.00	89.71	358.64	11,834.72	2,255.32	489.35	2,248.45	0.70	-0.06	-0.70
14,024.00	88.92	358.73	11,835.80	2,345.29	487.29	2,338.44	0.88	-0.88	0.10
14,113.00	88.09	358.64	11,838.12	2,434.24	485.24	2,427.40	0.94	-0.93	-0.10
14,203.00	90.95	358.64	11,838.87	2,524.20	483.11	2,517.39	3.18	3.18	0.00
14,293.00	93.01	357.94	11,835.77	2,614.10	480.42	2,607.32	2.42	2.29	-0.78
14,382.00	91.82	0.22	11,832.01	2,703.00	479.00	2,696.23	2.89	-1.34	2.56
14,472.00	90.95	359.96	11,829.84	2,792.97	479.14	2,786.19	1.01	-0.97	-0.29
14,561.00	90.73	0.31	11,828.53	2,881.96	479.35	2,875.17	0.46	-0.25	0.39
14,651.00	90.20	0.14	11,827.80	2,971.96	479.70	2,965.15	0.62	-0.59	-0.19
14,740.00	89.98	359.34	11,827.66	3,060.96	479.30	3,054.15	0.93	-0.25	-0.90
14,830.00	90.86	358.47	11,827.00	3,150.94	477.58	3,144.14	1.37	0.98	-0.97
14,920.00	90.02	357.06	11,826.31	3,240.86	474.07	3,234.11	1.82	-0.93	-1.57
15,009.00	90.73	357.24	11,825.73	3,329.75	469.64	3,323.05	0.82	0.80	0.20
15,099.00	93.45	359.17	11,822.45	3,419.63	466.83	3,412.96	3.70	3.02	2.14
15,189.00	93.89	359.08	11,816.69	3,509.44	465.45	3,502.78	0.50	0.49	-0.10
15,278.00	93.98	358.20	11,810.58	3,598.20	463.35	3,591.56	0.99	0.10	-0.99
15,368.00	94.11	357.50	11,804.23	3,687.91	459.98	3,681.31	0.79	0.14	-0.78
15,458.00	93.67	356.88	11,798.13	3,777.60	455.58	3,771.05	0.84	-0.49	-0.69
15,547.00	95.74	357.94	11,790.83	3,866.20	451.57	3,859.70	2.61	2.33	1.19
15,637.00	96.31	359.34	11,781.38	3,955.68	449.44	3,949.19	1.67	0.63	1.56
15,727.00	96.97	359.34	11,770.97	4,045.07	448.41	4,038.59	0.73	0.73	0.00
15,816.00	96.35	0.84	11,760.65	4,133.46	448.55	4,126.97	1.81	-0.70	1.69
15,906.00	96.00	1.10	11,750.97	4,222.93	450.07	4,216.41	0.48	-0.39	0.29
15,995.00	95.30	1.45	11,742.21	4,311.47	452.04	4,304.92	0.88	-0.79	0.39
16,085.00	93.71	1.72	11,735.14	4,401.16	454.52	4,394.56	1.79	-1.77	0.30
16,175.00	93.49	1.28	11,729.49	4,490.95	456.87	4,484.31	0.55	-0.24	-0.49
16,264.00	94.29	0.84	11,723.45	4,579.73	458.51	4,573.06	1.03	0.90	-0.49
16,354.00	94.68	359.70	11,716.41	4,669.45	458.94	4,662.77	1.34	0.43	-1.27
16,444.00	94.24	359.61	11,709.41	4,759.17	458.40	4,752.49	0.50	-0.49	-0.10
16,533.00	96.35	359.08	11,701.20	4,847.78	457.38	4,841.11	2.44	2.37	-0.60
16,623.00	96.88	358.38	11,690.83	4,937.16	455.40	4,930.51	0.97	0.59	-0.78
16,712.00	96.62	358.03	11,680.37	5,025.50	452.63	5,018.87	0.49	-0.29	-0.39

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

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)
16,802.00	96.53	358.99	11,670.06	5,114.88	450.31	5,108.27	1.06	-0.10	1.07
16,891.00	94.51	358.91	11,661.50	5,203.45	448.69	5,196.86	2.27	-2.27	-0.09
16,981.00	92.84	358.99	11,655.74	5,293.24	447.04	5,286.67	1.86	-1.86	0.09
17,070.00	93.14	358.99	11,651.09	5,382.11	445.47	5,375.54	0.34	0.34	0.00
17,160.00	93.54	358.91	11,645.85	5,471.94	443.83	5,465.39	0.45	0.44	-0.09
17,249.00	94.59	358.73	11,639.54	5,560.70	442.00	5,554.16	1.20	1.18	-0.20
17,339.00	96.00	358.82	11,631.24	5,650.29	440.08	5,643.77	1.57	1.57	0.10
17,429.00	96.00	358.20	11,621.83	5,739.77	437.76	5,733.27	0.69	0.00	-0.69
17,518.00	95.87	357.67	11,612.62	5,828.23	434.57	5,821.77	0.61	-0.15	-0.60
17,608.00	96.53	357.50	11,602.90	5,917.62	430.80	5,911.21	0.76	0.73	-0.19
17,697.00	95.65	358.99	11,593.46	6,006.08	428.09	5,999.69	1.94	-0.99	1.67
17,787.00	94.68	0.40	11,585.36	6,095.71	427.61	6,089.32	1.90	-1.08	1.57
17,877.00	94.11	1.10	11,578.46	6,185.43	428.79	6,179.02	1.00	-0.63	0.78
17,966.00	92.92	1.63	11,573.01	6,274.24	430.90	6,267.79	1.46	-1.34	0.60
18,056.00	93.01	1.45	11,568.35	6,364.09	433.32	6,357.60	0.22	0.10	-0.20
18,145.00	90.77	1.01	11,565.42	6,453.01	435.23	6,446.49	2.56	-2.52	-0.49
18,235.00	91.16	0.84	11,563.90	6,542.99	436.68	6,536.44	0.47	0.43	-0.19
18,325.00	91.52	0.57	11,561.80	6,632.95	437.79	6,626.38	0.50	0.40	-0.30
18,414.00	92.22	0.40	11,558.89	6,721.90	438.54	6,715.31	0.81	0.79	-0.19
18,504.00	93.80	359.78	11,554.17	6,811.78	438.68	6,805.17	1.89	1.76	-0.69
18,594.00	91.82	0.22	11,549.75	6,901.66	438.68	6,895.05	2.25	-2.20	0.49
18,683.00	91.74	0.22	11,546.99	6,990.62	439.02	6,984.00	0.09	-0.09	0.00
18,773.00	91.65	0.14	11,544.33	7,080.58	439.31	7,073.94	0.13	-0.10	-0.09
18,863.00	91.78	359.26	11,541.63	7,170.54	438.83	7,163.90	0.99	0.14	-0.98
18,952.00	92.04	358.82	11,538.67	7,259.47	437.34	7,252.85	0.57	0.29	-0.49
19,042.00	93.49	358.73	11,534.33	7,349.35	435.42	7,342.74	1.61	1.61	-0.10
19,131.00	93.05	359.96	11,529.25	7,438.19	434.41	7,431.59	1.47	-0.49	1.38
19,221.00	92.57	359.87	11,524.84	7,528.09	434.27	7,521.48	0.54	-0.53	-0.10
19,311.00	93.10	359.43	11,520.39	7,617.97	433.72	7,611.36	0.76	0.59	-0.49
19,392.00	93.54	358.99	11,515.69	7,698.83	432.61	7,692.23	0.77	0.54	-0.54
Last Aim MWD Survey									
19,455.00	93.54	358.99	11,511.80	7,761.70	431.50	7,755.11	0.00	0.00	0.00
Projection to BHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
235.00	234.99	-0.38	-1.76	First Aim MWD Survey
19,392.00	11,515.69	7,698.83	432.61	Last Aim MWD Survey
19,455.00	11,511.80	7,761.70	431.50	Projection to BHL

Aim Directional Services, LLC
Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 608H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Site:	Wool Head 20 State Com 608H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 389)
Well:	#608H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database



BHA Reports

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #1 - 17.5" SURFACE (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	8.00	Date In 2019-11-23 00:30	Downhole Hours 21.25
Lobe/Stage	7/8, 4.0	Depth In (ft) 140.00	Drilling/Circulating Hours 13.92
Bend Angle	1.50	Date Out 2019-11-23 21:45	Drilling Hours 13.17
Speed (rev/gal)	0.17	Depth Out (ft) 1856.00	Circulating Hours 0.75
Wear Pad OD (in)	8.375	Distance Slid (ft) 105.00	Sliding Hours 1.67
Incident	No	Distance Rotated (ft) 1611.00	Rotating Hours 11.50
Motor Results		% Distance Sliding 6.12%	% Hours Sliding 12.66%
Average Total ROP (ft/h)	130.33	% Distance Rotating 93.88%	% Hours Rotating 87.34%
Average Slide ROP (ft/h)	63.00	BHA Objective	
Average Rotating ROP (ft/h)	140.09	DRILL SURFACE	

Bit Details		POOH Reason/Notes	
OD (in)	17.500	Total Depth/Casing Point	
Vendor	BAKER		
S/N	5300910		
Nozzles	9-12's		
Total Flow Area (in²)	0.994		

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional:
		MWD:

Bit Distances		Comments
Bit To Bend: 4.70 ft		Directional: Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:

Mud Properties		Parameters	
Type	Water Based	Flow Rate (gpm) 550.00 - 800.00	Motor RPM 76.00 - 136.00
WT	8.40	On Bottom Pressure (psi) 1450.00 - 2600.00	Surface RPM 50.00 - 70.00
VIS	32.00	Off Bottom Pressure (psi) 950.00 - 1900.00	Rotating WOB (klbs) 15.00 - 25.00
PV	0.00	Stall Pressure (psi) 0.00	Sliding WOB (klbs) 20.00 - 20.00
YP	0.00	Stalls 0	Temp (°F) -0.00 - 105.00
		NPT 0.0	

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 17.5" DP606S, Style: PDC, Gauge Length (in): 3.00, Size (in): 17.50	BAKER	5300910	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: MUD MOTOR, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4.0	AIM	800-003 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		28.66	30.16
Stabilizer Description: 17" IB NORTRACK STAB	GTI	GT801166	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.000		8.02	38.18
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.000		3.48	41.66
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	72.14
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	103.30
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	107.20
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1521.40





Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #2 - BHA #2 (12.25" Intermediate) (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	8.00	Date In 2019-12-03 16:30	Downhole Hours 37.50
Lobe/Stage	7/8, 5.9	Depth In (ft) 1856.00	Drilling/Circulating Hours 20.92
Bend Angle	1.50	Date Out 2019-12-05 06:00	Drilling Hours 17.92
Speed (rev/gal)	0.17	Depth Out (ft) 5281.00	Circulating Hours 3.00
Wear Pad OD (in)	8.375	Distance Slid (ft) 25.00	Sliding Hours 0.25
Incident	No	Distance Rotated (ft) 3400.00	Rotating Hours 17.67
Motor Results		% Distance Sliding 0.73%	% Hours Sliding 1.40%
Average Total ROP (ft/h)	191.16	% Distance Rotating 99.27%	% Hours Rotating 98.60%
Average Slide ROP (ft/h)	100.00	BHA Objective	
Average Rotating ROP (ft/h)	192.45	Drill 12.25" Intermediate section to casing point.	

Bit Details

OD (in)	12.250
Vendor	BAKER
S/N	5302851
Nozzles	6 x 12
Total Flow Area (in²)	0.660

POOH Reason/Notes

Total Depth/Casing Point: Pooh to run Casing

MWD

Max Downhole Temp (°F) N/A Directional: Motor Drained well and had a 1/2" squat in the bearing.

MWD:

Bit Distances

Bit To Bend (Bit to Bend): 4.80 ft, Survey (Bit to Survey): 69.00 ft

Comments

Directional: 1.5" FBH 7/8 5.9 Stg Mtr w/ 12" Stab: Flow Rate: 400-900, Max Diff: 1330 psi, Max Torque: 22,020 ft-lbs, Bit Runs:

Mud Properties

Type	Brine
WT	10.00
VIS	28.00
PV	2.00
YP	1.00

Parameters

Flow Rate (gpm)	800.00 - 850.00	Motor RPM	76.00 - 136.00
On Bottom Pressure (psi)	2250.00 - 3900.00	Surface RPM	40.00 - 60.00
Off Bottom Pressure (psi)	1900.00 - 2900.00	Rotating WOB (klbs)	30.00 - 45.00
Stall Pressure (psi)	1499.98	Sliding WOB (klbs)	20.00 - 20.00
Stalls	1	Temp (°F)	88.00 - 125.00
NPT	0.0		

Items (Directional)

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.50, Size (in): 12.25	BAKER	5302851	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 1.5° 7/8 5.9 Stg Mtr w/ 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	800-004 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		36.56	37.81
Stabilizer Description: 12" IB NORTRACK STAB	GTI	GT801178	6 5/8" Reg Box	6 5/8" Reg Pin	2.825	8.000		8.03	45.84
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066145	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.000		3.18	49.02
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	79.50
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	110.66
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	114.56
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1528.76





Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #3 - BHA #3 (8.5" Intermediate) (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-12-08 21:30
Lobe/Stage	7/8, 8.5	Depth In (ft)	5281.00
Bend Angle	1.50	Date Out	2019-12-11 14:30
Speed (rev/gal)	0.26	Depth Out (ft)	11260.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	247.00
Incident	No	Distance Rotated (ft)	5732.00
Motor Results		% Distance Sliding	4.13%
Average Total ROP (ft/h)	130.93	% Distance Rotating	95.87%
Average Slide ROP (ft/h)	44.91	BHA Objective	
Average Rotating ROP (ft/h)	142.71	Drill down to KOP	

Bit Details	
OD (in)	8.500
Vendor	Halliburton
S/N	13271296
Nozzles	6 x 12
Total Flow Area (in²)	0.662

MWD		Incident Notes	
Max Downhole Temp (°F)	N/A	Directional: N/A	
		MWD:	

Bit Distances		Comments	
Bit To Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		Directional: Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0	

Mud Properties		Parameters	
Type	Water Based	Flow Rate (gpm)	202.00 - 750.00
WT	9.20	On Bottom Pressure (psi)	2500.00 - 3900.00
VIS	32.00	Off Bottom Pressure (psi)	2100.00 - 2900.00
PV	0.00	Stall Pressure (psi)	0.00
YP	0.00	Stalls	0
		NPT	0.0

Bit To Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		Motor RPM	
		30.00 - 60.00	

		Surface RPM	
		30.00 - 60.00	

		Rotating WOB (klbs)	
		25.00 - 45.00	

		Sliding WOB (klbs)	
		20.00 - 40.00	

		Temp (°F)	
		100.00 - 120.00	





Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #4 - 8.5" CURVE (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	6.75	Date In	2019-12-22 10:45	Downhole Hours	22.25
Lobe/Stage	7/8, 5.0	Depth In (ft)	11260.00	Drilling/Circulating Hours	8.08
Bend Angle	2.00	Date Out	2019-12-23 09:00	Drilling Hours	6.17
Speed (rev/gal)	0.26	Depth Out (ft)	11665.00	Circulating Hours	1.92
Wear Pad OD (in)	6.950	Distance Slid (ft)	370.00	Sliding Hours	5.83
Incident	No	Distance Rotated (ft)	35.00	Rotating Hours	0.33
Motor Results		% Distance Sliding	91.36%	% Hours Sliding	94.59%
Average Total ROP (ft/h)	65.68	% Distance Rotating	8.64%	% Hours Rotating	5.41%
Average Slide ROP (ft/h)	63.43	BHA Objective			
Average Rotating ROP (ft/h)	105.00	DRILL CURVE & START LATERAL			

Bit Details

OD (in)	8.500
Vendor	Halliburton
S/N	13291182
Nozzles	6 x 22
Total Flow Area (in²)	2.227

POOH Reason/Notes

Build Rate: POOH FOR BUILD RATES

MWD

Max Downhole Temp (°F)	N/A
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Incident Notes

Directional: N/A

MWD:

Bit Distances

Bit To Bend (Bit to Bend): 4.04 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft

Comments

Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:

Mud Properties

Type	Oil Based
WT	9.50
VIS	32.00
PV	0.00
YP	0.00

Parameters

Flow Rate (gpm)	600.00 - 600.00	Motor RPM	30.00 - 30.00
On Bottom Pressure (psi)	2850.00 - 2950.00	Surface RPM	30.00 - 30.00
Off Bottom Pressure (psi)	2350.00 - 2350.00	Rotating WOB (klbs)	35.00 - 35.00
Stall Pressure (psi)	0.00	Sliding WOB (klbs)	40.00 - 40.00
Stalls	0	Temp (°F)	120.00 - 120.00
NPT	0.0		

Items (Directional)

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GTD64C , Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	Halliburton	13291182	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.75" 7/8 5.0 FXD 2.0 w/ SS, Size (in): 6.75, Bend Angle (°): 2, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	AIM	CDM650-018	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.26	27.26
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	30.31
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	61.27
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	92.27
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrig54 Box	4 1/2" IF Pin	3.000	6.770		3.66	95.93





Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #5 - Curve 8.5" (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.75	Date In	2019-12-23 09:45
Lobe/Stage	7/8, 5.0	Depth In (ft)	11665.00
Bend Angle	2.60	Date Out	2019-12-23 22:00
Speed (rev/gal)	0.26	Depth Out (ft)	11883.00
Wear Pad OD (in)	7.375	Distance Slid (ft)	218.00
Incident	No	Distance Rotated (ft)	0.00
Motor Results		% Distance Sliding	100.00%
Average Total ROP (ft/h)	87.20	% Distance Rotating	0.00%
Average Slide ROP (ft/h)	87.20	BHA Objective	
Average Rotating ROP (ft/h)	0.00	Bail Out Curve	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Other: Bailed out Curve point	
Vendor	Ulterra		
S/N	48719		
Nozzles	6 x 22		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional:
		MWD:

Bit Distances		Comments
Bit To Bend (Bit to Bend): 5.14 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft		Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	600.00 - 600.00
WT	9.00	On Bottom Pressure (psi)	2850.00 - 2850.00
VIS	80.00	Off Bottom Pressure (psi)	2350.00 - 2350.00
PV	0.00	Stall Pressure (psi)	0.00
YP	0.00	Stalls	0
		NPT	0.0
		Motor RPM	140.00 - 156.00
		Surface RPM	0.00 - 0.00
		Rotating WOB (klbs)	0.00 - 0.00
		Sliding WOB (klbs)	40.00 - 40.00
		Temp (°F)	136.00 - 136.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: CF611, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	Ulterra	48719	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.75" 7/8 5.0 ADJ 2.6° w/ SS, Size (in): 6.75, Bend Angle (°): 2.6, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM650-016	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.04	27.04
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	30.09
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	61.05
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	92.05
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrig54 Box	4 1/2" IF Pin	3.000	6.770		3.66	95.71





Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #6 - Curve / Lateral (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-12-23 22:45
Lobe/Stage	7/8, 8.5	Depth In (ft)	11883.00
Bend Angle	1.75	Date Out	2019-12-29 06:45
Speed (rev/gal)	0.26	Depth Out (ft)	19455.00
Wear Pad OD (in)	7.313	Distance Slid (ft)	651.00
Incident	No	Distance Rotated (ft)	6921.00
Motor Results		% Distance Sliding	8.60%
Average Total ROP (ft/h)	103.14	% Distance Rotating	91.40%
Average Slide ROP (ft/h)	33.67	BHA Objective	
Average Rotating ROP (ft/h)	127.97	LAND CURVE & DRILL LATERAL	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H	
Vendor	BAKER		
S/N	5308040		

Nozzles	6 x 22		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: On surface motor drained as expected with 0.5" slack in the bearings

		MWD:
Bit Distances		Comments

Bit To Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		Directional: Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
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Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	600.00 - 750.00

WT	10.20	On Bottom Pressure (psi)	2850.00 - 4500.00
VIS	56.00	Off Bottom Pressure (psi)	2350.00 - 3900.00
PV	20.00	Stall Pressure (psi)	0.00

YP	12.00	Stalls	0
		NPT	0.0

		Motor RPM	169.00 - 195.00
		Surface RPM	40.00 - 80.00
		Rotating WOB (klbs)	40.00 - 50.00

		Sliding WOB (klbs)	40.00 - 50.00
		Temp (°F)	125.00 - 190.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)

Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
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Mud Motor Description: 7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
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UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
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Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
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Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
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Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrig54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81
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Mud Motor Reports

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 1 (17.5" SURFACE)				
Motor Details		Date/Depth/Distances		Hours
S/N	800-003 AIM	Date In	2019-11-23 00:30	Downhole Hours 21.25
Size (in)	8.0	Depth In (ft)	140.00	Drilling/Circulating Hours 13.92
Lobe/Stage	7/8, 4.00	Date Out	2019-11-23 21:45	
Bend Angle	1.5	Depth Out (ft)	1856.00	Circulating Hours 0.75
Speed (rev/gal)	0.17	Total Drilled (ft)	1716.00	Drilling Hours 13.17
Wear Pad OD (in)	8.375	Distance Slid (ft)	105.00	Sliding Hours 1.67
Manufacturer	N/A	Distance Rotated (ft)	1611.00	Rotating Hours 11.50
Motor Results		% Distance Sliding	6.12%	% Hours Rotating 87.34%
Motor Incident	No	% Distance Rotating	93.88%	% Hours Sliding 12.66%
Average Total ROP (ft/h)	130.33	BHA Parameters		
Average Slide ROP (ft/h)	63.00	Flow Rate (gpm)	550.00 - 800.00	Motor RPM 76.00 - 136.00
Average Rotating ROP (ft/h)	140.09	Stalls	0	Surface RPM 50.00 - 70.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs) 15.00 - 25.00
OD (in)	17.500	On Bottom Pressure (psi)	1450.00 - 2600.00	Sliding WOB (klbs) 20.00 - 20.00
Vendor	BAKER	Off Bottom Pressure (psi)	950.00 - 1900.00	Temp (°F) -0.00 - 105.00
S/N	5300910	NPT	0.0	
Nozzles	9-12's	BHA Objective		
Total Flow Area (in²)	0.994	DRILL SURFACE		
Bit Type	PDC			
Bit Distances				
Bend: 4.70 ft				
Mud Properties				
Type	Water Based			
WT	8.40			
VIS	32.00			
PV	0.00			
YP	0.00			
POOH Reason/Notes				
Total Depth/Casing Point				
Incident Notes				
Directional:				
MWD:				
Comments				
Directional: Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:				
MWD:				

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 2 (BHA #2 (12.25" Intermediate))				
Motor Details		Date/Depth/Distances		Hours
S/N	800-004 AIM	Date In	2019-12-03 16:30	Downhole Hours
Size (in)	8.0	Depth In (ft)	1856.00	Drilling/Circulating Hours
Lobe/Stage	7/8, 5.90	Date Out	2019-12-05 06:00	
Bend Angle	1.5	Depth Out (ft)	5281.00	Circulating Hours
Speed (rev/gal)	0.17	Total Drilled (ft)	3425.00	Drilling Hours
Wear Pad OD (in)	8.375	Distance Slid (ft)	25.00	Sliding Hours
Manufacturer	N/A	Distance Rotated (ft)	3400.00	Rotating Hours
Motor Results		% Distance Sliding	0.73%	% Hours Rotating
Motor Incident	No	% Distance Rotating	99.27%	% Hours Sliding
Average Total ROP (ft/h)	191.16	BHA Parameters		
Average Slide ROP (ft/h)	100.00	Flow Rate (gpm)	800.00 - 850.00	Motor RPM
Average Rotating ROP (ft/h)	192.45	Stalls	1	Surface RPM
Bit Details		Stall Pressure (psi)	1499.98	Rotating WOB (klbs)
OD (in)	12.250	On Bottom Pressure (psi)	2250.00 - 3900.00	Sliding WOB (klbs)
Vendor	BAKER	Off Bottom Pressure (psi)	1900.00 - 2900.00	Temp (°F)
S/N	5302851	NPT	0.0	
Nozzles	6 x 12	BHA Objective		
Total Flow Area (in²)	0.660	Drill 12.25" Intermediate section to casing point.		
Bit Type	PDC			
Bit Distances				
Bend (Bit to Bend): 4.80 ft, Survey (Bit to Survey): 69.00 ft				
Mud Properties				
Type	Brine			
WT	10.00			
VIS	28.00			
PV	2.00			
YP	1.00			
POOH Reason/Notes				
Total Depth/Casing Point: Pooh to run Casing				
Incident Notes				
Directional: Motor Drained well and had a 1/2" squat in the bearing.				
MWD:				
Comments				
Directional: 1.5" FBH 7/8 5.9 Stg Mtr w/ 12" Stab: Flow Rate: 400-900, Max Diff: 1330 psi, Max Torque: 22,020 ft-lbs, Bit Runs:				
MWD:				

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 3 (BHA #3 (8.5" Intermediate))			
Motor Details		Date/Depth/Distances	Hours
S/N	700-40-001	Date In	2019-12-08 21:30
Size (in)	7.0	Depth In (ft)	5281.00
Lobe/Stage	7/8, 8.50	Date Out	2019-12-11 14:30
Bend Angle	1.5	Depth Out (ft)	11260.00
Speed (rev/gal)	0.26	Total Drilled (ft)	5979.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	247.00
Manufacturer	N/A	Distance Rotated (ft)	5732.00
Motor Results		% Distance Sliding	4.13%
Motor Incident	No	% Distance Rotating	95.87%
Average Total ROP (ft/h)	130.93	BHA Parameters	
Average Slide ROP (ft/h)	44.91	Flow Rate (gpm)	202.00 - 750.00
Average Rotating ROP (ft/h)	142.71	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	2500.00 - 3900.00
Vendor	Halliburton	Off Bottom Pressure (psi)	2100.00 - 2900.00
S/N	13271296	NPT	0.0
Nozzles	6 x 12	BHA Objective	
Total Flow Area (in²)	0.662	Drill down to KOP	
Bit Type	PDC		
Bit Distances			
Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft			
Mud Properties			
Type	Water Based		
WT	9.20		
VIS	32.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Total Depth/Casing Point: DRILLED TO KOP			
Incident Notes			
Directional: N/A			
MWD:			
Comments			
Directional: Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0			
MWD:			



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 4 (8.5" CURVE)

Motor Details		Date/Depth/Distances		Hours	
S/N	CDM650-018	Date In	2019-12-22 10:45	Downhole Hours	22.25
Size (in)	6.75	Depth In (ft)	11260.00	Drilling/Circulating Hours	8.08
Lobe/Stage	7/8, 5.00	Date Out	2019-12-23 09:00		
Bend Angle	2.0	Depth Out (ft)	11665.00	Circulating Hours	1.92
Speed (rev/gal)	0.26	Total Drilled (ft)	405.00	Drilling Hours	6.17
Wear Pad OD (in)	6.950	Distance Slid (ft)	370.00	Sliding Hours	5.83
Manufacturer	N/A	Distance Rotated (ft)	35.00	Rotating Hours	0.33
Motor Results		% Distance Sliding	91.36%	% Hours Rotating	5.41%
Motor Incident	No	% Distance Rotating	8.64%	% Hours Sliding	94.59%
Average Total ROP (ft/h)	65.68	BHA Parameters			
Average Slide ROP (ft/h)	63.43	Flow Rate (gpm)	600.00 - 600.00	Motor RPM	30.00 - 30.00
Average Rotating ROP (ft/h)	105.00	Stalls	0	Surface RPM	30.00 - 30.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	35.00 - 35.00
OD (in)	8.500	On Bottom Pressure (psi)	2850.00 - 2950.00	Sliding WOB (klbs)	40.00 - 40.00
Vendor	Halliburton	Off Bottom Pressure (psi)	2350.00 - 2350.00	Temp (°F)	120.00 - 120.00
S/N	13291182	NPT	0.0		
Nozzles	6 x 22	BHA Objective			
Total Flow Area (in²)	2.227	DRILL CURVE & START LATERAL			
Bit Type	PDC				
Bit Distances					
Bend (Bit to Bend): 4.04 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.50				
VIS	32.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Build Rate: POOH FOR BUILD RATES					
Incident Notes					
Directional: N/A					
MWD:					
Comments					
Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:					
MWD:					

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 5 (Curve 8.5")

Motor Details		Date/Depth/Distances		Hours	
S/N	CDM650-016	Date In	2019-12-23 09:45	Downhole Hours	12.25
Size (in)	6.75	Depth In (ft)	11665.00	Drilling/Circulating Hours	3.67
Lobe/Stage	7/8, 5.00	Date Out	2019-12-23 22:00		
Bend Angle	2.6	Depth Out (ft)	11883.00	Circulating Hours	1.17
Speed (rev/gal)	0.26	Total Drilled (ft)	218.00	Drilling Hours	2.50
Wear Pad OD (in)	7.375	Distance Slid (ft)	218.00	Sliding Hours	2.50
Manufacturer	N/A	Distance Rotated (ft)	0.00	Rotating Hours	0.00
Motor Results		% Distance Sliding	100.00%	% Hours Rotating	0.00%
Motor Incident	No	% Distance Rotating	0.00%	% Hours Sliding	100.00%
Average Total ROP (ft/h)	87.20	BHA Parameters			
Average Slide ROP (ft/h)	87.20	Flow Rate (gpm)	600.00 - 600.00	Motor RPM	140.00 - 156.00
Average Rotating ROP (ft/h)	0.00	Stalls	0	Surface RPM	0.00 - 0.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	0.00 - 0.00
OD (in)	8.500	On Bottom Pressure (psi)	2850.00 - 2850.00	Sliding WOB (klbs)	40.00 - 40.00
Vendor	Ultrerra	Off Bottom Pressure (psi)	2350.00 - 2350.00	Temp (°F)	136.00 - 136.00
S/N	48719	NPT	0.0		
Nozzles	6 x 22	BHA Objective			
Total Flow Area (in²)	2.227	Bail Out Curve			
Bit Type	PDC				
Bit Distances					
Bend (Bit to Bend): 5.14 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.00				
VIS	80.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Other: Bailed out Curve point					
Incident Notes					
Directional:					
MWD:					
Comments					
Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:					
MWD:					

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 6 (Curve / Lateral)				
Motor Details		Date/Depth/Distances		Hours
S/N	700-40-026	Date In	2019-12-23 22:45	Downhole Hours 128.00
Size (in)	7.0	Depth In (ft)	11883.00	Drilling/Circulating Hours 99.83
Lobe/Stage	7/8, 8.50	Date Out	2019-12-29 06:45	
Bend Angle	1.75	Depth Out (ft)	19455.00	Circulating Hours 26.42
Speed (rev/gal)	0.26	Total Drilled (ft)	7572.00	Drilling Hours 73.42
Wear Pad OD (in)	7.313	Distance Slid (ft)	651.00	Sliding Hours 19.33
Manufacturer	N/A	Distance Rotated (ft)	6921.00	Rotating Hours 54.08
Motor Results		% Distance Sliding	8.60%	% Hours Rotating 73.67%
Motor Incident	No	% Distance Rotating	91.40%	% Hours Sliding 26.33%
Average Total ROP (ft/h)	103.14	BHA Parameters		
Average Slide ROP (ft/h)	33.67	Flow Rate (gpm)	600.00 - 750.00	Motor RPM 169.00 - 195.00
Average Rotating ROP (ft/h)	127.97	Stalls	0	Surface RPM 40.00 - 80.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs) 40.00 - 50.00
OD (in)	8.500	On Bottom Pressure (psi)	2850.00 - 4500.00	Sliding WOB (klbs) 40.00 - 50.00
Vendor	BAKER	Off Bottom Pressure (psi)	2350.00 - 3900.00	Temp (°F) 125.00 - 190.00
S/N	5308040	NPT	0.0	
Nozzles	6 x 22	BHA Objective		
Total Flow Area (in²)	2.227	LAND CURVE & DRILL LATERAL		
Bit Type	PDC			
Bit Distances				
Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft				
Mud Properties				
Type	Oil Based			
WT	10.20			
VIS	56.00			
PV	20.00			
YP	12.00			
POOH Reason/Notes				
Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H				
Incident Notes				
Directional: On surface motor drained as expected with 0.5" slack in the bearings				
MWD:				
Comments				
Directional: Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0				
MWD:				



Slide/Rotate Reports

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)



Job Number WT-19-181	Operator Advance Energy Partners			Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H			Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man	

Slide/Rotate Report - BHA #1 (17.5" SURFACE)

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	11-23	01:15	02:10	11-23	0.92	140.00	297.00	157.00	171.27	N/A	550.00	50.0	15.00	1450.00	950.00	Surface
Rotate	11-23	02:15	02:30	11-23	0.25	297.00	391.00	94.00	376.00	N/A	550.00	50.0	15.00	1450.00	950.00	Surface
Slide	11-23	02:35	02:50	11-23	0.25	391.00	411.00	20.00	80.00	70.0	650.00	N/A	20.00	1700.00	1200.00	Surface
Rotate	11-23	02:50	03:05	11-23	0.25	411.00	486.00	75.00	300.00	N/A	700.00	50.0	15.00	2000.00	1400.00	Surface
Rotate	11-23	03:10	03:35	11-23	0.42	486.00	580.00	94.00	225.60	N/A	700.00	50.0	15.00	2000.00	1400.00	Surface
Rotate	11-23	03:40	03:55	11-23	0.25	580.00	675.00	95.00	380.00	N/A	700.00	50.0	20.00	2000.00	1400.00	Surface
Slide	11-23	04:00	04:10	11-23	0.17	675.00	690.00	15.00	90.00	80.0	650.00	N/A	20.00	1700.00	1200.00	Surface
Rotate	11-23	04:10	04:25	11-23	0.25	690.00	769.00	79.00	316.00	N/A	700.00	50.0	20.00	2000.00	1400.00	Surface
Rotate	11-23	04:30	04:50	11-23	0.33	769.00	863.00	94.00	282.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	04:55	05:30	11-23	0.58	863.00	958.00	95.00	162.86	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	05:35	06:45	11-23	1.17	958.00	1016.00	58.00	49.71	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	08:45	09:00	11-23	0.25	1016.00	1053.00	37.00	148.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	09:05	09:30	11-23	0.42	1053.00	1146.00	93.00	223.20	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	09:45	10:20	11-23	0.58	1146.00	1240.00	94.00	161.14	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	10:25	10:30	11-23	0.08	1240.00	1247.00	7.00	84.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Slide	11-23	10:30	10:45	11-23	0.25	1247.00	1267.00	20.00	80.00	80.0	650.00	N/A	20.00	1700.00	1200.00	Surface
Rotate	11-23	10:45	11:20	11-23	0.58	1267.00	1334.00	67.00	114.86	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	11:25	11:30	11-23	0.08	1334.00	1337.00	3.00	36.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Slide	11-23	11:30	12:30	11-23	1.0	1337.00	1387.00	50.00	50.00	65.0	650.00	N/A	20.00	1700.00	1200.00	Surface
Rotate	11-23	12:30	13:00	11-23	0.5	1387.00	1427.00	40.00	80.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	13:05	14:10	11-23	1.08	1427.00	1521.00	94.00	86.77	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	14:15	15:05	11-23	0.83	1521.00	1610.00	89.00	106.80	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	15:10	15:40	11-23	0.5	1610.00	1700.00	90.00	180.00	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	15:45	17:00	11-23	1.25	1700.00	1789.00	89.00	71.20	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface
Rotate	11-23	17:05	18:00	11-23	0.92	1789.00	1856.00	67.00	73.09	N/A	800.00	70.0	25.00	2600.00	1900.00	Surface, Intermediate



Job Number WT-19-181	Operator Advance Energy Partners			Rig Name H&P #389		
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H			Legal Well Name AFE Wool Head 20 State Com 608H		
Play Delaware Basin	State/Province and Country New Mexico, US		County Lea	Company Man		

Slide/Rotate Report - BHA #2 (BHA #2 (12.25" Intermediate))

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	12-04	00:45	01:45	12-04	1.0	1856.00	1976.00	120.00	120.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Rotate	12-04	01:50	01:55	12-04	0.08	1976.00	1992.00	16.00	192.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Slide	12-04	01:55	02:05	12-04	0.17	1992.00	2007.00	15.00	90.00	50.0	850.00	N/A	20.00	2250.00	1950.00	Intermediate
Rotate	12-04	02:05	02:20	12-04	0.25	2007.00	2066.00	59.00	236.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Rotate	12-04	02:25	02:45	12-04	0.33	2066.00	2156.00	90.00	270.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Rotate	12-04	02:50	03:15	12-04	0.42	2156.00	2245.00	89.00	213.60	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Rotate	12-04	03:20	03:25	12-04	0.08	2245.00	2254.00	9.00	108.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Slide	12-04	03:25	03:30	12-04	0.08	2254.00	2264.00	10.00	120.00	50.0	850.00	N/A	20.00	2250.00	1950.00	Intermediate
Rotate	12-04	03:30	03:50	12-04	0.33	2264.00	2335.00	71.00	213.00	N/A	800.00	40.0	30.00	2600.00	1900.00	Intermediate
Rotate	12-04	03:55	04:15	12-04	0.33	2335.00	2425.00	90.00	270.00	N/A	850.00	40.0	35.00	2600.00	1900.00	Intermediate
Rotate	12-04	04:20	04:45	12-04	0.42	2425.00	2514.00	89.00	213.60	N/A	850.00	40.0	35.00	2600.00	1900.00	Intermediate
Rotate	12-04	04:50	05:10	12-04	0.33	2514.00	2604.00	90.00	270.00	N/A	850.00	40.0	35.00	2600.00	1900.00	Intermediate
Rotate	12-04	05:15	05:35	12-04	0.33	2604.00	2694.00	90.00	270.00	N/A	850.00	40.0	35.00	2600.00	1900.00	Intermediate
Rotate	12-04	05:40	06:00	12-04	0.33	2694.00	2783.00	89.00	267.00	N/A	850.00	40.0	35.00	2600.00	1900.00	Intermediate
Rotate	12-04	06:05	06:50	12-04	0.75	2783.00	2962.00	179.00	238.67	N/A	850.00	60.0	40.00	3500.00	2600.00	Intermediate
Rotate	12-04	06:55	07:35	12-04	0.67	2962.00	3142.00	180.00	270.00	N/A	850.00	60.0	40.00	3600.00	2700.00	Intermediate
Rotate	12-04	07:45	08:05	12-04	0.33	3142.00	3231.00	89.00	267.00	N/A	850.00	60.0	45.00	3600.00	2700.00	Intermediate
Rotate	12-04	08:10	08:35	12-04	0.42	3231.00	3321.00	90.00	216.00	N/A	850.00	60.0	35.00	3600.00	2800.00	Intermediate
Rotate	12-04	08:40	09:45	12-04	1.08	3321.00	3500.00	179.00	165.23	N/A	850.00	60.0	45.00	3700.00	2800.00	Intermediate
Rotate	12-04	09:50	10:25	12-04	0.58	3500.00	3589.00	89.00	152.57	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	10:30	10:55	12-04	0.42	3589.00	3679.00	90.00	216.00	N/A	850.00	60.0	45.00	3800.00	2900.00	Intermediate
Rotate	12-04	11:00	11:50	12-04	0.83	3679.00	3858.00	179.00	214.80	N/A	850.00	60.0	45.00	3800.00	2900.00	Intermediate
Rotate	12-04	11:55	12:55	12-04	1.0	3858.00	4038.00	180.00	180.00	N/A	850.00	60.0	45.00	3800.00	2900.00	Intermediate
Rotate	12-04	13:00	13:20	12-04	0.33	4038.00	4127.00	89.00	267.00	N/A	850.00	60.0	45.00	3800.00	2900.00	Intermediate
Rotate	12-04	13:25	13:40	12-04	0.25	4127.00	4217.00	90.00	360.00	N/A	850.00	60.0	45.00	3800.00	2900.00	Intermediate
Rotate	12-04	13:45	14:05	12-04	0.33	4217.00	4307.00	90.00	270.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	14:10	14:35	12-04	0.42	4307.00	4396.00	89.00	213.60	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	14:40	15:25	12-04	0.75	4396.00	4576.00	180.00	240.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	15:30	16:30	12-04	1.0	4576.00	4755.00	179.00	179.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	16:35	17:00	12-04	0.42	4755.00	4845.00	90.00	216.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	17:05	17:50	12-04	0.75	4845.00	4934.00	89.00	118.67	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	17:55	18:35	12-04	0.67	4934.00	5024.00	90.00	135.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	18:40	19:20	12-04	0.67	5024.00	5114.00	90.00	135.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	19:25	20:30	12-04	1.08	5114.00	5203.00	89.00	82.15	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-04	20:35	21:15	12-04	0.67	5203.00	5281.00	78.00	117.00	N/A	850.00	60.0	45.00	3900.00	2900.00	Intermediate



Job Number WT-19-181	Operator Advance Energy Partners			Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H			Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man	

Slide/Rotate Report - BHA #3 (BHA #3 (8.5" Intermediate))

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	12-09	03:20	03:45	12-09	0.42	5281.00	5379.00	98.00	235.20	N/A	550.00	40.0	45.00	3900.00	2900.00	Intermediate
Rotate	12-09	03:50	04:00	12-09	0.17	5379.00	5389.00	10.00	60.00	N/A	650.00	40.0	25.00	2900.00	2100.00	Intermediate
Slide	12-09	04:00	04:15	12-09	0.25	5389.00	5404.00	15.00	60.00	100.0	650.00	N/A	20.00	2500.00	2100.00	Intermediate
Rotate	12-09	04:15	04:20	12-09	0.08	5404.00	5469.00	65.00	780.00	N/A	650.00	40.0	25.00	2900.00	2100.00	Intermediate
Rotate	12-09	04:25	04:30	12-09	0.08	5469.00	5479.00	10.00	120.00	N/A	750.00	50.0	35.00	3200.00	2800.00	Intermediate
Slide	12-09	04:30	04:45	12-09	0.25	5479.00	5494.00	15.00	60.00	100.0	750.00	N/A	20.00	3300.00	2800.00	Intermediate
Rotate	12-09	04:45	04:50	12-09	0.08	5494.00	5558.00	64.00	768.00	N/A	750.00	50.0	35.00	3200.00	2800.00	Intermediate
Rotate	12-09	04:55	05:00	12-09	0.08	5558.00	5582.00	24.00	288.00	N/A	750.00	60.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	05:00	05:20	12-09	0.33	5582.00	5597.00	15.00	45.00	135.0	750.00	N/A	30.00	3300.00	2800.00	Intermediate
Rotate	12-09	05:20	05:25	12-09	0.08	5597.00	5648.00	51.00	612.00	N/A	750.00	60.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	05:30	05:40	12-09	0.17	5648.00	5660.00	12.00	72.00	N/A	750.00	60.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	05:40	05:55	12-09	0.25	5660.00	5670.00	10.00	40.00	180.0	750.00	N/A	30.00	3300.00	2800.00	Intermediate
Rotate	12-09	05:55	06:00	12-09	0.08	5670.00	5738.00	68.00	816.00	N/A	750.00	60.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	06:05	06:15	12-09	0.17	5738.00	5827.00	89.00	534.00	N/A	750.00	60.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	06:20	06:30	12-09	0.17	5827.00	5917.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	06:35	06:45	12-09	0.17	5917.00	6007.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	06:50	07:05	12-09	0.25	6007.00	6096.00	89.00	356.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	07:10	07:20	12-09	0.17	6096.00	6186.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	07:25	07:35	12-09	0.17	6186.00	6276.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	07:40	07:50	12-09	0.17	6276.00	6365.00	89.00	534.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	07:55	08:05	12-09	0.17	6365.00	6455.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	08:10	08:20	12-09	0.17	6455.00	6545.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	08:25	08:35	12-09	0.17	6545.00	6634.00	89.00	534.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	08:40	08:50	12-09	0.17	6634.00	6724.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	08:55	09:05	12-09	0.17	6724.00	6814.00	90.00	540.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	09:10	09:15	12-09	0.08	6814.00	6831.00	17.00	204.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	09:15	09:20	12-09	0.08	6831.00	6846.00	15.00	180.00	120.0	700.00	N/A	35.00	3100.00	2700.00	Intermediate
Rotate	12-09	09:20	09:25	12-09	0.08	6846.00	6904.00	58.00	696.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	09:40	09:50	12-09	0.17	6904.00	6993.00	89.00	534.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	09:55	10:15	12-09	0.33	6993.00	7082.00	89.00	267.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	10:20	10:35	12-09	0.25	7082.00	7172.00	90.00	360.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	10:40	10:55	12-09	0.25	7172.00	7262.00	90.00	360.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	11:00	11:05	12-09	0.08	7262.00	7288.00	26.00	312.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	11:05	11:10	12-09	0.08	7288.00	7308.00	20.00	240.00	100.0	700.00	N/A	35.00	3100.00	2700.00	Intermediate
Rotate	12-09	11:10	11:20	12-09	0.17	7308.00	7352.00	44.00	264.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	11:25	11:50	12-09	0.42	7352.00	7441.00	89.00	213.60	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	11:55	12:15	12-09	0.33	7441.00	7531.00	90.00	270.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	12:20	12:35	12-09	0.25	7531.00	7621.00	90.00	360.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	12:40	13:05	12-09	0.42	7621.00	7711.00	90.00	216.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	13:10	13:25	12-09	0.25	7711.00	7801.00	90.00	360.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	13:30	13:35	12-09	0.08	7801.00	7818.00	17.00	204.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	13:35	14:00	12-09	0.42	7818.00	7838.00	20.00	48.00	120.0	700.00	N/A	35.00	3100.00	2700.00	Intermediate
Rotate	12-09	14:00	14:10	12-09	0.17	7838.00	7890.00	52.00	312.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	14:15	15:05	12-09	0.83	7890.00	7980.00	90.00	108.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	15:10	15:45	12-09	0.58	7980.00	8070.00	90.00	154.29	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	15:50	16:15	12-09	0.42	8070.00	8159.00	89.00	213.60	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	16:20	16:55	12-09	0.58	8159.00	8249.00	90.00	154.29	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	17:00	17:30	12-09	0.5	8249.00	8339.00	90.00	180.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	17:35	17:50	12-09	0.25	8339.00	8428.00	89.00	356.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	17:55	18:00	12-09	0.08	8428.00	8432.00	4.00	48.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Slide	12-09	18:00	18:20	12-09	0.33	8432.00	8442.00	10.00	30.00	100.0	202.00	N/A	40.00	2800.00	2200.00	Intermediate
Rotate	12-09	18:20	18:50	12-09	0.5	8442.00	8518.00	76.00	152.00	N/A	700.00	45.0	35.00	3300.00	2800.00	Intermediate
Rotate	12-09	18:55	19:40	12-09	0.75	8518.00	8608.00	90.00	120.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-09	19:45	20:35	12-09	0.83	8608.00	8698.00	90.00	108.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-09	20:40	21:30	12-09	0.83	8698.00	8787.00	89.00	106.80	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-09	21:35	22:55	12-09	1.33	8787.00	8877.00	90.00	67.50	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-09	23:00	00:00	12-10	1.0	8877.00	8967.00	90.00	90.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	00:05	00:55	12-10	0.83	8967.00	9057.00	90.00	108.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	01:00	02:05	12-10	1.08	9057.00	9146.00	89.00	82.15	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	02:10	02:25	12-10	0.25	9146.00	9150.00	4.00	16.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Slide	12-10	02:25	02:50	12-10	0.42	9150.00	9175.00	25.00	60.00	100.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	02:50	03:40	12-10	0.83	9175.00	9236.00	61.00	73.20	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	03:45	04:45	12-10	1.0	9236.00	9326.00	90.00	90.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	04:50	05:40	12-10	0.83	9326.00	9415.00	89.00	106.80	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate

Rotate	12-10	05:45	06:35	12-10	0.83	9415.00	9505.00	90.00	108.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	06:40	06:50	12-10	0.17	9505.00	9518.00	13.00	78.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Slide	12-10	06:50	07:15	12-10	0.42	9518.00	9538.00	20.00	48.00	120.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	07:15	07:45	12-10	0.5	9538.00	9595.00	57.00	114.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	07:50	08:55	12-10	1.08	9595.00	9684.00	89.00	82.15	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	09:00	09:55	12-10	0.92	9684.00	9774.00	90.00	98.18	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	10:00	11:00	12-10	1.0	9774.00	9864.00	90.00	90.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	11:05	11:15	12-10	0.17	9864.00	9878.00	14.00	84.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Slide	12-10	11:15	11:55	12-10	0.67	9878.00	9898.00	20.00	30.00	120.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	11:55	12:35	12-10	0.67	9898.00	9954.00	56.00	84.00	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	12:40	13:35	12-10	0.92	9954.00	10043.00	89.00	97.09	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	13:40	15:05	12-10	1.42	10043.00	10133.00	90.00	63.53	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	15:15	16:25	12-10	1.17	10133.00	10223.00	90.00	77.14	N/A	650.00	30.0	40.00	2500.00	2200.00	Intermediate
Rotate	12-10	16:30	17:40	12-10	1.17	10223.00	10312.00	89.00	76.29	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-10	17:45	17:50	12-10	0.08	10312.00	10316.00	4.00	48.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Slide	12-10	17:50	18:25	12-10	0.58	10316.00	10331.00	15.00	25.71	240.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	18:25	18:40	12-10	0.25	10331.00	10402.00	71.00	284.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-10	19:35	19:50	12-10	0.25	10402.00	10417.00	15.00	60.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Slide	12-10	19:50	20:10	12-10	0.33	10417.00	10429.00	12.00	36.00	270.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	20:10	20:45	12-10	0.58	10429.00	10492.00	63.00	108.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-10	20:50	21:15	12-10	0.42	10492.00	10498.00	6.00	14.40	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Slide	12-10	21:15	22:00	12-10	0.75	10498.00	10518.00	20.00	26.67	300.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-10	22:00	22:45	12-10	0.75	10518.00	10581.00	63.00	84.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-10	23:00	23:45	12-10	0.75	10581.00	10671.00	90.00	120.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-10	23:50	00:00	12-11	0.17	10671.00	10679.00	8.00	48.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-11	00:00	01:05	12-11	1.08	10679.00	10760.00	81.00	74.77	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-11	01:10	02:15	12-11	1.08	10760.00	10850.00	90.00	83.08	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-11	02:20	03:15	12-11	0.92	10850.00	10940.00	90.00	98.18	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Rotate	12-11	03:20	03:30	12-11	0.17	10940.00	10947.00	7.00	42.00	N/A	700.00	30.0	40.00	2900.00	2600.00	Intermediate
Slide	12-11	03:30	03:50	12-11	0.33	10947.00	10962.00	15.00	45.00	0.0	700.00	N/A	30.00	2800.00	2400.00	Intermediate
Rotate	12-11	03:50	04:30	12-11	0.67	10962.00	11029.00	67.00	100.50	N/A						Intermediate
Rotate	12-11	04:35	05:25	12-11	0.83	11029.00	11119.00	90.00	108.00	N/A						Intermediate
Rotate	12-11	05:30	06:55	12-11	1.42	11119.00	11209.00	90.00	63.53	N/A						Intermediate
Rotate	12-11	07:00	07:45	12-11	0.75	11209.00	11260.00	51.00	68.00	N/A	695.00	40.0	42.00	3250.00	2650.00	Intermediate, Curve



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #4 (8.5" CURVE)

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Slide	12-22	21:00	21:45	12-22	0.75	11260.00	11301.00	41.00	54.67	359.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-22	21:55	23:05	12-22	1.17	11301.00	11391.00	90.00	77.14	359.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Rotate	12-22	23:15	23:35	12-22	0.33	11391.00	11426.00	35.00	105.00	N/A	600.00	30.0	35.00	2950.00	2350.00	Curve
Slide	12-22	23:35	00:55	12-23	1.33	11426.00	11480.00	54.00	40.50	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	01:05	02:15	12-23	1.17	11480.00	11570.00	90.00	77.14	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	02:25	03:05	12-23	0.67	11570.00	11613.00	43.00	64.50	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	03:15	03:50	12-23	0.58	11613.00	11659.00	46.00	78.86	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	04:00	04:10	12-23	0.17	11659.00	11665.00	6.00	36.00	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #5 (Curve 8.5")

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Slide	12-23	14:25	15:20	12-23	0.92	11665.00	11719.00	54.00	58.91	30.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	15:30	15:55	12-23	0.42	11719.00	11749.00	30.00	72.00	30.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	16:05	16:30	12-23	0.42	11749.00	11793.00	44.00	105.60	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	16:40	17:00	12-23	0.33	11793.00	11838.00	45.00	135.00	20.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-23	17:10	17:35	12-23	0.42	11838.00	11883.00	45.00	108.00	30.0	600.00	N/A	40.00	2850.00	2350.00	Curve



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #6 (Curve / Lateral)

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	12-24	04:30	05:00	12-24	0.5	11883.00	11908.00	25.00	50.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Curve
Slide	12-24	05:30	05:55	12-24	0.42	11908.00	11938.00	30.00	72.00	10.0	600.00	N/A	40.00	2850.00	2350.00	Curve
Slide	12-24	06:05	07:05	12-24	1.0	11938.00	11998.00	60.00	60.00	0.0	650.00	N/A	50.00	3350.00	2850.00	Curve
Rotate	12-24	07:05	07:35	12-24	0.5	11998.00	12027.00	29.00	58.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Curve
Rotate	12-24	07:45	09:00	12-24	1.25	12027.00	12117.00	90.00	72.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Curve
Slide	12-24	09:10	10:15	12-24	1.08	12117.00	12177.00	60.00	55.38	330.0	650.00	N/A	50.00	3350.00	2850.00	Curve
Rotate	12-24	10:15	10:35	12-24	0.33	12177.00	12206.00	29.00	87.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Curve
Rotate	12-24	10:40	11:35	12-24	0.92	12206.00	12296.00	90.00	98.18	N/A	650.00	40.0	40.00	3350.00	2850.00	Curve, Lateral
Slide	12-24	11:40	12:10	12-24	0.5	12296.00	12326.00	30.00	60.00	0.0	650.00	N/A	50.00	3350.00	2850.00	Lateral
Rotate	12-24	12:10	12:50	12-24	0.67	12326.00	12386.00	60.00	90.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	12:55	13:35	12-24	0.67	12386.00	12476.00	90.00	135.00	N/A	650.00	40.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	13:40	13:50	12-24	0.17	12476.00	12482.00	6.00	36.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Slide	12-24	13:50	14:05	12-24	0.25	12482.00	12500.00	18.00	72.00	0.0	650.00	N/A	50.00	3350.00	2850.00	Lateral
Rotate	12-24	14:05	14:35	12-24	0.5	12500.00	12565.00	65.00	130.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	14:40	15:15	12-24	0.58	12565.00	12655.00	90.00	154.29	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Slide	12-24	15:20	15:40	12-24	0.33	12655.00	12675.00	20.00	60.00	0.0	650.00	N/A	50.00	3350.00	2850.00	Lateral
Rotate	12-24	15:40	16:10	12-24	0.5	12675.00	12744.00	69.00	138.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	16:15	16:45	12-24	0.5	12744.00	12834.00	90.00	180.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Slide	12-24	16:50	17:10	12-24	0.33	12834.00	12864.00	30.00	90.00	0.0	650.00	N/A	50.00	3350.00	2850.00	Lateral
Rotate	12-24	17:10	17:30	12-24	0.33	12864.00	12923.00	59.00	177.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	17:35	18:10	12-24	0.58	12923.00	13013.00	90.00	154.29	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	18:15	18:45	12-24	0.5	13013.00	13102.00	89.00	178.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	18:50	19:20	12-24	0.5	13102.00	13192.00	90.00	180.00	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	19:25	19:50	12-24	0.42	13192.00	13281.00	89.00	213.60	N/A	650.00	50.0	40.00	3350.00	2850.00	Lateral
Rotate	12-24	19:55	20:25	12-24	0.5	13281.00	13371.00	90.00	180.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-24	20:30	20:50	12-24	0.33	13371.00	13386.00	15.00	45.00	140.0	650.00	N/A	50.00	3300.00	2900.00	Lateral
Rotate	12-24	20:50	21:15	12-24	0.42	13386.00	13460.00	74.00	177.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-24	21:20	21:45	12-24	0.42	13460.00	13550.00	90.00	216.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-24	21:50	22:15	12-24	0.42	13550.00	13639.00	89.00	213.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-24	22:20	22:45	12-24	0.42	13639.00	13729.00	90.00	216.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-24	22:50	22:55	12-24	0.08	13729.00	13734.00	5.00	60.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-24	22:55	23:20	12-24	0.42	13734.00	13759.00	25.00	60.00	95.0	650.00	N/A	50.00	3300.00	2900.00	Lateral
Rotate	12-24	23:20	23:40	12-24	0.33	13759.00	13819.00	60.00	180.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-24	23:45	00:10	12-25	0.42	13819.00	13908.00	89.00	213.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	00:15	00:40	12-25	0.42	13908.00	13997.00	89.00	213.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	00:45	01:05	12-25	0.33	13997.00	14087.00	90.00	270.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	01:10	01:35	12-25	0.42	14087.00	14176.00	89.00	213.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	01:40	01:45	12-25	0.08	14176.00	14183.00	7.00	84.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-25	01:45	02:05	12-25	0.33	14183.00	14208.00	25.00	75.00	30.0	650.00	N/A	50.00	3300.00	2900.00	Lateral
Rotate	12-25	02:05	02:30	12-25	0.42	14208.00	14266.00	58.00	139.20	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	02:35	02:55	12-25	0.33	14266.00	14356.00	90.00	270.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	03:00	03:05	12-25	0.08	14356.00	14367.00	11.00	132.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-25	03:05	03:30	12-25	0.42	14367.00	14387.00	20.00	48.00	120.0	650.00	N/A	50.00	3300.00	2900.00	Lateral
Rotate	12-25	03:30	03:45	12-25	0.25	14387.00	14445.00	58.00	232.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	03:50	04:15	12-25	0.42	14445.00	14535.00	90.00	216.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	04:20	04:45	12-25	0.42	14535.00	14624.00	89.00	213.60	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	04:50	05:20	12-25	0.5	14624.00	14714.00	90.00	180.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	05:25	05:55	12-25	0.5	14714.00	14803.00	89.00	178.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	06:00	06:30	12-25	0.5	14803.00	14893.00	90.00	180.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	06:40	07:05	12-25	0.42	14893.00	14983.00	90.00	216.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	07:10	07:20	12-25	0.17	14983.00	15003.00	20.00	120.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-25	07:20	07:35	12-25	0.25	15003.00	15013.00	10.00	40.00	80.0	675.00	N/A	45.00	3300.00	3150.00	Lateral
Rotate	12-25	07:35	08:15	12-25	0.67	15013.00	15072.00	59.00	88.50	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	08:30	08:35	12-25	0.08	15072.00	15082.00	10.00	120.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Slide	12-25	08:35	09:20	12-25	0.75	15082.00	15105.00	23.00	30.67	80.0	675.00	N/A	45.00	3300.00	3150.00	Lateral
Rotate	12-25	09:20	09:40	12-25	0.33	15105.00	15162.00	57.00	171.00	N/A	650.00	60.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	09:45	10:15	12-25	0.5	15162.00	15252.00	90.00	180.00	N/A	710.00	70.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	10:20	10:45	12-25	0.42	15252.00	15341.00	89.00	213.60	N/A	710.00	70.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	10:50	10:55	12-25	0.08	15341.00	15360.00	19.00	228.00	N/A	710.00	70.0	50.00	3650.00	2900.00	Lateral
Slide	12-25	10:55	11:30	12-25	0.58	15360.00	15373.00	13.00	22.29	90.0	675.00	N/A	45.00	3300.00	3150.00	Lateral
Rotate	12-25	11:30	11:45	12-25	0.25	15373.00	15431.00	58.00	232.00	N/A	710.00	70.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	11:50	12:30	12-25	0.67	15431.00	15521.00	90.00	135.00	N/A	710.00	70.0	50.00	3650.00	2900.00	Lateral
Rotate	12-25	12:35	12:40	12-25	0.08	15521.00	15532.00	11.00	132.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral

Slide	12-25	12:40	13:30	12-25	0.83	15532.00	15559.00	27.00	32.40	70.0	750.00	N/A	45.00	3900.00	3675.00	Lateral
Rotate	12-25	13:30	13:50	12-25	0.33	15559.00	15610.00	51.00	153.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	13:55	14:25	12-25	0.5	15610.00	15700.00	90.00	180.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	14:30	14:55	12-25	0.42	15700.00	15790.00	90.00	216.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	15:00	15:05	12-25	0.08	15790.00	15800.00	10.00	120.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Slide	12-25	15:05	15:30	12-25	0.42	15800.00	15819.00	19.00	45.60	130.0	750.00	N/A	45.00	3900.00	3675.00	Lateral
Rotate	12-25	15:30	16:00	12-25	0.5	15819.00	15879.00	60.00	120.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	16:05	16:45	12-25	0.67	15879.00	15969.00	90.00	135.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	17:05	17:15	12-25	0.17	15969.00	15994.00	25.00	150.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Slide	12-25	17:15	17:45	12-25	0.5	15994.00	16005.00	11.00	22.00	180.0	750.00	N/A	45.00	3900.00	3675.00	Lateral
Rotate	12-25	17:45	18:15	12-25	0.5	16005.00	16058.00	53.00	106.00	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	18:20	18:55	12-25	0.58	16058.00	16148.00	90.00	154.29	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	19:00	19:35	12-25	0.58	16148.00	16238.00	90.00	154.29	N/A	750.00	70.0	50.00	4400.00	3675.00	Lateral
Rotate	12-25	19:40	19:50	12-25	0.17	16238.00	16248.00	10.00	60.00	N/A						Lateral
Slide	12-25	19:50	20:25	12-25	0.58	16248.00	16258.00	10.00	17.14	340.0		N/A				Lateral
Rotate	12-25	20:25	20:55	12-25	0.5	16258.00	16327.00	69.00	138.00	N/A						Lateral
Rotate	12-25	21:00	21:10	12-25	0.17	16327.00	16337.00	10.00	60.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Slide	12-25	21:10	21:50	12-25	0.67	16337.00	16352.00	15.00	22.50	0.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-25	21:50	22:20	12-25	0.5	16352.00	16417.00	65.00	130.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-25	22:25	23:05	12-25	0.67	16417.00	16507.00	90.00	135.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-25	23:10	23:15	12-25	0.08	16507.00	16514.00	7.00	84.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Slide	12-25	23:15	23:45	12-25	0.5	16514.00	16529.00	15.00	30.00	0.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-25	23:45	00:20	12-26	0.58	16529.00	16596.00	67.00	114.86	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	00:25	01:10	12-26	0.75	16596.00	16686.00	90.00	120.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	01:15	02:00	12-26	0.75	16686.00	16775.00	89.00	118.67	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	02:05	02:10	12-26	0.08	16775.00	16783.00	8.00	96.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Slide	12-26	02:10	02:25	12-26	0.25	16783.00	16795.00	12.00	48.00	130.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	02:25	03:15	12-26	0.83	16795.00	16865.00	70.00	84.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	03:20	03:25	12-26	0.08	16865.00	16872.00	7.00	84.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Slide	12-26	03:25	04:55	12-26	1.5	16872.00	16892.00	20.00	13.33	140.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	04:55	05:35	12-26	0.67	16892.00	16954.00	62.00	93.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	05:40	06:30	12-26	0.83	16954.00	17044.00	90.00	108.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Rotate	12-26	06:40	06:45	12-26	0.08	17044.00	17054.00	10.00	120.00	N/A	750.00	75.0	50.00	4500.00	3900.00	Lateral
Slide	12-26	06:45	07:40	12-26	0.92	17054.00	17069.00	15.00	16.36	40.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	07:40	08:15	12-26	0.58	17069.00	17133.00	64.00	109.71	N/A						Lateral
Rotate	12-26	08:20	08:55	12-26	0.58	17133.00	17223.00	90.00	154.29	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	09:00	09:10	12-26	0.17	17223.00	17241.00	18.00	108.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Slide	12-26	09:10	09:50	12-26	0.67	17241.00	17261.00	20.00	30.00	40.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	09:50	10:25	12-26	0.58	17261.00	17312.00	51.00	87.43	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	10:30	11:05	12-26	0.58	17312.00	17402.00	90.00	154.29	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	11:10	11:50	12-26	0.67	17402.00	17492.00	90.00	135.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	11:55	13:10	12-26	1.25	17492.00	17581.00	89.00	71.20	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	13:15	14:10	12-26	0.92	17581.00	17671.00	90.00	98.18	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	14:15	14:30	12-26	0.25	17671.00	17681.00	10.00	40.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Slide	12-26	14:30	15:30	12-26	1.0	17681.00	17701.00	20.00	20.00	130.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	15:30	16:25	12-26	0.92	17701.00	17760.00	59.00	64.36	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	17:00	17:10	12-26	0.17	17760.00	17776.00	16.00	96.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Slide	12-26	17:10	18:05	12-26	0.92	17776.00	17796.00	20.00	21.82	150.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	18:05	18:35	12-26	0.5	17796.00	17850.00	54.00	108.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	18:40	18:55	12-26	0.25	17850.00	17873.00	23.00	92.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Slide	12-26	18:55	19:35	12-26	0.67	17873.00	17893.00	20.00	30.00	150.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	19:35	19:55	12-26	0.33	17893.00	17940.00	47.00	141.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	20:00	20:30	12-26	0.5	17940.00	18029.00	89.00	178.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	20:35	21:15	12-26	0.67	18029.00	18119.00	90.00	135.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	21:20	21:25	12-26	0.08	18119.00	18129.00	10.00	120.00	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Slide	12-26	21:25	21:55	12-26	0.5	18129.00	18141.00	12.00	24.00	180.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-26	21:55	22:35	12-26	0.67	18141.00	18208.00	67.00	100.50	N/A	710.00	70.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	22:40	23:40	12-26	1.0	18208.00	18298.00	90.00	90.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-26	23:45	00:40	12-27	0.92	18298.00	18388.00	90.00	98.18	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	00:45	01:35	12-27	0.83	18388.00	18477.00	89.00	106.80	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	01:40	02:35	12-27	0.92	18477.00	18567.00	90.00	98.18	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	02:40	02:45	12-27	0.08	18567.00	18570.00	3.00	36.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Slide	12-27	02:45	03:50	12-27	1.08	18570.00	18586.00	16.00	14.77	180.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-27	03:50	04:50	12-27	1.0	18586.00	18657.00	71.00	71.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	04:55	05:55	12-27	1.0	18657.00	18746.00	89.00	89.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	06:00	06:50	12-27	0.83	18746.00	18836.00	90.00	108.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	06:55	07:40	12-27	0.75	18836.00	18926.00	90.00	120.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	07:45	08:35	12-27	0.83	18926.00	19015.00	89.00	106.80	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	08:40	09:35	12-27	0.92	19015.00	19105.00	90.00	98.18	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	09:40	09:50	12-27	0.17	19105.00	19114.00	9.00	54.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Slide	12-27	09:50	11:10	12-27	1.33	19114.00	19134.00	20.00	15.00	180.0	750.00	N/A	50.00	4500.00	3900.00	Lateral
Rotate	12-27	11:10	11:55	12-27	0.75	19134.00	19194.00	60.00	80.00	N/A	710.00	80.0	50.00	4100.00	3600.00	Lateral
Rotate	12-27	12:00	12:55	12-27	0.92	19194.00	19284.00</									



Daily Reports

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Nov 22 00:00 - 23:59 (Day 1 of 19)

Billing: N/A (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	0.00	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	0.00	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	-
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

No BHAs

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	11-22	18:00	23:30	11-22			Standby while Skid Rig & Rig Up
Change BHA	6	11-22	23:30	00:30	11-23			P/U BHA # 1

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H	Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Saturday, Nov 23 00:00 - 23:59 (Day 2 of 19)

Billing: \$16,187.50 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	140.00	Downhole Hours	21.25	Rotating WOB (klbs)	15.00 - 25.00
Bit Depth (ft)	1856.00	Drilling Hours	13.17	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	1856.00	Hours Circulating	0.75	Rotating SPM	170.00 - 246.00
Total Distance (ft)	1716.00	Hours Sliding	1.67	Sliding SPM	202.00 - 202.00
Distance Rotated (ft)	1611.00	Hours Rotating	11.50	Motor RPM	76.00 - 136.00
Distance Slid (ft)	105.00			Surface RPM	50.00 - 70.00
Inclination In	0.88			Flow Rate (gpm)	550.00 - 800.00
Inclination Out	3.03			On Bottom Pressure (psi)	1450.00 - 2600.00
Azimuth In	257.83	% Hours Rotating	87%	Off Bottom Pressure (psi)	950.00 - 1900.00
Azimuth Out	226.89	% Hours Sliding	13%		
AVG Total ROP (ft/h)	130.33	% Distance Sliding	6%		
AVG Rotating ROP (ft/h)	140.09	% Distance Rotating	94%		
AVG Sliding ROP (ft/h)	63.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #1 - 17.5" SURFACE

Date In: Nov 23, 2019, 0:30 Date Out: Nov 23, 2019, 21:45

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:
Vendor	BAKER	Lobe/Stage	7/8, 4.0	
S/N	5300910	Bend Angle	1.5	
Nozzles	9-12's	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.375	POOH Reason Total Depth/Casing Point
Drilling Hours for Day	13.17	Bit Distances		
Total Drilled for Day (ft)	1716.00	Bend: 4.70 ft		
Drilling Hours for BHA	13.17			
Total Drilled for BHA (ft)	1716.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 17.5" DP606S, Style: PDC, Gauge Length (in): 3.00, Size (in): 17.50	BAKER	5300910	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: MUD MOTOR, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4.0	AIM	800-003 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		28.66	30.16
Stabilizer Description: 17" IB NORTRACK STAB	GTI	GT801166	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.000		8.02	38.18
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.000		3.48	41.66
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	72.14
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	103.30
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	107.20
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1521.40

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Change BHA	6	11-22	23:30	00:30	11-23			P/U BHA # 1
Other	16	11-23	00:30	01:15	11-23			C/O Cellar Pump
Rotary Drill	1	11-23	01:15	02:10	11-23	140.00	297.00	Pressure On (psi): 1450.00, Pressure Off (psi): 950.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 550.00, Strokes Per Minute: 170.00
Survey	46	11-23	02:10	02:15	11-23	297.00	297.00	Inclination (°): 0.880, Azimuth (°): 257.830, TVD (ft): 234.99, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 235.00, Bit To Sensor (ft): 62.00

Rotary Drill	1	11-23	02:15	02:30	11-23	297.00	391.00	Pressure On (psi): 1450.00, Pressure Off (psi): 950.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 550.00, Strokes Per Minute: 170.00
Survey	46	11-23	02:30	02:35	11-23	391.00	391.00	Inclination (°): 1.010, Azimuth (°): 242.010, TVD (ft): 328.98, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 329.00, Bit To Sensor (ft): 62.00
Slide Drill	2	11-23	02:35	02:50	11-23	391.00	411.00	Pressure On (psi): 1700.00, Pressure Off (psi): 1200.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 70, Toolface Type: magnetic
Rotary Drill	1	11-23	02:50	03:05	11-23	411.00	486.00	Pressure On (psi): 2000.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	11-23	03:05	03:10	11-23	486.00	486.00	Inclination (°): 0.480, Azimuth (°): 172.400, TVD (ft): 423.97, Dogleg (°/100 ft): 1.01, Sensor Depth (ft): 424.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	03:10	03:35	11-23	486.00	580.00	Pressure On (psi): 2000.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	11-23	03:35	03:40	11-23	580.00	580.00	Inclination (°): 0.400, Azimuth (°): 144.100, TVD (ft): 517.97, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 518.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	03:40	03:55	11-23	580.00	675.00	Pressure On (psi): 2000.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	11-23	03:55	04:00	11-23	675.00	675.00	Inclination (°): 0.220, Azimuth (°): 137.770, TVD (ft): 612.97, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 613.00, Bit To Sensor (ft): 62.00
Slide Drill	2	11-23	04:00	04:10	11-23	675.00	690.00	Pressure On (psi): 1700.00, Pressure Off (psi): 1200.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 80, Toolface Type: magnetic
Rotary Drill	1	11-23	04:10	04:25	11-23	690.00	769.00	Pressure On (psi): 2000.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	11-23	04:25	04:30	11-23	769.00	769.00	Inclination (°): 0.790, Azimuth (°): 90.310, TVD (ft): 706.96, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 707.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	04:30	04:50	11-23	769.00	863.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	04:50	04:55	11-23	863.00	863.00	Inclination (°): 0.440, Azimuth (°): 78.620, TVD (ft): 800.96, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 801.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	04:55	05:30	11-23	863.00	958.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	05:30	05:35	11-23	958.00	958.00	Inclination (°): 0.180, Azimuth (°): 26.940, TVD (ft): 895.96, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 896.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	05:35	06:45	11-23	958.00	1016.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Rig Repair	14	11-23	06:45	08:45	11-23			C/O CELLAR PUMP
Rotary Drill	1	11-23	08:45	09:00	11-23	1016.00	1053.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	09:00	09:05	11-23	1053.00	1053.00	Inclination (°): 0.350, Azimuth (°): 241.310, TVD (ft): 990.96, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 991.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	09:05	09:30	11-23	1053.00	1146.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	09:30	09:45	11-23	1146.00	1146.00	Inclination (°): 0.440, Azimuth (°): 244.820, TVD (ft): 1083.95, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 1084.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	09:45	10:20	11-23	1146.00	1240.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	10:20	10:25	11-23	1240.00	1240.00	Inclination (°): 1.050, Azimuth (°): 252.210, TVD (ft): 1177.95, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 1178.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	10:25	10:30	11-23	1240.00	1247.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Slide Drill	2	11-23	10:30	10:45	11-23	1247.00	1267.00	Pressure On (psi): 1700.00, Pressure Off (psi): 1200.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 80, Toolface Type: magnetic
Rotary Drill	1	11-23	10:45	11:20	11-23	1267.00	1334.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	11:20	11:25	11-23	1334.00	1334.00	Inclination (°): 1.490, Azimuth (°): 243.940, TVD (ft): 1271.92, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 1272.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	11:25	11:30	11-23	1334.00	1337.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Slide Drill	2	11-23	11:30	12:30	11-23	1337.00	1387.00	Pressure On (psi): 1700.00, Pressure Off (psi): 1200.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 65, Toolface Type: magnetic
Rotary Drill	1	11-23	12:30	13:00	11-23	1387.00	1427.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	13:00	13:05	11-23	1427.00	1427.00	Inclination (°): 1.490, Azimuth (°): 228.480, TVD (ft): 1364.89, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 1365.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	13:05	14:10	11-23	1427.00	1521.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	14:10	14:15	11-23	1521.00	1521.00	Inclination (°): 2.020, Azimuth (°): 226.720, TVD (ft): 1458.85, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 1459.00, Bit To Sensor (ft): 62.00

Rotary Drill	1	11-23	14:15	15:05	11-23	1521.00	1610.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	15:05	15:10	11-23	1610.00	1610.00	Inclination (°): 2.330, Azimuth (°): 230.230, TVD (ft): 1547.78, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 1548.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	15:10	15:40	11-23	1610.00	1700.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	15:40	15:45	11-23	1700.00	1700.00	Inclination (°): 2.510, Azimuth (°): 229.880, TVD (ft): 1637.70, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 1638.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	15:45	17:00	11-23	1700.00	1789.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	17:00	17:05	11-23	1789.00	1789.00	Inclination (°): 3.080, Azimuth (°): 230.850, TVD (ft): 1726.60, Dogleg (°/100 ft): 0.64, Sensor Depth (ft): 1727.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	11-23	17:05	18:00	11-23	1789.00	1856.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	11-23	18:00	18:05	11-23	1856.00	1856.00	Inclination (°): 3.030, Azimuth (°): 226.890, TVD (ft): 1793.50, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 1794.00, Bit To Sensor (ft): 62.00
Circulating	3	11-23	18:05	18:50	11-23			Circulating
Pooh	7	11-23	18:50	20:50	11-23			POOH
Change BHA	6	11-23	20:50	21:45	11-23			L/D MWD Tool, Stabilizer, & Bit. Rack Back
Standby	15	11-23	21:45	04:00	11-24			Standby while Casing Ops

MWD Activities

No Activities

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Nov 24 00:00 - 23:59 (Day 3 of 19) Billing: N/A (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours		0.00	Rotating WOB (klbs)
Bit Depth (ft)		Drilling Hours		0.00	Sliding WOB (klbs)
Bottom Hole Depth (ft)		Hours Circulating		0.00	Rotating SPM
Total Distance (ft)	0.00	Hours Sliding		0.00	Sliding SPM
Distance Rotated (ft)	0.00	Hours Rotating		0.00	Motor RPM
Distance Slid (ft)	0.00				Surface RPM
Inclination In					Flow Rate (gpm)
Inclination Out					On Bottom Pressure (psi)
Azimuth In		% Hours Rotating			Off Bottom Pressure (psi)
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel	
Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	11-23	21:45	04:00	11-24			Standby while Casing Ops

MWD Activities
No Activities



Job Number WT-19-181	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H	Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Dec 03 00:00 - 23:59 (Day 4 of 19)

Billing: \$12,173.75 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	7.50	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	0.00	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	76.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #2 - BHA #2 (12.25" Intermediate)

Date In: Dec 3, 2019, 16:30 Date Out: Dec 5, 2019, 6:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	1.5" FBH 7/8 5.9 Stg Mtr w/ 12" Stab: Flow Rate: 400-900, Max Diff: 1330 psi, Max Torque: 22,020 ft-lbs, Bit Runs:
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5302851	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.375	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend (Bit to Bend): 4.80 ft, Survey (Bit to Survey): 69.00 ft		POOH Reason Total Depth/Casing Point: Pooh to run Casing
Drilling Hours for BHA	17.92			
Total Drilled for BHA (ft)	3425.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.50, Size (in): 12.25	BAKER	5302851	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 1.5" 7/8 5.9 Stg Mtr w/ 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	800-004 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		36.56	37.81
Stabilizer Description: 12" IB NORTRACK STAB	GTI	GT801178	6 5/8" Reg Box	6 5/8" Reg Pin	2.825	8.000		8.03	45.84
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066145	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.000		3.18	49.02
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	79.50
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	110.66
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	114.56
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1528.76

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-03	12:00	16:30	12-03			Standby while Skid to 608H. N/U & Test BOPs
Change BHA	6	12-03	16:30	18:30	12-03			P/U BHA # 2
TIH	8	12-03	18:30	19:45	12-03			TIH W/ BHA #2
Other	16	12-03	19:45	22:45	12-03			Clean Pits, Fill Pits
Circulating	3	12-03	22:45	00:45	12-04			Drill Cement Shoe Track

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H	Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Dec 04 00:00 - 23:59 (Day 5 of 19)

Billing: \$5,600.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1856.00	Downhole Hours	24.00	Rotating WOB (klbs)	30.00 - 45.00
Bit Depth (ft)	5281.00	Drilling Hours	17.92	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	5281.00	Hours Circulating	3.00	Rotating SPM	246.00 - 264.00
Total Distance (ft)	3425.00	Hours Sliding	0.25	Sliding SPM	264.00 - 264.00
Distance Rotated (ft)	3400.00	Hours Rotating	17.67	Motor RPM	76.00 - 136.00
Distance Slid (ft)	25.00			Surface RPM	40.00 - 60.00
Inclination In	1.98			Flow Rate (gpm)	800.00 - 850.00
Inclination Out	1.36			On Bottom Pressure (psi)	2250.00 - 3900.00
Azimuth In	215.12	% Hours Rotating	99%	Off Bottom Pressure (psi)	1900.00 - 2900.00
Azimuth Out	93.30	% Hours Sliding	1%		
AVG Total ROP (ft/h)	191.16	% Distance Sliding	1%		
AVG Rotating ROP (ft/h)	192.45	% Distance Rotating	99%		
AVG Sliding ROP (ft/h)	100.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #2 - BHA #2 (12.25" Intermediate)

Date In: Dec 3, 2019, 16:30 Date Out: Dec 5, 2019, 6:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	1.5" FBH 7/8 5.9 Stg Mtr w/ 12" Stab: Flow Rate: 400-900, Max Diff: 1330 psi, Max Torque: 22,020 ft-lbs, Bit Runs:
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5302851	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.375	
Drilling Hours for Day	17.92	Bit Distances		
Total Drilled for Day (ft)	3425.00	Bend (Bit to Bend): 4.80 ft, Survey (Bit to Survey): 69.00 ft		POOH Reason
Drilling Hours for BHA	17.92			
Total Drilled for BHA (ft)	3425.00			
				Total Depth/Casing Point: Pooh to run Casing

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.50, Size (in): 12.25	BAKER	5302851	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 1.5" 7/8 5.9 Stg Mtr w/ 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	800-004 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		36.56	37.81
Stabilizer Description: 12" IB NORTRACK STAB	GTI	GT801178	6 5/8" Reg Box	6 5/8" Reg Pin	2.825	8.000		8.03	45.84
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066145	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.000		3.18	49.02
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	79.50
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	110.66
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	114.56
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1528.76

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Circulating	3	12-03	22:45	00:45	12-04			Drill Cement Shoe Track
Rotary Drill	1	12-04	00:45	01:45	12-04	1856.00	1976.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	12-04	01:45	01:50	12-04	1976.00	1976.00	Inclination (°): 1.980, Azimuth (°): 215.120, TVD (ft): 1906.39, Dogleg (°/100 ft): 1.03, Sensor Depth (ft): 1907.00, Bit To Sensor (ft): 69.00

Rotary Drill	1	12-04	01:50	01:55	12-04	1976.00	1992.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Slide Drill	2	12-04	01:55	02:05	12-04	1992.00	2007.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1950.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264, Toolface: 50, Toolface Type: magnetic
Rotary Drill	1	12-04	02:05	02:20	12-04	2007.00	2066.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	12-04	02:20	02:25	12-04	2066.00	2066.00	Inclination (°): 0.970, Azimuth (°): 202.640, TVD (ft): 1996.36, Dogleg (°/100 ft): 1.17, Sensor Depth (ft): 1997.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	02:25	02:45	12-04	2066.00	2156.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	12-04	02:45	02:50	12-04	2156.00	2156.00	Inclination (°): 0.660, Azimuth (°): 139.000, TVD (ft): 2086.35, Dogleg (°/100 ft): 1.00, Sensor Depth (ft): 2087.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	02:50	03:15	12-04	2156.00	2245.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	12-04	03:15	03:20	12-04	2245.00	2245.00	Inclination (°): 0.440, Azimuth (°): 146.470, TVD (ft): 2175.35, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 2176.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	03:20	03:25	12-04	2245.00	2254.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Slide Drill	2	12-04	03:25	03:30	12-04	2254.00	2264.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1950.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264, Toolface: 50, Toolface Type: magnetic
Rotary Drill	1	12-04	03:30	03:50	12-04	2264.00	2335.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 30.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 246.00
Survey	46	12-04	03:50	03:55	12-04	2335.00	2335.00	Inclination (°): 0.840, Azimuth (°): 90.490, TVD (ft): 2265.34, Dogleg (°/100 ft): 0.77, Sensor Depth (ft): 2266.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	03:55	04:15	12-04	2335.00	2425.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	04:15	04:20	12-04	2425.00	2425.00	Inclination (°): 1.140, Azimuth (°): 75.990, TVD (ft): 2355.33, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 2356.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	04:20	04:45	12-04	2425.00	2514.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	04:45	04:50	12-04	2514.00	2514.00	Inclination (°): 1.320, Azimuth (°): 85.650, TVD (ft): 2444.31, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 2445.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	04:50	05:10	12-04	2514.00	2604.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	05:10	05:15	12-04	2604.00	2604.00	Inclination (°): 1.540, Azimuth (°): 75.280, TVD (ft): 2534.28, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 2535.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	05:15	05:35	12-04	2604.00	2694.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	05:35	05:40	12-04	2694.00	2694.00	Inclination (°): 1.410, Azimuth (°): 68.340, TVD (ft): 2624.25, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 2625.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	05:40	06:00	12-04	2694.00	2783.00	Pressure On (psi): 2600.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	06:00	06:05	12-04	2783.00	2783.00	Inclination (°): 1.410, Azimuth (°): 68.160, TVD (ft): 2713.23, Dogleg (°/100 ft): 0.00, Sensor Depth (ft): 2714.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	06:05	06:50	12-04	2783.00	2962.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	06:50	06:55	12-04	2962.00	2962.00	Inclination (°): 1.450, Azimuth (°): 71.770, TVD (ft): 2892.17, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 2893.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	06:55	07:35	12-04	2962.00	3142.00	Pressure On (psi): 3600.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	07:35	07:45	12-04	3142.00	3142.00	Inclination (°): 2.330, Azimuth (°): 83.020, TVD (ft): 3072.07, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 3073.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	07:45	08:05	12-04	3142.00	3231.00	Pressure On (psi): 3600.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	08:05	08:10	12-04	3231.00	3231.00	Inclination (°): 2.680, Azimuth (°): 78.800, TVD (ft): 3160.99, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 3162.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	08:10	08:35	12-04	3231.00	3321.00	Pressure On (psi): 3600.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	08:35	08:40	12-04	3321.00	3321.00	Inclination (°): 2.950, Azimuth (°): 76.250, TVD (ft): 3250.88, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 3252.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	08:40	09:45	12-04	3321.00	3500.00	Pressure On (psi): 3700.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	09:45	09:50	12-04	3500.00	3500.00	Inclination (°): 3.250, Azimuth (°): 73.700, TVD (ft): 3429.62, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 3431.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	09:50	10:25	12-04	3500.00	3589.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	10:25	10:30	12-04	3589.00	3589.00	Inclination (°): 2.810, Azimuth (°): 71.330, TVD (ft): 3518.49, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 3520.00, Bit To Sensor (ft): 69.00

Rotary Drill	1	12-04	10:30	10:55	12-04	3589.00	3679.00	Pressure On (psi): 3800.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	10:55	11:00	12-04	3679.00	3679.00	Inclination (°): 2.420, Azimuth (°): 70.100, TVD (ft): 3608.40, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 3610.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	11:00	11:50	12-04	3679.00	3858.00	Pressure On (psi): 3800.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	11:50	11:55	12-04	3858.00	3858.00	Inclination (°): 2.290, Azimuth (°): 72.560, TVD (ft): 3787.25, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 3789.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	11:55	12:55	12-04	3858.00	4038.00	Pressure On (psi): 3800.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	12:55	13:00	12-04	4038.00	4038.00	Inclination (°): 2.370, Azimuth (°): 72.470, TVD (ft): 3967.10, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 3969.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	13:00	13:20	12-04	4038.00	4127.00	Pressure On (psi): 3800.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	13:20	13:25	12-04	4127.00	4127.00	Inclination (°): 2.330, Azimuth (°): 69.480, TVD (ft): 4056.02, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 4058.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	13:25	13:40	12-04	4127.00	4217.00	Pressure On (psi): 3800.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	13:40	13:45	12-04	4217.00	4217.00	Inclination (°): 1.760, Azimuth (°): 67.370, TVD (ft): 4145.96, Dogleg (°/100 ft): 0.64, Sensor Depth (ft): 4148.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	13:45	14:05	12-04	4217.00	4307.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	14:05	14:10	12-04	4307.00	4307.00	Inclination (°): 1.710, Azimuth (°): 71.150, TVD (ft): 4235.92, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 4238.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	14:10	14:35	12-04	4307.00	4396.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	14:35	14:40	12-04	4396.00	4396.00	Inclination (°): 1.890, Azimuth (°): 66.930, TVD (ft): 4324.88, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 4327.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	14:40	15:25	12-04	4396.00	4576.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	15:25	15:30	12-04	4576.00	4576.00	Inclination (°): 1.490, Azimuth (°): 65.880, TVD (ft): 4504.80, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 4507.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	15:30	16:30	12-04	4576.00	4755.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	16:30	16:35	12-04	4755.00	4755.00	Inclination (°): 1.580, Azimuth (°): 81.350, TVD (ft): 4683.74, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 4686.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	16:35	17:00	12-04	4755.00	4845.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	17:00	17:05	12-04	4845.00	4845.00	Inclination (°): 1.540, Azimuth (°): 83.370, TVD (ft): 4773.70, Dogleg (°/100 ft): 0.08, Sensor Depth (ft): 4776.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	17:05	17:50	12-04	4845.00	4934.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	17:50	17:55	12-04	4934.00	4934.00	Inclination (°): 1.540, Azimuth (°): 85.390, TVD (ft): 4862.67, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 4865.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	17:55	18:35	12-04	4934.00	5024.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	18:35	18:40	12-04	5024.00	5024.00	Inclination (°): 1.450, Azimuth (°): 80.910, TVD (ft): 4952.64, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 4955.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	18:40	19:20	12-04	5024.00	5114.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	19:20	19:25	12-04	5114.00	5114.00	Inclination (°): 1.580, Azimuth (°): 92.070, TVD (ft): 5042.61, Dogleg (°/100 ft): 0.36, Sensor Depth (ft): 5045.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	19:25	20:30	12-04	5114.00	5203.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	20:30	20:35	12-04	5203.00	5203.00	Inclination (°): 1.580, Azimuth (°): 91.370, TVD (ft): 5131.58, Dogleg (°/100 ft): 0.02, Sensor Depth (ft): 5134.00, Bit To Sensor (ft): 69.00
Rotary Drill	1	12-04	20:35	21:15	12-04	5203.00	5281.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	12-04	21:15	21:20	12-04	5281.00	5281.00	Inclination (°): 1.360, Azimuth (°): 93.300, TVD (ft): 5209.55, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 5212.00, Bit To Sensor (ft): 69.00
Circulating Pooh	3	12-04	21:20	22:20	12-04			Circulate hole clean
	7	12-04	22:20	05:00	12-05			POOH

MWD Activities

No Activities

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Dec 05 00:00 - 23:59 (Day 6 of 19)

Billing: \$5,600.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	6.00	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	0.00	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	76.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #2 - BHA #2 (12.25" Intermediate)

Date In: Dec 3, 2019, 16:30 Date Out: Dec 5, 2019, 6:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	1.5" FBH 7/8 5.9 Stg Mtr w/ 12" Stab: Flow Rate: 400-900, Max Diff: 1330 psi, Max Torque: 22,020 ft-lbs, Bit Runs:
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5302851	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.375	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend (Bit to Bend): 4.80 ft, Survey (Bit to Survey): 69.00 ft		POOH Reason Total Depth/Casing Point: Pooh to run Casing
Drilling Hours for BHA	17.92			
Total Drilled for BHA (ft)	3425.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.50, Size (in): 12.25	BAKER	5302851	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 1.5" 7/8 5.9 Stg Mtr w/ 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	800-004 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		36.56	37.81
Stabilizer Description: 12" IB NORTRACK STAB	GTI	GT801178	6 5/8" Reg Box	6 5/8" Reg Pin	2.825	8.000		8.03	45.84
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT8066145	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.000		3.18	49.02
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-399	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.48	79.50
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.188	8.063		31.16	110.66
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	114.56
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1528.76

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Pooh	7	12-04	22:20	05:00	12-05			POOH
Pooh	7	12-05	05:00	06:00	12-05			L/D BHA #2
Standby	15	12-05	06:00	19:30	12-05			Standby while while running casing and skidding

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Dec 08 00:00 - 23:59 (Day 7 of 19)

Billing: \$11,176.75 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	2.50	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	0.00	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	30.00 - 60.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #3 - BHA #3 (8.5" Intermediate)

Date In: Dec 8, 2019, 21:30 Date Out: Dec 11, 2019, 14:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0
Vendor	Halliburton	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.662	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point: DRILLED TO KOP
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		
Drilling Hours for BHA	45.67			
Total Drilled for BHA (ft)	5979.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Halliburton	13271296	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.5° FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab., Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
Stabilizer Description: 8.25" Spiral IBS	GTI	CD2043NM	4 1/2" IF Box	4 1/2" IF Pin	2.825	6.625		4.41	41.64
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-360	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.13	44.77
Drill Collar Description: NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-120	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.56	76.33
Drill Collar Description: NMDC (Spacer), Style: Slick Drill, Type: NM	GTI	GT 67-30-250	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		30.92	107.25
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.63	110.88
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1525.08

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-08	00:00	21:30	12-08			Standby. Skid Rig from 607H
Change BHA	6	12-08	21:30	22:45	12-08			P/U BHA # 3
TIH	8	12-08	22:45	00:00	12-09			TIH W/ BHA #3

MWD Activities



Job Number WT-19-181	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H	Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Dec 09 00:00 - 23:59 (Day 8 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5281.00	Downhole Hours	24.00	Rotating WOB (klbs)	25.00 - 45.00
Bit Depth (ft)	8967.00	Drilling Hours	17.17	Sliding WOB (klbs)	20.00 - 40.00
Bottom Hole Depth (ft)	8967.00	Hours Circulating	1.00	Rotating SPM	172.00 - 312.00
Total Distance (ft)	3686.00	Hours Sliding	2.00	Sliding SPM	204.00 - 650.00
Distance Rotated (ft)	3566.00	Hours Rotating	15.17	Motor RPM	30.00 - 60.00
Distance Slid (ft)	120.00			Surface RPM	30.00 - 60.00
Inclination In	1.41			Flow Rate (gpm)	202.00 - 750.00
Inclination Out	3.78			On Bottom Pressure (psi)	2500.00 - 3900.00
Azimuth In	70.80	% Hours Rotating	88%	Off Bottom Pressure (psi)	2100.00 - 2900.00
Azimuth Out	102.35	% Hours Sliding	12%		
AVG Total ROP (ft/h)	214.72	% Distance Sliding	3%		
AVG Rotating ROP (ft/h)	235.12	% Distance Rotating	97%		
AVG Sliding ROP (ft/h)	60.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #3 - BHA #3 (8.5" Intermediate)

Date In: Dec 8, 2019, 21:30 Date Out: Dec 11, 2019, 14:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0
Vendor	Halliburton	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.662	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point: DRILLED TO KOP
Drilling Hours for Day	17.17	Bit Distances		
Total Drilled for Day (ft)	3686.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		
Drilling Hours for BHA	45.67			
Total Drilled for BHA (ft)	5979.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GT65DRM , Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Halliburton	13271296	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.5° FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab., Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
Stabilizer Description: 8.25" Spiral IBS	GTI	CD2043NM	4 1/2" IF Box	4 1/2" IF Pin	2.825	6.625		4.41	41.64
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-360	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.13	44.77
Drill Collar Description: NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-120	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.56	76.33
Drill Collar Description: NMDC (Spacer), Style: Slick Drill, Type: NM	GTI	GT 67-30-250	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		30.92	107.25
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.63	110.88
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1525.08

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
TIH	8	12-08	22:45	00:00	12-09			TIH W/ BHA #3
Other	16	12-09	00:00	00:25	12-09			Drill DV Tool
Other	16	12-09	00:25	01:05	12-09			Test Casing
TIH	8	12-09	01:05	02:20	12-09			TIH W/ BHA #3

Drilling Cement	17	12-09	02:20	03:20	12-09	5281.00	5281.00	Drilling Cement and Float Equipment
Rotary Drill	1	12-09	03:20	03:45	12-09	5281.00	5379.00	Pressure On (psi): 3900.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 550.00, Strokes Per Minute: 172.00
Survey	46	12-09	03:45	03:50	12-09	5379.00	5379.00	Inclination (°): 1.410, Azimuth (°): 70.800, TVD (ft): 5319.52, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 5322.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	03:50	04:00	12-09	5379.00	5389.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 204.00
Slide Drill	2	12-09	04:00	04:15	12-09	5389.00	5404.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 204, Toolface: 100, Toolface Type: magnetic
Rotary Drill	1	12-09	04:15	04:20	12-09	5404.00	5469.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 204.00
Survey	46	12-09	04:20	04:25	12-09	5469.00	5469.00	Inclination (°): 3.030, Azimuth (°): 90.750, TVD (ft): 5409.45, Dogleg (°/100 ft): 1.97, Sensor Depth (ft): 5412.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	04:25	04:30	12-09	5469.00	5479.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Slide Drill	2	12-09	04:30	04:45	12-09	5479.00	5494.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312, Toolface: 100, Toolface Type: magnetic
Rotary Drill	1	12-09	04:45	04:50	12-09	5494.00	5558.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Survey	46	12-09	04:50	04:55	12-09	5558.00	5558.00	Inclination (°): 4.570, Azimuth (°): 90.140, TVD (ft): 5498.25, Dogleg (°/100 ft): 1.73, Sensor Depth (ft): 5501.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	04:55	05:00	12-09	5558.00	5582.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Slide Drill	2	12-09	05:00	05:20	12-09	5582.00	5597.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312, Toolface: 135, Toolface Type: magnetic
Rotary Drill	1	12-09	05:20	05:25	12-09	5597.00	5648.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Survey	46	12-09	05:25	05:30	12-09	5648.00	5648.00	Inclination (°): 5.490, Azimuth (°): 88.730, TVD (ft): 5587.90, Dogleg (°/100 ft): 1.03, Sensor Depth (ft): 5591.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	05:30	05:40	12-09	5648.00	5660.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Slide Drill	2	12-09	05:40	05:55	12-09	5660.00	5670.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312, Toolface: 180, Toolface Type: magnetic
Rotary Drill	1	12-09	05:55	06:00	12-09	5670.00	5738.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Survey	46	12-09	06:00	06:05	12-09	5738.00	5738.00	Inclination (°): 6.990, Azimuth (°): 99.010, TVD (ft): 5677.37, Dogleg (°/100 ft): 2.07, Sensor Depth (ft): 5681.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	06:05	06:15	12-09	5738.00	5827.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 312.00
Survey	46	12-09	06:15	06:20	12-09	5827.00	5827.00	Inclination (°): 7.030, Azimuth (°): 100.240, TVD (ft): 5765.71, Dogleg (°/100 ft): 0.17, Sensor Depth (ft): 5770.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	06:20	06:30	12-09	5827.00	5917.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	06:30	06:35	12-09	5917.00	5917.00	Inclination (°): 6.950, Azimuth (°): 98.660, TVD (ft): 5855.04, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 5860.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	06:35	06:45	12-09	5917.00	6007.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	06:45	06:50	12-09	6007.00	6007.00	Inclination (°): 6.770, Azimuth (°): 95.150, TVD (ft): 5944.39, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 5950.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	06:50	07:05	12-09	6007.00	6096.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	07:05	07:10	12-09	6096.00	6096.00	Inclination (°): 6.810, Azimuth (°): 93.480, TVD (ft): 6032.77, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 6039.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	07:10	07:20	12-09	6096.00	6186.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	07:20	07:25	12-09	6186.00	6186.00	Inclination (°): 6.590, Azimuth (°): 93.480, TVD (ft): 6122.15, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 6129.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	07:25	07:35	12-09	6186.00	6276.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	07:35	07:40	12-09	6276.00	6276.00	Inclination (°): 6.730, Azimuth (°): 92.240, TVD (ft): 6211.55, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 6219.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	07:40	07:50	12-09	6276.00	6365.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	07:50	07:55	12-09	6365.00	6365.00	Inclination (°): 6.550, Azimuth (°): 91.980, TVD (ft): 6299.95, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 6308.00, Bit To Sensor (ft): 57.00

Rotary Drill	1	12-09	07:55	08:05	12-09	6365.00	6455.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	08:05	08:10	12-09	6455.00	6455.00	Inclination (°): 6.290, Azimuth (°): 92.860, TVD (ft): 6389.38, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 6398.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	08:10	08:20	12-09	6455.00	6545.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	08:20	08:25	12-09	6545.00	6545.00	Inclination (°): 6.020, Azimuth (°): 92.330, TVD (ft): 6478.87, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 6488.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	08:25	08:35	12-09	6545.00	6634.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	08:35	08:40	12-09	6634.00	6634.00	Inclination (°): 5.410, Azimuth (°): 91.980, TVD (ft): 6567.42, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 6577.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	08:40	08:50	12-09	6634.00	6724.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	08:50	08:55	12-09	6724.00	6724.00	Inclination (°): 5.190, Azimuth (°): 90.310, TVD (ft): 6657.04, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 6667.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	08:55	09:05	12-09	6724.00	6814.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	09:05	09:10	12-09	6814.00	6814.00	Inclination (°): 4.880, Azimuth (°): 89.430, TVD (ft): 6746.69, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 6757.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	09:10	09:15	12-09	6814.00	6831.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	12-09	09:15	09:20	12-09	6831.00	6846.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 35.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220, Toolface: 120, Toolface Type: magnetic
Rotary Drill	1	12-09	09:20	09:25	12-09	6846.00	6904.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	09:25	09:40	12-09	6904.00	6904.00	Inclination (°): 5.270, Azimuth (°): 87.150, TVD (ft): 6836.34, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 6847.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	09:40	09:50	12-09	6904.00	6993.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	09:50	09:55	12-09	6993.00	6993.00	Inclination (°): 5.360, Azimuth (°): 88.990, TVD (ft): 6924.96, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 6936.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	09:55	10:15	12-09	6993.00	7082.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	10:15	10:20	12-09	7082.00	7082.00	Inclination (°): 5.140, Azimuth (°): 89.700, TVD (ft): 7013.58, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 7025.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	10:20	10:35	12-09	7082.00	7172.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	10:35	10:40	12-09	7172.00	7172.00	Inclination (°): 4.920, Azimuth (°): 93.040, TVD (ft): 7103.24, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 7115.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	10:40	10:55	12-09	7172.00	7262.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	10:55	11:00	12-09	7262.00	7262.00	Inclination (°): 4.310, Azimuth (°): 91.630, TVD (ft): 7192.94, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 7205.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	11:00	11:05	12-09	7262.00	7288.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	12-09	11:05	11:10	12-09	7288.00	7308.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 35.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220, Toolface: 100, Toolface Type: magnetic
Rotary Drill	1	12-09	11:10	11:20	12-09	7308.00	7352.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	11:20	11:25	12-09	7352.00	7352.00	Inclination (°): 5.190, Azimuth (°): 90.840, TVD (ft): 7282.63, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 7295.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	11:25	11:50	12-09	7352.00	7441.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	11:50	11:55	12-09	7441.00	7441.00	Inclination (°): 6.150, Azimuth (°): 90.400, TVD (ft): 7371.20, Dogleg (°/100 ft): 1.08, Sensor Depth (ft): 7384.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	11:55	12:15	12-09	7441.00	7531.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	12:15	12:20	12-09	7531.00	7531.00	Inclination (°): 5.930, Azimuth (°): 92.240, TVD (ft): 7460.70, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 7474.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	12:20	12:35	12-09	7531.00	7621.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	12:35	12:40	12-09	7621.00	7621.00	Inclination (°): 5.450, Azimuth (°): 93.390, TVD (ft): 7550.25, Dogleg (°/100 ft): 0.55, Sensor Depth (ft): 7564.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	12:40	13:05	12-09	7621.00	7711.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	13:05	13:10	12-09	7711.00	7711.00	Inclination (°): 4.970, Azimuth (°): 92.600, TVD (ft): 7639.88, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 7654.00, Bit To Sensor (ft): 57.00

Rotary Drill	1	12-09	13:10	13:25	12-09	7711.00	7801.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	13:25	13:30	12-09	7801.00	7801.00	Inclination (°): 4.620, Azimuth (°): 91.370, TVD (ft): 7729.57, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 7744.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	13:30	13:35	12-09	7801.00	7818.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	12-09	13:35	14:00	12-09	7818.00	7838.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 35.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220, Toolface: 120, Toolface Type: magnetic
Rotary Drill	1	12-09	14:00	14:10	12-09	7838.00	7890.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	14:10	14:15	12-09	7890.00	7890.00	Inclination (°): 5.490, Azimuth (°): 95.410, TVD (ft): 7818.22, Dogleg (°/100 ft): 1.06, Sensor Depth (ft): 7833.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	14:15	15:05	12-09	7890.00	7980.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	15:05	15:10	12-09	7980.00	7980.00	Inclination (°): 6.290, Azimuth (°): 99.010, TVD (ft): 7907.74, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 7923.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	15:10	15:45	12-09	7980.00	8070.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	15:45	15:50	12-09	8070.00	8070.00	Inclination (°): 6.370, Azimuth (°): 101.120, TVD (ft): 7997.20, Dogleg (°/100 ft): 0.27, Sensor Depth (ft): 8013.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	15:50	16:15	12-09	8070.00	8159.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	16:15	16:20	12-09	8159.00	8159.00	Inclination (°): 5.980, Azimuth (°): 102.620, TVD (ft): 8085.68, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 8102.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	16:20	16:55	12-09	8159.00	8249.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	16:55	17:00	12-09	8249.00	8249.00	Inclination (°): 5.630, Azimuth (°): 101.470, TVD (ft): 8175.22, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 8192.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	17:00	17:30	12-09	8249.00	8339.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	17:30	17:35	12-09	8339.00	8339.00	Inclination (°): 5.100, Azimuth (°): 101.910, TVD (ft): 8264.82, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 8282.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	17:35	17:50	12-09	8339.00	8428.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	17:50	17:55	12-09	8428.00	8428.00	Inclination (°): 4.700, Azimuth (°): 101.740, TVD (ft): 8353.50, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 8371.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	17:55	18:00	12-09	8428.00	8432.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	12-09	18:00	18:20	12-09	8432.00	8442.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 202.00, Strokes Per Minute: 650, Toolface: 100, Toolface Type: magnetic
Rotary Drill	1	12-09	18:20	18:50	12-09	8442.00	8518.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2800.00, Weight On Bit (klbs): 35.00, Surface RPM: 45, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	12-09	18:50	18:55	12-09	8518.00	8518.00	Inclination (°): 4.970, Azimuth (°): 99.720, TVD (ft): 8443.18, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 8461.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	18:55	19:40	12-09	8518.00	8608.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-09	19:40	19:45	12-09	8608.00	8608.00	Inclination (°): 4.570, Azimuth (°): 99.010, TVD (ft): 8532.87, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 8551.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	19:45	20:35	12-09	8608.00	8698.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-09	20:35	20:40	12-09	8698.00	8698.00	Inclination (°): 4.400, Azimuth (°): 102.620, TVD (ft): 8622.59, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 8641.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	20:40	21:30	12-09	8698.00	8787.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-09	21:30	21:35	12-09	8787.00	8787.00	Inclination (°): 4.040, Azimuth (°): 102.090, TVD (ft): 8711.35, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 8730.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	21:35	22:55	12-09	8787.00	8877.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-09	22:55	23:00	12-09	8877.00	8877.00	Inclination (°): 3.780, Azimuth (°): 102.350, TVD (ft): 8801.14, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 8820.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-09	23:00	00:00	12-10	8877.00	8967.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Tuesday, Dec 10 00:00 - 23:59 (Day 9 of 19)

Billing: \$9,435.82 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	8967.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	10679.00	Drilling Hours	21.25	Sliding WOB (klbs)	30.00 - 30.00
Bottom Hole Depth (ft)	10679.00	Hours Circulating	0.00	Rotating SPM	202.00 - 216.00
Total Distance (ft)	1712.00	Hours Sliding	3.17	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	1600.00	Hours Rotating	18.08	Motor RPM	30.00 - 60.00
Distance Slid (ft)	112.00			Surface RPM	30.00 - 30.00
Inclination In	3.65			Flow Rate (gpm)	650.00 - 700.00
Inclination Out	0.92			On Bottom Pressure (psi)	2500.00 - 2900.00
Azimuth In	104.11	% Hours Rotating	85%	Off Bottom Pressure (psi)	2200.00 - 2600.00
Azimuth Out	117.12	% Hours Sliding	15%		
AVG Total ROP (ft/h)	80.99	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	88.56	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	35.37				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #3 - BHA #3 (8.5" Intermediate)

Date In: Dec 8, 2019, 21:30 Date Out: Dec 11, 2019, 14:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0
Vendor	Halliburton	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.662	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point: DRILLED TO KOP
Drilling Hours for Day	21.25	Bit Distances		
Total Drilled for Day (ft)	1712.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		
Drilling Hours for BHA	45.67			
Total Drilled for BHA (ft)	5979.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Halliburton	13271296	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.5° FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab., Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
Stabilizer Description: 8.25" Spiral IBS	GTI	CD2043NM	4 1/2" IF Box	4 1/2" IF Pin	2.825	6.625		4.41	41.64
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-360	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.13	44.77
Drill Collar Description: NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-120	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.56	76.33
Drill Collar Description: NMDC (Spacer), Style: Slick Drill, Type: NM	GTI	GT 67-30-250	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		30.92	107.25
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.63	110.88
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1525.08

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-09	23:00	00:00	12-10	8877.00	8967.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	00:00	00:05	12-10	8967.00	8967.00	Inclination (°): 3.650, Azimuth (°): 104.110, TVD (ft): 8890.95, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 8910.00, Bit To Sensor (ft): 57.00

Rotary Drill	1	12-10	00:05	00:55	12-10	8967.00	9057.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	00:55	01:00	12-10	9057.00	9057.00	Inclination (°): 3.340, Azimuth (°): 103.670, TVD (ft): 8980.78, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 9000.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	01:00	02:05	12-10	9057.00	9146.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	02:05	02:10	12-10	9146.00	9146.00	Inclination (°): 2.770, Azimuth (°): 105.430, TVD (ft): 9069.66, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 9089.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	02:10	02:25	12-10	9146.00	9150.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-10	02:25	02:50	12-10	9150.00	9175.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 100, Toolface Type: magnetic
Rotary Drill	1	12-10	02:50	03:40	12-10	9175.00	9236.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	03:40	03:45	12-10	9236.00	9236.00	Inclination (°): 4.220, Azimuth (°): 98.050, TVD (ft): 9159.49, Dogleg (°/100 ft): 1.68, Sensor Depth (ft): 9179.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	03:45	04:45	12-10	9236.00	9326.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	04:45	04:50	12-10	9326.00	9326.00	Inclination (°): 4.310, Azimuth (°): 99.540, TVD (ft): 9249.24, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 9269.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	04:50	05:40	12-10	9326.00	9415.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	05:40	05:45	12-10	9415.00	9415.00	Inclination (°): 3.650, Azimuth (°): 97.340, TVD (ft): 9338.02, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 9358.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	05:45	06:35	12-10	9415.00	9505.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	06:35	06:40	12-10	9505.00	9505.00	Inclination (°): 2.950, Azimuth (°): 93.910, TVD (ft): 9427.87, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 9448.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	06:40	06:50	12-10	9505.00	9518.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-10	06:50	07:15	12-10	9518.00	9538.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 120, Toolface Type: magnetic
Rotary Drill	1	12-10	07:15	07:45	12-10	9538.00	9595.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	07:45	07:50	12-10	9595.00	9595.00	Inclination (°): 4.620, Azimuth (°): 97.610, TVD (ft): 9517.67, Dogleg (°/100 ft): 1.87, Sensor Depth (ft): 9538.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	07:50	08:55	12-10	9595.00	9684.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	08:55	09:00	12-10	9684.00	9684.00	Inclination (°): 4.790, Azimuth (°): 98.220, TVD (ft): 9606.37, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 9627.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	09:00	09:55	12-10	9684.00	9774.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	09:55	10:00	12-10	9774.00	9774.00	Inclination (°): 4.400, Azimuth (°): 93.740, TVD (ft): 9696.08, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 9717.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	10:00	11:00	12-10	9774.00	9864.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	11:00	11:05	12-10	9864.00	9864.00	Inclination (°): 3.870, Azimuth (°): 83.810, TVD (ft): 9785.85, Dogleg (°/100 ft): 0.99, Sensor Depth (ft): 9807.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	11:05	11:15	12-10	9864.00	9878.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-10	11:15	11:55	12-10	9878.00	9898.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 120, Toolface Type: magnetic
Rotary Drill	1	12-10	11:55	12:35	12-10	9898.00	9954.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	12:35	12:40	12-10	9954.00	9954.00	Inclination (°): 5.320, Azimuth (°): 80.290, TVD (ft): 9875.56, Dogleg (°/100 ft): 1.64, Sensor Depth (ft): 9897.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	12:40	13:35	12-10	9954.00	10043.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	13:35	13:40	12-10	10043.00	10043.00	Inclination (°): 5.410, Azimuth (°): 82.310, TVD (ft): 9964.17, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 9986.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	13:40	15:05	12-10	10043.00	10133.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-10	15:05	15:15	12-10	10133.00	10133.00	Inclination (°): 5.100, Azimuth (°): 84.860, TVD (ft): 10053.79, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 10076.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	15:15	16:25	12-10	10133.00	10223.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00

Survey	46	12-10	16:25	16:30	12-10	10223.00	10223.00	Inclination (°): 4.220, Azimuth (°): 83.720, TVD (ft): 10143.49, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 10166.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	16:30	17:40	12-10	10223.00	10312.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-10	17:40	17:45	12-10	10312.00	10312.00	Inclination (°): 3.960, Azimuth (°): 82.140, TVD (ft): 10232.27, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 10255.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	17:45	17:50	12-10	10312.00	10316.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	12-10	17:50	18:25	12-10	10316.00	10331.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 240, Toolface Type: magnetic
Rotary Drill	1	12-10	18:25	18:40	12-10	10331.00	10402.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-10	18:40	19:35	12-10	10402.00	10402.00	Inclination (°): 2.950, Azimuth (°): 92.420, TVD (ft): 10322.10, Dogleg (°/100 ft): 1.31, Sensor Depth (ft): 10345.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	19:35	19:50	12-10	10402.00	10417.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	12-10	19:50	20:10	12-10	10417.00	10429.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 270, Toolface Type: magnetic
Rotary Drill	1	12-10	20:10	20:45	12-10	10429.00	10492.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-10	20:45	20:50	12-10	10492.00	10492.00	Inclination (°): 2.290, Azimuth (°): 117.380, TVD (ft): 10412.01, Dogleg (°/100 ft): 1.45, Sensor Depth (ft): 10435.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	20:50	21:15	12-10	10492.00	10498.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	12-10	21:15	22:00	12-10	10498.00	10518.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	12-10	22:00	22:45	12-10	10518.00	10581.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-10	22:45	23:00	12-10	10581.00	10581.00	Inclination (°): 1.450, Azimuth (°): 124.850, TVD (ft): 10500.96, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 10524.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	23:00	23:45	12-10	10581.00	10671.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-10	23:45	23:50	12-10	10671.00	10671.00	Inclination (°): 0.920, Azimuth (°): 117.120, TVD (ft): 10590.94, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 10614.00, Bit To Sensor (ft): 57.00
Rotary Drill	1	12-10	23:50	00:00	12-11	10671.00	10679.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Wednesday, Dec 11 00:00 - 23:59 (Day 10 of 19)

Billing: N/A (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10679.00	Downhole Hours	14.50	Rotating WOB (klbs)	40.00 - 42.00
Bit Depth (ft)	11260.00	Drilling Hours	7.25	Sliding WOB (klbs)	30.00 - 30.00
Bottom Hole Depth (ft)	11260.00	Hours Circulating	0.92	Rotating SPM	216.00 - 216.00
Total Distance (ft)	581.00	Hours Sliding	0.33	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	566.00	Hours Rotating	6.92	Motor RPM	30.00 - 60.00
Distance Slid (ft)	15.00			Surface RPM	30.00 - 40.00
Inclination In	1.05			Flow Rate (gpm)	695.00 - 700.00
Inclination Out	1.80			On Bottom Pressure (psi)	2800.00 - 3250.00
Azimuth In	136.72	% Hours Rotating	95%	Off Bottom Pressure (psi)	2400.00 - 2650.00
Azimuth Out	157.55	% Hours Sliding	5%		
AVG Total ROP (ft/h)	79.42	% Distance Sliding	3%		
AVG Rotating ROP (ft/h)	81.04	% Distance Rotating	97%		
AVG Sliding ROP (ft/h)	45.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #3 - BHA #3 (8.5" Intermediate)

Date In: Dec 8, 2019, 21:30 Date Out: Dec 11, 2019, 14:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Motor: 1.5 FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab. Flow Rate: 500 - 750gpm, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft-lbs, Bit Info: Halliburton, SN: 13271296 Type: GT65DRM, Jets: 6 x 12, TFA: 0.662 Runs: 0
Vendor	Halliburton	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6 x 12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.662	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point: DRILLED TO KOP
Drilling Hours for Day	7.25	Bit Distances		
Total Drilled for Day (ft)	581.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 57.00 ft, Gamma (Bit to Gamma): 52.00 ft		
Drilling Hours for BHA	45.67			
Total Drilled for BHA (ft)	5979.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Halliburton	13271296	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.5° FBH 7/8 8.5 Stg Mtr w/ 8.25" Stab., Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
Stabilizer Description: 8.25" Spiral IBS	GTI	CD2043NM	4 1/2" IF Box	4 1/2" IF Pin	2.825	6.625		4.41	41.64
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-360	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.13	44.77
Drill Collar Description: NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-120	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.56	76.33
Drill Collar Description: NMDC (Spacer), Style: Slick Drill, Type: NM	GTI	GT 67-30-250	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		30.92	107.25
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.63	110.88
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1414.20	1525.08

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-10	23:50	00:00	12-11	10671.00	10679.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Rotary Drill	1	12-11	00:00	01:05	12-11	10679.00	10760.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00

[illegible]



Job Number WT-19-181	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H	Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Dec 22 00:00 - 23:59 (Day 11 of 19)

Billing: \$15,900.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11260.00	Downhole Hours	13.25	Rotating WOB (klbs)	35.00 - 35.00
Bit Depth (ft)	11426.00	Drilling Hours	2.25	Sliding WOB (klbs)	40.00 - 40.00
Bottom Hole Depth (ft)	11426.00	Hours Circulating	1.00	Rotating SPM	186.00 - 186.00
Total Distance (ft)	166.00	Hours Sliding	1.92	Sliding SPM	186.00 - 186.00
Distance Rotated (ft)	35.00	Hours Rotating	0.33	Motor RPM	30.00 - 30.00
Distance Slid (ft)	131.00			Surface RPM	30.00 - 30.00
Inclination In	1.54			Flow Rate (gpm)	600.00 - 600.00
Inclination Out	9.58			On Bottom Pressure (psi)	2850.00 - 2950.00
Azimuth In	152.98	% Hours Rotating	15%	Off Bottom Pressure (psi)	2350.00 - 2350.00
Azimuth Out	351.17	% Hours Sliding	85%		
AVG Total ROP (ft/h)	61.40	% Distance Sliding	79%		
AVG Rotating ROP (ft/h)	105.00	% Distance Rotating	21%		
AVG Sliding ROP (ft/h)	56.92				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #4 - 8.5" CURVE

Date In: Dec 22, 2019, 10:45 Date Out: Dec 23, 2019, 9:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:
Vendor	Halliburton	Lobe/Stage	7/8, 5.0	
S/N	13291182	Bend Angle	2.0	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	6.950	
Drilling Hours for Day	2.25	Bit Distances		
Total Drilled for Day (ft)	166.00	Bend (Bit to Bend): 4.04 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft		POOH Reason Build Rate: POOH FOR BUILD RATES
Drilling Hours for BHA	6.17			
Total Drilled for BHA (ft)	405.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GTD64C , Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	Halliburton	13291182	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.75" 7/8 5.0 FXD 2.0 w/ SS, Size (in): 6.75, Bend Angle (°): 2, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	AIM	CDM650-018	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.26	27.26
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	30.31
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	61.27
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	92.27
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	95.93

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-22	00:00	10:00	12-22			Standby while Skid to #608H, N/U BOPs & Test
Change BHA	6	12-22	10:00	10:45	12-22			P/U BHA # 4
Other	16	12-22	10:45	11:10	12-22			TEST MWD TOOL
Other	16	12-22	11:10	11:20	12-22			M/U BIT
TIH	8	12-22	11:20	13:20	12-22			TIH W/ BHA #4
Other	16	12-22	13:20	14:20	12-22			SLIP & CUT DRILL LINE
TIH	8	12-22	14:20	19:15	12-22			TIH W/ BHA #4
Circulating	3	12-22	19:15	20:15	12-22			Relog Gamma while Displace OBM
Other	16	12-22	20:15	21:00	12-22			Build OBM

Slide Drill	2	12-22	21:00	21:45	12-22	11260.00	11301.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>359</i> , Toolface Type: <i>magnetic</i>
Survey	46	12-22	21:45	21:55	12-22	11301.00	11301.00	Inclination (°): <i>1.540</i> , Azimuth (°): <i>152.980</i> , TVD (ft): <i>11224.71</i> , Dogleg (°/100 ft): <i>0.65</i> , Sensor Depth (ft): <i>11248.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-22	21:55	23:05	12-22	11301.00	11391.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>359</i> , Toolface Type: <i>magnetic</i>
Survey	46	12-22	23:05	23:15	12-22	11391.00	11391.00	Inclination (°): <i>9.580</i> , Azimuth (°): <i>351.170</i> , TVD (ft): <i>11314.35</i> , Dogleg (°/100 ft): <i>12.28</i> , Sensor Depth (ft): <i>11338.00</i> , Bit To Sensor (ft): <i>53.00</i>
Rotary Drill	1	12-22	23:15	23:35	12-22	11391.00	11426.00	Pressure On (psi): <i>2950.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>30</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186.00</i>
Slide Drill	2	12-22	23:35	00:55	12-23	11426.00	11480.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Monday, Dec 23 00:00 - 23:59 (Day 12 of 19)

Billing: \$29,945.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11426.00	Downhole Hours	22.50	Rotating WOB (klbs)	
Bit Depth (ft)	11883.00	Drilling Hours	6.42	Sliding WOB (klbs)	40.00 - 40.00
Bottom Hole Depth (ft)	11883.00	Hours Circulating	2.08	Rotating SPM	
Total Distance (ft)	457.00	Hours Sliding	6.42	Sliding SPM	186.00 - 186.00
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	30.00 - 195.00
Distance Slid (ft)	457.00			Surface RPM	
Inclination In	15.69			Flow Rate (gpm)	600.00 - 600.00
Inclination Out	58.20			On Bottom Pressure (psi)	2850.00 - 2850.00
Azimuth In	348.62	% Hours Rotating	0%	Off Bottom Pressure (psi)	2350.00 - 2350.00
Azimuth Out	357.06	% Hours Sliding	100%		
AVG Total ROP (ft/h)	71.22	% Distance Sliding	100%		
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating	0%		
AVG Sliding ROP (ft/h)	71.22				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #4 - 8.5" CURVE

Date In: Dec 22, 2019, 10:45 Date Out: Dec 23, 2019, 9:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:
Vendor	Halliburton	Lobe/Stage	7/8, 5.0	
S/N	13291182	Bend Angle	2.0	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	6.950	POOH Reason Build Rate: POOH FOR BUILD RATES
Drilling Hours for Day	3.92	Bit Distances		
Total Drilled for Day (ft)	239.00	Bend (Bit to Bend): 4.04 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft		
Drilling Hours for BHA	6.17			
Total Drilled for BHA (ft)	405.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: GTD64C , Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	Halliburton	13291182	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.75" 7/8 5.0 FXD 2.0 w/ SS, Size (in): 6.75, Bend Angle (°): 2, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	AIM	CDM650-018	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.26	27.26
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	30.31
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	61.27
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	92.27
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	95.93

MWD Items

No Items

BHA #5 - Curve 8.5"

Date In: Dec 23, 2019, 9:45 Date Out: Dec 23, 2019, 22:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit:
Vendor	Ultrerra	Lobe/Stage	7/8, 5.0	
S/N	48719	Bend Angle	2.6	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.375	POOH Reason Other: Bailed out Curve point
Drilling Hours for Day	2.50	Bit Distances		
Total Drilled for Day (ft)	218.00	Bend (Bit to Bend): 5.14 ft, Survey (Bit to Survey): 53.00 ft, Gamma (Bit to Gamma): 38.00 ft		
Drilling Hours for BHA	2.50			
Total Drilled for BHA (ft)	218.00			

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>CF611</i> , Style: <i>PDC</i> , Gauge Length (in): <i>2.00</i> , Size (in): <i>8.50</i>	Ulterra	48719	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>6.75" 7/8 5.0 ADJ 2.6° w/ SS</i> , Size (in): <i>6.75</i> , Bend Angle (°): <i>2.6</i> , Rotor Lobe: <i>7</i> , Stator Lobe: <i>8</i> , Stator Stage: <i>5</i>	AIM	CDM650-016	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.04	27.04
UBHO Sub Description: <i>UBHO Sub</i> , Type: <i>NM</i>	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	30.09
Drill Collar Description: <i>6.75" NMDC (MWD Tool)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	61.05
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	92.05
Crossover Sub Description: <i>X-Over Sub (4 1/2 IF Pin x ED54 Box)</i> , Type: <i>Steel</i>	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	95.71

MWD Items

No Items

BHA #6 - Curve / LateralDate In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0	
Vendor	BAKER	Lobe/Stage	7/8, 8.5		
S/N	5308040	Bend Angle	1.75		
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	POOH Reason Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H	
Drilling Hours for Day		Bit Distances			
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft			
Drilling Hours for BHA	73.42				
Total Drilled for BHA (ft)	7572.00				

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>DD506TWX</i> , Style: <i>PDC</i> , Gauge Length (in): <i>2.00</i> , Size (in): <i>8.50</i>	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 FXD 1.75° True Slick</i> , Size (in): <i>7.00</i> , Bend Angle (°): <i>1.75</i> , Rotor Lobe: <i>7</i> , Stator Lobe: <i>8</i> , Stator Stage: <i>8.5</i>	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: <i>UBHO Sub</i> , Type: <i>NM</i>	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: <i>6.75" NMDC (MWD Tool)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: <i>X-Over Sub (4 1/2 IF Pin x ED54 Box)</i> , Type: <i>Steel</i>	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Slide Drill	2	12-22	23:35	00:55	12-23	11426.00	11480.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	00:55	01:05	12-23	11480.00	11480.00	Inclination (°): <i>15.690</i> , Azimuth (°): <i>348.620</i> , TVD (ft): <i>11401.15</i> , Dogleg (°/100 ft): <i>6.89</i> , Sensor Depth (ft): <i>11427.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	01:05	02:15	12-23	11480.00	11570.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	02:15	02:25	12-23	11570.00	11570.00	Inclination (°): <i>19.690</i> , Azimuth (°): <i>352.840</i> , TVD (ft): <i>11486.88</i> , Dogleg (°/100 ft): <i>4.66</i> , Sensor Depth (ft): <i>11517.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	02:25	03:05	12-23	11570.00	11613.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	03:05	03:15	12-23	11613.00	11613.00	Inclination (°): <i>21.320</i> , Azimuth (°): <i>355.210</i> , TVD (ft): <i>11527.16</i> , Dogleg (°/100 ft): <i>4.25</i> , Sensor Depth (ft): <i>11560.00</i> , Bit To Sensor (ft): <i>53.00</i>

Slide Drill	2	12-23	03:15	03:50	12-23	11613.00	11659.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	03:50	04:00	12-23	11659.00	11659.00	Inclination (°): <i>23.780</i> , Azimuth (°): <i>353.630</i> , TVD (ft): <i>11569.64</i> , Dogleg (°/100 ft): <i>5.51</i> , Sensor Depth (ft): <i>11606.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	04:00	04:10	12-23	11659.00	11665.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Circulating	3	12-23	04:10	05:05	12-23			Circulate
Pooh	7	12-23	05:05	09:00	12-23			POOH for Build Rates
Change BHA	6	12-23	09:00	09:45	12-23			P/U BHA #5
TIH	8	12-23	09:45	14:00	12-23			TIH W/ BHA #5
Other	16	12-23	14:00	14:15	12-23			FILL PIPE
Circulating	3	12-23	14:15	14:25	12-23			WASH TO BOTTOM
Slide Drill	2	12-23	14:25	15:20	12-23	11665.00	11719.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>30</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	15:20	15:30	12-23	11719.00	11719.00	Inclination (°): <i>28.970</i> , Azimuth (°): <i>352.140</i> , TVD (ft): <i>11623.37</i> , Dogleg (°/100 ft): <i>8.72</i> , Sensor Depth (ft): <i>11666.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	15:30	15:55	12-23	11719.00	11749.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>30</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	15:55	16:05	12-23	11749.00	11749.00	Inclination (°): <i>32.920</i> , Azimuth (°): <i>353.720</i> , TVD (ft): <i>11649.10</i> , Dogleg (°/100 ft): <i>13.44</i> , Sensor Depth (ft): <i>11696.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	16:05	16:30	12-23	11749.00	11793.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	16:30	16:40	12-23	11793.00	11793.00	Inclination (°): <i>40.530</i> , Azimuth (°): <i>355.300</i> , TVD (ft): <i>11684.34</i> , Dogleg (°/100 ft): <i>17.43</i> , Sensor Depth (ft): <i>11740.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	16:40	17:00	12-23	11793.00	11838.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	17:00	17:10	12-23	11838.00	11838.00	Inclination (°): <i>48.970</i> , Azimuth (°): <i>354.330</i> , TVD (ft): <i>11716.27</i> , Dogleg (°/100 ft): <i>18.82</i> , Sensor Depth (ft): <i>11785.00</i> , Bit To Sensor (ft): <i>53.00</i>
Slide Drill	2	12-23	17:10	17:35	12-23	11838.00	11883.00	Pressure On (psi): <i>2850.00</i> , Pressure Off (psi): <i>2350.00</i> , Weight On Bit (klbs): <i>40.00</i> , Flow Rate (gpm): <i>600.00</i> , Strokes Per Minute: <i>186</i> , Toolface: <i>30</i> , Toolface Type: <i>gravity</i>
Survey	46	12-23	17:35	17:45	12-23	11883.00	11883.00	Inclination (°): <i>58.200</i> , Azimuth (°): <i>357.060</i> , TVD (ft): <i>11742.96</i> , Dogleg (°/100 ft): <i>21.08</i> , Sensor Depth (ft): <i>11830.00</i> , Bit To Sensor (ft): <i>53.00</i>
Circulating	3	12-23	17:45	18:45	12-23			Circulate
Pooh	7	12-23	18:45	22:00	12-23			POOH P/U Lateral Assembly
Change BHA	6	12-23	22:00	22:45	12-23			P/U BHA # 6
TIH	8	12-23	22:45	02:15	12-24			TIH W/ BHA #6

MWD Activities

No Activities

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Tuesday, Dec 24 00:00 - 23:59 (Day 13 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11883.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 50.00
Bit Depth (ft)	13819.00	Drilling Hours	16.67	Sliding WOB (klbs)	40.00 - 50.00
Bottom Hole Depth (ft)	13819.00	Hours Circulating	1.75	Rotating SPM	200.00 - 202.00
Total Distance (ft)	1936.00	Hours Sliding	4.67	Sliding SPM	186.00 - 202.00
Distance Rotated (ft)	1648.00	Hours Rotating	12.00	Motor RPM	169.00 - 195.00
Distance Slid (ft)	288.00			Surface RPM	40.00 - 60.00
Inclination In	64.00			Flow Rate (gpm)	600.00 - 650.00
Inclination Out	90.15			On Bottom Pressure (psi)	2850.00 - 3650.00
Azimuth In	2.77	% Hours Rotating	72%	Off Bottom Pressure (psi)	2350.00 - 2900.00
Azimuth Out	359.26	% Hours Sliding	28%		
AVG Total ROP (ft/h)	118.54	% Distance Sliding	15%		
AVG Rotating ROP (ft/h)	139.89	% Distance Rotating	85%		
AVG Sliding ROP (ft/h)	61.71				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	POOH Reason Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H
Drilling Hours for Day	16.67	Bit Distances		
Total Drilled for Day (ft)	1936.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50</i>	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5</i>	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: <i>UBHO Sub, Type: NM</i>	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: <i>6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM</i>	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: <i>6.75" NMDC , Style: Slick Drill, Type: NM</i>	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: <i>X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel</i>	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
TIH	8	12-23	22:45	02:15	12-24			TIH W/ BHA #6
Reaming	4	12-24	02:15	04:00	12-24			Reaming F/ 9950 - T/ 11260
TIH	8	12-24	04:00	04:30	12-24			TIH W/ BHA #6
Rotary Drill	1	12-24	04:30	05:00	12-24	11883.00	11908.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Troubleshoot	34	12-24	05:00	05:30	12-24			TROUBLESHOOT RFD
Slide Drill	2	12-24	05:30	05:55	12-24	11908.00	11938.00	Pressure On (psi): 2850.00, Pressure Off (psi): 2350.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 10, Toolface Type: gravity

Survey	46	12-24	05:55	06:05	12-24	11938.00	11938.00	Inclination (°): 64.000, Azimuth (°): 2.770, TVD (ft): 11764.71, Dogleg (°/100 ft): 17.01, Sensor Depth (ft): 11875.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	06:05	07:05	12-24	11938.00	11998.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-24	07:05	07:35	12-24	11998.00	12027.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	07:35	07:45	12-24	12027.00	12027.00	Inclination (°): 73.490, Azimuth (°): 4.790, TVD (ft): 11796.94, Dogleg (°/100 ft): 10.87, Sensor Depth (ft): 11964.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	07:45	09:00	12-24	12027.00	12117.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	09:00	09:10	12-24	12117.00	12117.00	Inclination (°): 77.580, Azimuth (°): 4.440, TVD (ft): 11819.42, Dogleg (°/100 ft): 4.56, Sensor Depth (ft): 12054.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	09:10	10:15	12-24	12117.00	12177.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 330, Toolface Type: gravity
Rotary Drill	1	12-24	10:15	10:35	12-24	12177.00	12206.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	10:35	10:40	12-24	12206.00	12206.00	Inclination (°): 80.480, Azimuth (°): 2.510, TVD (ft): 11836.35, Dogleg (°/100 ft): 3.89, Sensor Depth (ft): 12143.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	10:40	11:35	12-24	12206.00	12296.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	11:35	11:40	12-24	12296.00	12296.00	Inclination (°): 84.920, Azimuth (°): 0.490, TVD (ft): 11847.79, Dogleg (°/100 ft): 5.41, Sensor Depth (ft): 12233.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	11:40	12:10	12-24	12296.00	12326.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-24	12:10	12:50	12-24	12326.00	12386.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	12:50	12:55	12-24	12386.00	12386.00	Inclination (°): 88.180, Azimuth (°): 0.220, TVD (ft): 11853.20, Dogleg (°/100 ft): 3.63, Sensor Depth (ft): 12323.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	12:55	13:35	12-24	12386.00	12476.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	13:35	13:40	12-24	12476.00	12476.00	Inclination (°): 88.400, Azimuth (°): 359.520, TVD (ft): 11855.89, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 12413.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	13:40	13:50	12-24	12476.00	12482.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Slide Drill	2	12-24	13:50	14:05	12-24	12482.00	12500.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-24	14:05	14:35	12-24	12500.00	12565.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	14:35	14:40	12-24	12565.00	12565.00	Inclination (°): 89.580, Azimuth (°): 359.170, TVD (ft): 11857.46, Dogleg (°/100 ft): 1.38, Sensor Depth (ft): 12502.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	14:40	15:15	12-24	12565.00	12655.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	15:15	15:20	12-24	12655.00	12655.00	Inclination (°): 89.140, Azimuth (°): 359.260, TVD (ft): 11858.46, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 12592.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	15:20	15:40	12-24	12655.00	12675.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-24	15:40	16:10	12-24	12675.00	12744.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	16:10	16:15	12-24	12744.00	12744.00	Inclination (°): 91.120, Azimuth (°): 359.870, TVD (ft): 11858.26, Dogleg (°/100 ft): 2.33, Sensor Depth (ft): 12681.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	16:15	16:45	12-24	12744.00	12834.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	16:45	16:50	12-24	12834.00	12834.00	Inclination (°): 89.930, Azimuth (°): 359.700, TVD (ft): 11857.44, Dogleg (°/100 ft): 1.34, Sensor Depth (ft): 12771.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	16:50	17:10	12-24	12834.00	12864.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-24	17:10	17:30	12-24	12864.00	12923.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00

Survey	46	12-24	17:30	17:35	12-24	12923.00	12923.00	Inclination (°): 92.220, Azimuth (°): 0.140, TVD (ft): 11855.77, Dogleg (°/100 ft): 2.62, Sensor Depth (ft): 12860.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	17:35	18:10	12-24	12923.00	13013.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	18:10	18:15	12-24	13013.00	13013.00	Inclination (°): 92.400, Azimuth (°): 359.430, TVD (ft): 11852.14, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 12950.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	18:15	18:45	12-24	13013.00	13102.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	18:45	18:50	12-24	13102.00	13102.00	Inclination (°): 92.440, Azimuth (°): 359.170, TVD (ft): 11848.38, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 13039.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	18:50	19:20	12-24	13102.00	13192.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	19:20	19:25	12-24	13192.00	13192.00	Inclination (°): 92.130, Azimuth (°): 358.730, TVD (ft): 11844.79, Dogleg (°/100 ft): 0.60, Sensor Depth (ft): 13129.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	19:25	19:50	12-24	13192.00	13281.00	Pressure On (psi): 3350.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 200.00
Survey	46	12-24	19:50	19:55	12-24	13281.00	13281.00	Inclination (°): 92.130, Azimuth (°): 358.380, TVD (ft): 11841.48, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 13218.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	19:55	20:25	12-24	13281.00	13371.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	20:25	20:30	12-24	13371.00	13371.00	Inclination (°): 92.260, Azimuth (°): 357.760, TVD (ft): 11838.04, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 13308.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-24	20:30	20:50	12-24	13371.00	13386.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 140, Toolface Type: gravity
Rotary Drill	1	12-24	20:50	21:15	12-24	13386.00	13460.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	21:15	21:20	12-24	13460.00	13460.00	Inclination (°): 90.420, Azimuth (°): 358.990, TVD (ft): 11835.96, Dogleg (°/100 ft): 2.49, Sensor Depth (ft): 13397.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	21:20	21:45	12-24	13460.00	13550.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	21:45	21:50	12-24	13550.00	13550.00	Inclination (°): 90.420, Azimuth (°): 358.550, TVD (ft): 11835.30, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 13487.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	21:50	22:15	12-24	13550.00	13639.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	22:15	22:20	12-24	13639.00	13639.00	Inclination (°): 90.240, Azimuth (°): 357.850, TVD (ft): 11834.78, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 13576.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	22:20	22:45	12-24	13639.00	13729.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	22:45	22:50	12-24	13729.00	13729.00	Inclination (°): 90.150, Azimuth (°): 356.880, TVD (ft): 11834.48, Dogleg (°/100 ft): 1.08, Sensor Depth (ft): 13666.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	22:50	22:55	12-24	13729.00	13734.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-24	22:55	23:20	12-24	13734.00	13759.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 95, Toolface Type: gravity
Rotary Drill	1	12-24	23:20	23:40	12-24	13759.00	13819.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-24	23:40	23:45	12-24	13819.00	13819.00	Inclination (°): 90.150, Azimuth (°): 359.260, TVD (ft): 11834.24, Dogleg (°/100 ft): 2.64, Sensor Depth (ft): 13756.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-24	23:45	00:10	12-25	13819.00	13908.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00

MWD Activities

No Activities

	Job Number	Operator			Rig Name	
	WT-19-181	Advance Energy Partners			H&P #389	
	Start Date	Well Name			Legal Well Name AFE	
	2019-11-22	Wool Head 20 State Com 608H			Wool Head 20 State Com 608H	
	Play	State/Province and Country		County	Company Man	
	Delaware Basin	New Mexico, US		Lea		

Wednesday, Dec 25 00:00 - 23:59 (Day 14 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	13819.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	16529.00	Drilling Hours	21.00	Sliding WOB (klbs)	45.00 - 50.00
Bottom Hole Depth (ft)	16529.00	Hours Circulating	0.00	Rotating SPM	202.00 - 235.00
Total Distance (ft)	2710.00	Hours Sliding	5.83	Sliding SPM	202.00 - 235.00
Distance Rotated (ft)	2522.00	Hours Rotating	15.17	Motor RPM	169.00 - 195.00
Distance Slid (ft)	188.00			Surface RPM	60.00 - 75.00
Inclination In	89.76			Flow Rate (gpm)	650.00 - 750.00
Inclination Out	94.24			On Bottom Pressure (psi)	3300.00 - 4500.00
Azimuth In	359.26	% Hours Rotating	72%	Off Bottom Pressure (psi)	2900.00 - 3900.00
Azimuth Out	359.61	% Hours Sliding	28%		
AVG Total ROP (ft/h)	128.66	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	164.38	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	32.23				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	POOH Reason Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H
Drilling Hours for Day	21.00	Bit Distances		
Total Drilled for Day (ft)	2710.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-24	23:45	00:10	12-25	13819.00	13908.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	00:10	00:15	12-25	13908.00	13908.00	Inclination (°): 89.760, Azimuth (°): 359.260, TVD (ft): 11834.31, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 13845.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	00:15	00:40	12-25	13908.00	13997.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	00:40	00:45	12-25	13997.00	13997.00	Inclination (°): 89.710, Azimuth (°): 358.640, TVD (ft): 11834.72, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 13934.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	12-25	00:45	01:05	12-25	13997.00	14087.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	01:05	01:10	12-25	14087.00	14087.00	Inclination (°): 88.920, Azimuth (°): 358.730, TVD (ft): 11835.80, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 14024.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	01:10	01:35	12-25	14087.00	14176.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	01:35	01:40	12-25	14176.00	14176.00	Inclination (°): 88.090, Azimuth (°): 358.640, TVD (ft): 11838.12, Dogleg (°/100 ft): 0.94, Sensor Depth (ft): 14113.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	01:40	01:45	12-25	14176.00	14183.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-25	01:45	02:05	12-25	14183.00	14208.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-25	02:05	02:30	12-25	14208.00	14266.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	02:30	02:35	12-25	14266.00	14266.00	Inclination (°): 90.950, Azimuth (°): 358.640, TVD (ft): 11838.87, Dogleg (°/100 ft): 3.18, Sensor Depth (ft): 14203.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	02:35	02:55	12-25	14266.00	14356.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	02:55	03:00	12-25	14356.00	14356.00	Inclination (°): 93.010, Azimuth (°): 357.940, TVD (ft): 11835.77, Dogleg (°/100 ft): 2.42, Sensor Depth (ft): 14293.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	03:00	03:05	12-25	14356.00	14367.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-25	03:05	03:30	12-25	14367.00	14387.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	12-25	03:30	03:45	12-25	14387.00	14445.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	03:45	03:50	12-25	14445.00	14445.00	Inclination (°): 91.820, Azimuth (°): 0.220, TVD (ft): 11832.01, Dogleg (°/100 ft): 2.89, Sensor Depth (ft): 14382.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	03:50	04:15	12-25	14445.00	14535.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	04:15	04:20	12-25	14535.00	14535.00	Inclination (°): 90.950, Azimuth (°): 359.960, TVD (ft): 11829.84, Dogleg (°/100 ft): 1.01, Sensor Depth (ft): 14472.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	04:20	04:45	12-25	14535.00	14624.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	04:45	04:50	12-25	14624.00	14624.00	Inclination (°): 90.730, Azimuth (°): 0.310, TVD (ft): 11828.53, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 14561.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	04:50	05:20	12-25	14624.00	14714.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	05:20	05:25	12-25	14714.00	14714.00	Inclination (°): 90.200, Azimuth (°): 0.140, TVD (ft): 11827.80, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 14651.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	05:25	05:55	12-25	14714.00	14803.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	05:55	06:00	12-25	14803.00	14803.00	Inclination (°): 89.980, Azimuth (°): 359.340, TVD (ft): 11827.66, Dogleg (°/100 ft): 0.93, Sensor Depth (ft): 14740.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	06:00	06:30	12-25	14803.00	14893.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	06:30	06:40	12-25	14893.00	14893.00	Inclination (°): 90.860, Azimuth (°): 358.470, TVD (ft): 11827.00, Dogleg (°/100 ft): 1.37, Sensor Depth (ft): 14830.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	06:40	07:05	12-25	14893.00	14983.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	07:05	07:10	12-25	14983.00	14983.00	Inclination (°): 90.020, Azimuth (°): 357.060, TVD (ft): 11826.31, Dogleg (°/100 ft): 1.82, Sensor Depth (ft): 14920.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	07:10	07:20	12-25	14983.00	15003.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-25	07:20	07:35	12-25	15003.00	15013.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3150.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	12-25	07:35	08:15	12-25	15013.00	15072.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Survey	46	12-25	08:15	08:30	12-25	15072.00	15072.00	Inclination (°): 90.730, Azimuth (°): 357.240, TVD (ft): 11825.73, Dogleg (°/100 ft): 0.82, Sensor Depth (ft): 15009.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	08:30	08:35	12-25	15072.00	15082.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00
Slide Drill	2	12-25	08:35	09:20	12-25	15082.00	15105.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3150.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	12-25	09:20	09:40	12-25	15105.00	15162.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 202.00

Survey	46	12-25	09:40	09:45	12-25	15162.00	15162.00	Inclination (°): 93.450, Azimuth (°): 359.170, TVD (ft): 11822.45, Dogleg (°/100 ft): 3.70, Sensor Depth (ft): 15099.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	09:45	10:15	12-25	15162.00	15252.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 210.00
Survey	46	12-25	10:15	10:20	12-25	15252.00	15252.00	Inclination (°): 93.890, Azimuth (°): 359.080, TVD (ft): 11816.69, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 15189.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	10:20	10:45	12-25	15252.00	15341.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 210.00
Survey	46	12-25	10:45	10:50	12-25	15341.00	15341.00	Inclination (°): 93.980, Azimuth (°): 358.200, TVD (ft): 11810.58, Dogleg (°/100 ft): 0.99, Sensor Depth (ft): 15278.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	10:50	10:55	12-25	15341.00	15360.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 210.00
Slide Drill	2	12-25	10:55	11:30	12-25	15360.00	15373.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3150.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 90, Toolface Type: gravity
Rotary Drill	1	12-25	11:30	11:45	12-25	15373.00	15431.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 210.00
Survey	46	12-25	11:45	11:50	12-25	15431.00	15431.00	Inclination (°): 94.110, Azimuth (°): 357.500, TVD (ft): 11804.23, Dogleg (°/100 ft): 0.79, Sensor Depth (ft): 15368.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	11:50	12:30	12-25	15431.00	15521.00	Pressure On (psi): 3650.00, Pressure Off (psi): 2900.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 210.00
Survey	46	12-25	12:30	12:35	12-25	15521.00	15521.00	Inclination (°): 93.670, Azimuth (°): 356.880, TVD (ft): 11798.13, Dogleg (°/100 ft): 0.84, Sensor Depth (ft): 15458.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	12:35	12:40	12-25	15521.00	15532.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Slide Drill	2	12-25	12:40	13:30	12-25	15532.00	15559.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	12-25	13:30	13:50	12-25	15559.00	15610.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	13:50	13:55	12-25	15610.00	15610.00	Inclination (°): 95.740, Azimuth (°): 357.940, TVD (ft): 11790.83, Dogleg (°/100 ft): 2.61, Sensor Depth (ft): 15547.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	13:55	14:25	12-25	15610.00	15700.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	14:25	14:30	12-25	15700.00	15700.00	Inclination (°): 96.310, Azimuth (°): 359.340, TVD (ft): 11781.38, Dogleg (°/100 ft): 1.67, Sensor Depth (ft): 15637.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	14:30	14:55	12-25	15700.00	15790.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	14:55	15:00	12-25	15790.00	15790.00	Inclination (°): 96.970, Azimuth (°): 359.340, TVD (ft): 11770.97, Dogleg (°/100 ft): 0.73, Sensor Depth (ft): 15727.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	15:00	15:05	12-25	15790.00	15800.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Slide Drill	2	12-25	15:05	15:30	12-25	15800.00	15819.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235, Toolface: 130, Toolface Type: gravity
Rotary Drill	1	12-25	15:30	16:00	12-25	15819.00	15879.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	16:00	16:05	12-25	15879.00	15879.00	Inclination (°): 96.350, Azimuth (°): 0.840, TVD (ft): 11760.65, Dogleg (°/100 ft): 1.81, Sensor Depth (ft): 15816.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	16:05	16:45	12-25	15879.00	15969.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Rig Service - In Hole	19	12-25	16:45	17:00	12-25			RIG SERVICE
Survey	46	12-25	17:00	17:05	12-25	15969.00	15969.00	Inclination (°): 96.000, Azimuth (°): 1.100, TVD (ft): 11750.97, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 15906.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	17:05	17:15	12-25	15969.00	15994.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Slide Drill	2	12-25	17:15	17:45	12-25	15994.00	16005.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-25	17:45	18:15	12-25	16005.00	16058.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	18:15	18:20	12-25	16058.00	16058.00	Inclination (°): 95.300, Azimuth (°): 1.450, TVD (ft): 11742.21, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 15995.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	18:20	18:55	12-25	16058.00	16148.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	12-25	18:55	19:00	12-25	16148.00	16148.00	Inclination (°): 93.710, Azimuth (°): 1.720, TVD (ft): 11735.14, Dogleg (°/100 ft): 1.79, Sensor Depth (ft): 16085.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	19:00	19:35	12-25	16148.00	16238.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3675.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00

Survey	46	12-25	19:35	19:40	12-25	16238.00	16238.00	Inclination (°): 93.490, Azimuth (°): 1.280, TVD (ft): 11729.49, Dogleg (°/100 ft): 0.55, Sensor Depth (ft): 16175.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	19:40	19:50	12-25	16238.00	16248.00	
Slide Drill	2	12-25	19:50	20:25	12-25	16248.00	16258.00	Toolface: 340, Toolface Type: gravity
Rotary Drill	1	12-25	20:25	20:55	12-25	16258.00	16327.00	
Survey	46	12-25	20:55	21:00	12-25	16327.00	16327.00	Inclination (°): 94.290, Azimuth (°): 0.840, TVD (ft): 11723.45, Dogleg (°/100 ft): 1.03, Sensor Depth (ft): 16264.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	21:00	21:10	12-25	16327.00	16337.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-25	21:10	21:50	12-25	16337.00	16352.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-25	21:50	22:20	12-25	16352.00	16417.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-25	22:20	22:25	12-25	16417.00	16417.00	Inclination (°): 94.680, Azimuth (°): 359.700, TVD (ft): 11716.41, Dogleg (°/100 ft): 1.34, Sensor Depth (ft): 16354.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	22:25	23:05	12-25	16417.00	16507.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-25	23:05	23:10	12-25	16507.00	16507.00	Inclination (°): 94.240, Azimuth (°): 359.610, TVD (ft): 11709.41, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 16444.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-25	23:10	23:15	12-25	16507.00	16514.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-25	23:15	23:45	12-25	16514.00	16529.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-25	23:45	00:20	12-26	16529.00	16596.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00

MWD Activities

No Activities

	Job Number	Operator			Rig Name	
	WT-19-181	Advance Energy Partners			H&P #389	
	Start Date	Well Name			Legal Well Name AFE	
	2019-11-22	Wool Head 20 State Com 608H			Wool Head 20 State Com 608H	
Play		State/Province and Country		County	Company Man	
Delaware Basin		New Mexico, US		Lea		

Thursday, Dec 26 00:00 - 23:59 (Day 15 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	16529.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	18298.00	Drilling Hours	21.75	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	18298.00	Hours Circulating	0.00	Rotating SPM	220.00 - 231.00
Total Distance (ft)	1769.00	Hours Sliding	6.42	Sliding SPM	231.00 - 231.00
Distance Rotated (ft)	1630.00	Hours Rotating	15.33	Motor RPM	169.00 - 195.00
Distance Slid (ft)	139.00			Surface RPM	70.00 - 80.00
Inclination In	96.35			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	91.16			On Bottom Pressure (psi)	4100.00 - 4500.00
Azimuth In	359.08	% Hours Rotating	70%	Off Bottom Pressure (psi)	3600.00 - 3900.00
Azimuth Out	0.84	% Hours Sliding	30%		
AVG Total ROP (ft/h)	82.01	% Distance Sliding	8%		
AVG Rotating ROP (ft/h)	105.85	% Distance Rotating	92%		
AVG Sliding ROP (ft/h)	21.66				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	POOH Reason Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H
Drilling Hours for Day	21.75	Bit Distances		
Total Drilled for Day (ft)	1769.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-25	23:45	00:20	12-26	16529.00	16596.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	00:20	00:25	12-26	16596.00	16596.00	Inclination (°): 96.350, Azimuth (°): 359.080, TVD (ft): 11701.20, Dogleg (°/100 ft): 2.44, Sensor Depth (ft): 16533.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	00:25	01:10	12-26	16596.00	16686.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	01:10	01:15	12-26	16686.00	16686.00	Inclination (°): 96.880, Azimuth (°): 358.380, TVD (ft): 11690.83, Dogleg (°/100 ft): 0.97, Sensor Depth (ft): 16623.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	12-26	01:15	02:00	12-26	16686.00	16775.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	02:00	02:05	12-26	16775.00	16775.00	Inclination (°): 96.620, Azimuth (°): 358.030, TVD (ft): 11680.37, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 16712.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	02:05	02:10	12-26	16775.00	16783.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-26	02:10	02:25	12-26	16783.00	16795.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 130, Toolface Type: gravity
Rotary Drill	1	12-26	02:25	03:15	12-26	16795.00	16865.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	03:15	03:20	12-26	16865.00	16865.00	Inclination (°): 96.530, Azimuth (°): 358.990, TVD (ft): 11670.06, Dogleg (°/100 ft): 1.06, Sensor Depth (ft): 16802.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	03:20	03:25	12-26	16865.00	16872.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-26	03:25	04:55	12-26	16872.00	16892.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 140, Toolface Type: gravity
Rotary Drill	1	12-26	04:55	05:35	12-26	16892.00	16954.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	05:35	05:40	12-26	16954.00	16954.00	Inclination (°): 94.510, Azimuth (°): 358.910, TVD (ft): 11661.50, Dogleg (°/100 ft): 2.27, Sensor Depth (ft): 16891.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	05:40	06:30	12-26	16954.00	17044.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-26	06:30	06:40	12-26	17044.00	17044.00	Inclination (°): 92.840, Azimuth (°): 358.990, TVD (ft): 11655.74, Dogleg (°/100 ft): 1.86, Sensor Depth (ft): 16981.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	06:40	06:45	12-26	17044.00	17054.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Surface RPM: 75, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-26	06:45	07:40	12-26	17054.00	17069.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	12-26	07:40	08:15	12-26	17069.00	17133.00	
Survey	46	12-26	08:15	08:20	12-26	17133.00	17133.00	Inclination (°): 93.140, Azimuth (°): 358.990, TVD (ft): 11651.09, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 17070.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	08:20	08:55	12-26	17133.00	17223.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	08:55	09:00	12-26	17223.00	17223.00	Inclination (°): 93.540, Azimuth (°): 358.910, TVD (ft): 11645.85, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 17160.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	09:00	09:10	12-26	17223.00	17241.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-26	09:10	09:50	12-26	17241.00	17261.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	12-26	09:50	10:25	12-26	17261.00	17312.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	10:25	10:30	12-26	17312.00	17312.00	Inclination (°): 94.590, Azimuth (°): 358.730, TVD (ft): 11639.54, Dogleg (°/100 ft): 1.20, Sensor Depth (ft): 17249.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	10:30	11:05	12-26	17312.00	17402.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	11:05	11:10	12-26	17402.00	17402.00	Inclination (°): 96.000, Azimuth (°): 358.820, TVD (ft): 11631.24, Dogleg (°/100 ft): 1.57, Sensor Depth (ft): 17339.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	11:10	11:50	12-26	17402.00	17492.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	11:50	11:55	12-26	17492.00	17492.00	Inclination (°): 96.000, Azimuth (°): 358.200, TVD (ft): 11621.83, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 17429.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	11:55	13:10	12-26	17492.00	17581.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	13:10	13:15	12-26	17581.00	17581.00	Inclination (°): 95.870, Azimuth (°): 357.670, TVD (ft): 11612.62, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 17518.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	13:15	14:10	12-26	17581.00	17671.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	14:10	14:15	12-26	17671.00	17671.00	Inclination (°): 96.530, Azimuth (°): 357.500, TVD (ft): 11602.90, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 17608.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	14:15	14:30	12-26	17671.00	17681.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-26	14:30	15:30	12-26	17681.00	17701.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 130, Toolface Type: gravity
Rotary Drill	1	12-26	15:30	16:25	12-26	17701.00	17760.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Rig Service - In Hole	19	12-26	16:25	16:55	12-26			RIG SERVICE

Survey	46	12-26	16:55	17:00	12-26	17760.00	17760.00	Inclination (°): 95.650, Azimuth (°): 358.990, TVD (ft): 11593.46, Dogleg (°/100 ft): 1.94, Sensor Depth (ft): 17697.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	17:00	17:10	12-26	17760.00	17776.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-26	17:10	18:05	12-26	17776.00	17796.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	12-26	18:05	18:35	12-26	17796.00	17850.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	18:35	18:40	12-26	17850.00	17850.00	Inclination (°): 94.680, Azimuth (°): 0.400, TVD (ft): 11585.36, Dogleg (°/100 ft): 1.90, Sensor Depth (ft): 17787.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	18:40	18:55	12-26	17850.00	17873.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-26	18:55	19:35	12-26	17873.00	17893.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	12-26	19:35	19:55	12-26	17893.00	17940.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	19:55	20:00	12-26	17940.00	17940.00	Inclination (°): 94.110, Azimuth (°): 1.100, TVD (ft): 11578.46, Dogleg (°/100 ft): 1.00, Sensor Depth (ft): 17877.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	20:00	20:30	12-26	17940.00	18029.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	20:30	20:35	12-26	18029.00	18029.00	Inclination (°): 92.920, Azimuth (°): 1.630, TVD (ft): 11573.01, Dogleg (°/100 ft): 1.46, Sensor Depth (ft): 17966.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	20:35	21:15	12-26	18029.00	18119.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	21:15	21:20	12-26	18119.00	18119.00	Inclination (°): 93.010, Azimuth (°): 1.450, TVD (ft): 11568.35, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 18056.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	21:20	21:25	12-26	18119.00	18129.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-26	21:25	21:55	12-26	18129.00	18141.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-26	21:55	22:35	12-26	18141.00	18208.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	22:35	22:40	12-26	18208.00	18208.00	Inclination (°): 90.770, Azimuth (°): 1.010, TVD (ft): 11565.42, Dogleg (°/100 ft): 2.56, Sensor Depth (ft): 18145.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	22:40	23:40	12-26	18208.00	18298.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-26	23:40	23:45	12-26	18298.00	18298.00	Inclination (°): 91.160, Azimuth (°): 0.840, TVD (ft): 11563.90, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 18235.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-26	23:45	00:40	12-27	18298.00	18388.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00

MWD Activities

No Activities

	Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Dec 27 00:00 - 23:59 (Day 16 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	18298.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	19455.00	Drilling Hours	14.00	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	19455.00	Hours Circulating	4.17	Rotating SPM	220.00 - 220.00
Total Distance (ft)	1157.00	Hours Sliding	2.42	Sliding SPM	231.00 - 231.00
Distance Rotated (ft)	1121.00	Hours Rotating	11.58	Motor RPM	169.00 - 195.00
Distance Slid (ft)	36.00			Surface RPM	80.00 - 80.00
Inclination In	91.52			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	93.54			On Bottom Pressure (psi)	4100.00 - 4500.00
Azimuth In	0.57	% Hours Rotating	83%	Off Bottom Pressure (psi)	3600.00 - 3900.00
Azimuth Out	358.99	% Hours Sliding	17%		
AVG Total ROP (ft/h)	82.64	% Distance Sliding	3%		
AVG Rotating ROP (ft/h)	96.78	% Distance Rotating	97%		
AVG Sliding ROP (ft/h)	14.90				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	POOH Reason Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H
Drilling Hours for Day	14.00	Bit Distances		
Total Drilled for Day (ft)	1157.00	Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50</i>	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5</i>	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: <i>UBHO Sub, Type: NM</i>	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: <i>6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM</i>	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: <i>6.75" NMDC , Style: Slick Drill, Type: NM</i>	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: <i>X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel</i>	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-26	23:45	00:40	12-27	18298.00	18388.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	00:40	00:45	12-27	18388.00	18388.00	Inclination (°): 91.520, Azimuth (°): 0.570, TVD (ft): 11561.80, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 18325.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	00:45	01:35	12-27	18388.00	18477.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	01:35	01:40	12-27	18477.00	18477.00	Inclination (°): 92.220, Azimuth (°): 0.400, TVD (ft): 11558.89, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 18414.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	12-27	01:40	02:35	12-27	18477.00	18567.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	02:35	02:40	12-27	18567.00	18567.00	Inclination (°): 93.800, Azimuth (°): 359.780, TVD (ft): 11554.17, Dogleg (°/100 ft): 1.89, Sensor Depth (ft): 18504.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	02:40	02:45	12-27	18567.00	18570.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-27	02:45	03:50	12-27	18570.00	18586.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-27	03:50	04:50	12-27	18586.00	18657.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	04:50	04:55	12-27	18657.00	18657.00	Inclination (°): 91.820, Azimuth (°): 0.220, TVD (ft): 11549.75, Dogleg (°/100 ft): 2.25, Sensor Depth (ft): 18594.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	04:55	05:55	12-27	18657.00	18746.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	05:55	06:00	12-27	18746.00	18746.00	Inclination (°): 91.740, Azimuth (°): 0.220, TVD (ft): 11546.99, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 18683.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	06:00	06:50	12-27	18746.00	18836.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	06:50	06:55	12-27	18836.00	18836.00	Inclination (°): 91.650, Azimuth (°): 0.140, TVD (ft): 11544.33, Dogleg (°/100 ft): 0.13, Sensor Depth (ft): 18773.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	06:55	07:40	12-27	18836.00	18926.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	07:40	07:45	12-27	18926.00	18926.00	Inclination (°): 91.780, Azimuth (°): 359.260, TVD (ft): 11541.63, Dogleg (°/100 ft): 0.99, Sensor Depth (ft): 18863.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	07:45	08:35	12-27	18926.00	19015.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	08:35	08:40	12-27	19015.00	19015.00	Inclination (°): 92.040, Azimuth (°): 358.820, TVD (ft): 11538.67, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 18952.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	08:40	09:35	12-27	19015.00	19105.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	09:35	09:40	12-27	19105.00	19105.00	Inclination (°): 93.490, Azimuth (°): 358.730, TVD (ft): 11534.33, Dogleg (°/100 ft): 1.61, Sensor Depth (ft): 19042.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	09:40	09:50	12-27	19105.00	19114.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Slide Drill	2	12-27	09:50	11:10	12-27	19114.00	19134.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-27	11:10	11:55	12-27	19134.00	19194.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	11:55	12:00	12-27	19194.00	19194.00	Inclination (°): 93.050, Azimuth (°): 359.960, TVD (ft): 11529.25, Dogleg (°/100 ft): 1.47, Sensor Depth (ft): 19131.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	12:00	12:55	12-27	19194.00	19284.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	12:55	13:00	12-27	19284.00	19284.00	Inclination (°): 92.570, Azimuth (°): 359.870, TVD (ft): 11524.84, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 19221.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	13:00	14:00	12-27	19284.00	19374.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	14:00	14:05	12-27	19374.00	19374.00	Inclination (°): 93.100, Azimuth (°): 359.430, TVD (ft): 11520.39, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 19311.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-27	14:05	14:45	12-27	19374.00	19455.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 50.00, Surface RPM: 80, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	12-27	14:45	14:50	12-27	19455.00	19455.00	Inclination (°): 93.540, Azimuth (°): 358.990, TVD (ft): 11515.69, Dogleg (°/100 ft): 0.77, Sensor Depth (ft): 19392.00, Bit To Sensor (ft): 63.00
Circulating	3	12-27	14:50	19:00	12-27			Circulate Hole Clean
Circulating	3	12-27	19:00	14:30	12-28			Weight Up Mud to 11.0

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Dec 28 00:00 - 23:59 (Day 17 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	24.00	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	20.50	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	169.00 - 195.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			POOH Reason
				Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Circulating	3	12-27	19:00	14:30	12-28			Weight Up Mud to 11.0
Pooh	7	12-28	14:30	22:00	12-28			POOH
Circulating	3	12-28	22:00	23:00	12-28			Spot Pill at Top of Curve
Pooh	7	12-28	23:00	02:30	12-29			POOH

MWD Activities

No Activities



Job Number WT-19-181	Operator Advance Energy Partners		Rig Name H&P #389
Start Date 2019-11-22	Well Name Wool Head 20 State Com 608H		Legal Well Name AFE Wool Head 20 State Com 608H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Dec 29 00:00 - 23:59 (Day 18 of 19)

Billing: \$6,200.00 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	6.75	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	0.00	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	169.00 - 195.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

BHA #6 - Curve / Lateral

Date In: Dec 23, 2019, 22:45 Date Out: Dec 29, 2019, 6:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 400-700, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs Runs on bit: 0
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5308040	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.313	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.32 ft, Survey (Bit to Survey): 63.00 ft, Gamma (Bit to Gamma): 48.00 ft		
Drilling Hours for BHA	73.42			
Total Drilled for BHA (ft)	7572.00			
				POOH Reason
				Total Depth/Casing Point: Pooh at TD of 19455' MD to run casing and cement the 608H

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	BAKER	5308040	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 FXD 1.75° True Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.14	37.14
UBHO Sub Description: UBHO Sub, Type: NM	AIM	675-362	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.760		3.05	40.19
Drill Collar Description: 6.75" NMDC (MWD Tool), Style: Slick Drill, Type: NM	GTI	GT 67-30-137	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.790		30.96	71.15
Drill Collar Description: 6.75" NMDC , Style: Slick Drill, Type: NM	GTI	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.880		31.00	102.15
Crossover Sub Description: X-Over Sub (4 1/2 IF Pin x ED54 Box), Type: Steel	BD	BD15115	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.770		3.66	105.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Pooh	7	12-28	23:00	02:30	12-29			POOH
Other	16	12-29	02:30	03:45	12-29			Slip and Cut Drill Line
Pooh	7	12-29	03:45	06:00	12-29			POOH
Change BHA	6	12-29	06:00	06:45	12-29			L/D MWD Tool, Break Bit & Rack Back
Standby	15	12-29	06:45	18:00	12-30			Standby- Casing Ops / CEMENT OPs

MWD Activities

No Activities

	Job Number	Operator			Rig Name	
	WT-19-181	Advance Energy Partners			H&P #389	
	Start Date	Well Name			Legal Well Name AFE	
	2019-11-22	Wool Head 20 State Com 608H			Wool Head 20 State Com 608H	
	Play	State/Province and Country		County	Company Man	
	Delaware Basin	New Mexico, US		Lea		

Monday, Dec 30 00:00 - 23:59 (Day 19 of 19)

Billing: \$6,463.68 (\$155,882.50 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours		0.00	Rotating WOB (klbs)
Bit Depth (ft)		Drilling Hours		0.00	Sliding WOB (klbs)
Bottom Hole Depth (ft)		Hours Circulating		0.00	Rotating SPM
Total Distance (ft)	0.00	Hours Sliding		0.00	Sliding SPM
Distance Rotated (ft)	0.00	Hours Rotating		0.00	Motor RPM
Distance Slid (ft)	0.00				Surface RPM
Inclination In					Flow Rate (gpm)
Inclination Out					On Bottom Pressure (psi)
Azimuth In		% Hours Rotating			Off Bottom Pressure (psi)
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Advance Directional	Directional Driller
Wes Highnote	MWD Engineer
Robert Olivarez	MWD Engineer

No BHAs

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-29	06:45	18:00	12-30			Standby- Casing Ops / CEMENT OPs
Standby	15	12-30	18:00	23:00	12-30			Standby- N/D BOPs Prepare Skid to #607H.

MWD Activities

No Activities



Surface Plat

Wool Head 20 State Com 608H (WT-19-181)

2019-11-22 to 2019-12-30

Lea, New Mexico, US (32.46, -103.59)

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 4, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name	Well Number
	WOOL HEAD 20 STATE COM	608H
OGRID No.	Operator Name	Elevation
	ADVANCE ENERGY PARTNERS HAT MESA	3721'

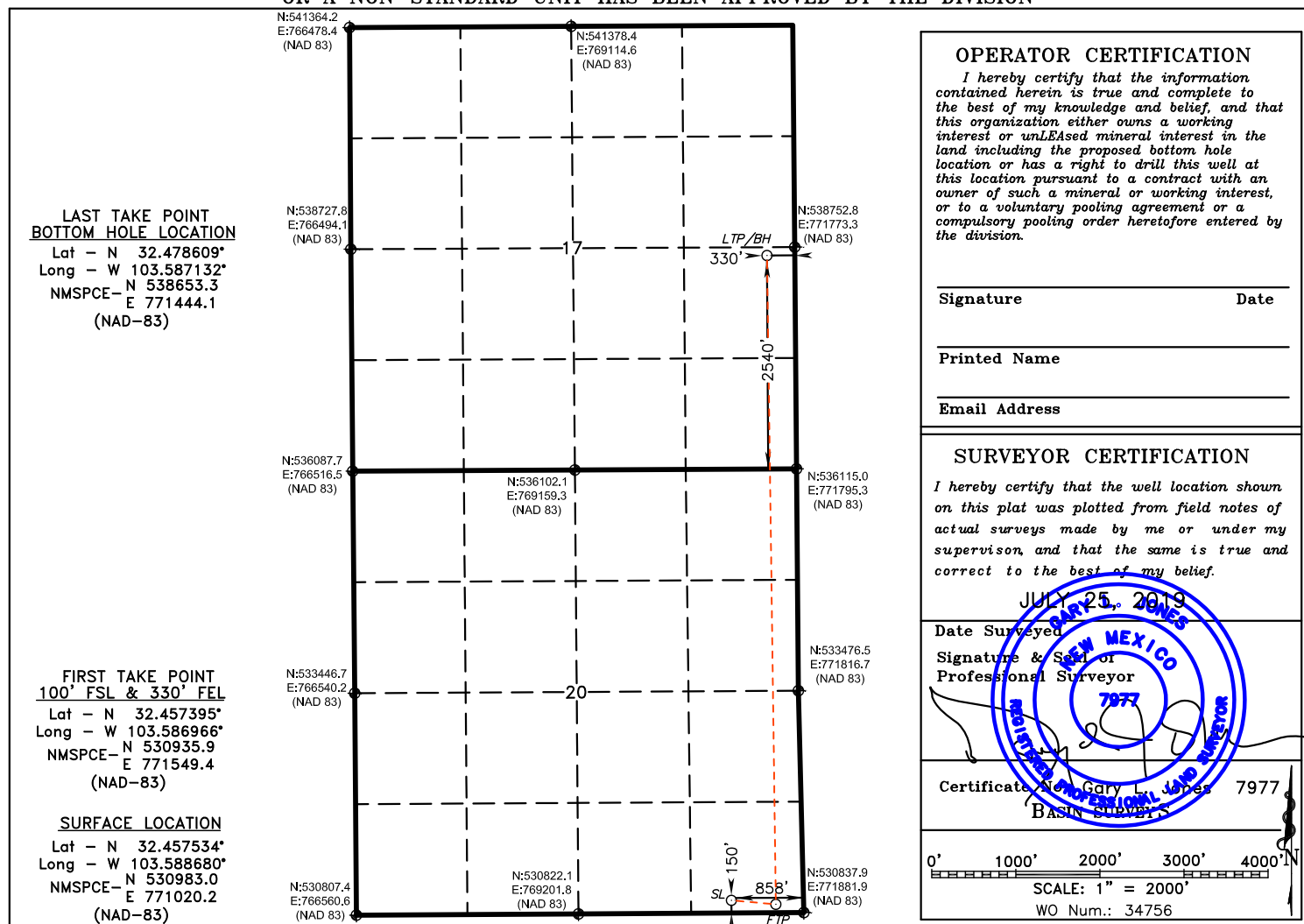
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
P	20	21 S	33 E		150	SOUTH	858	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
I	17	21 S	33 E		2540	SOUTH	330	EAST	LEA
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



State Hwy 176

Existing Lease Road

Pad D

Pad C

Pad B

Pad A

1.1 miles

Existing Lease Road

599'

500'

250'

250'

250'

283'

150'

33'

33'

33'

33'

150'

200'

607H

804H

608H

511H

554H

510H

512H

N32.458497°
W103.589832°
ELEV = 3736.9

N32.457123°
W103.589803°
ELEV = 3729.9

N32.458495°
W103.587890°
ELEV = 3717.0

N32.457121°
W103.587862°
ELEV = 3715.3

200 0 200 400 FEET

SCALE: 1" = 200'

N.M.P.M., LEA COUNTY, NEW MEXICO.

P.O. Box 1786 (575) 393-7316 - Office
1120 N. West County Rd. (575) 392-2206 - Fax
Hobbs, New Mexico 88241 basinsurveys.com

**SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.**

N32.458497
W103.589832
ELEV = 3736.9

N32.458495°
W103.587890°
ELEV = 3717.0

N32.457123°
W103.589803°
ELEV = 3729.9'

N32.457121°
W103.587862°
ELEV = 3715.3'

250'

150'

511H Q 33' Q 33' Q 33' Q 512H Q
554H Q 510H Q

250'

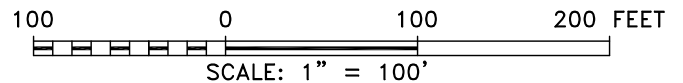
200'

283'

Q 607H 33' Q 804H 33' Q 608H

250'

150'



ADVANCE ENERGY PARTNERS HAT MESA

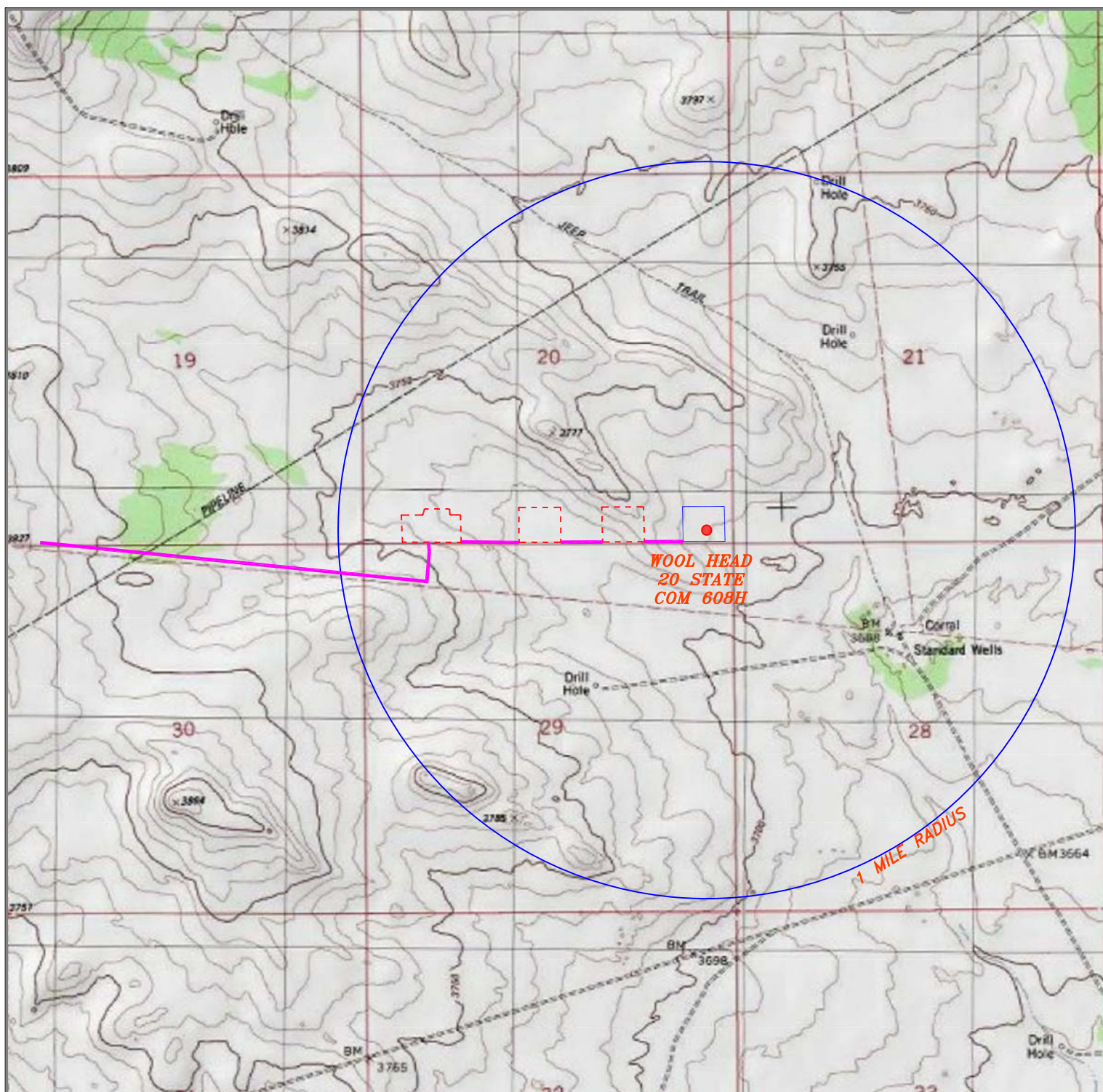
REF: WOOL HEAD 20 STATE COM 608H / WELL PAD TOPO

THE WOOL HEAD 20 STATE COM 608H LOCATED 150' FROM
THE SOUTH LINE AND 858' FROM THE EAST LINE OF
SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

N.M.P.M., LEA COUNTY, NEW MEXICO.

basin
surveys
focused on excellence
in the oilfield

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1120 N. West County Rd. (575) 392-2206 - Fax
Hobbs, New Mexico 88241 basin-surveys.com



WOOL HEAD 20 STATE COM 608H

Located 150' FSL and 858' FEL
Section 20, Township 21 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

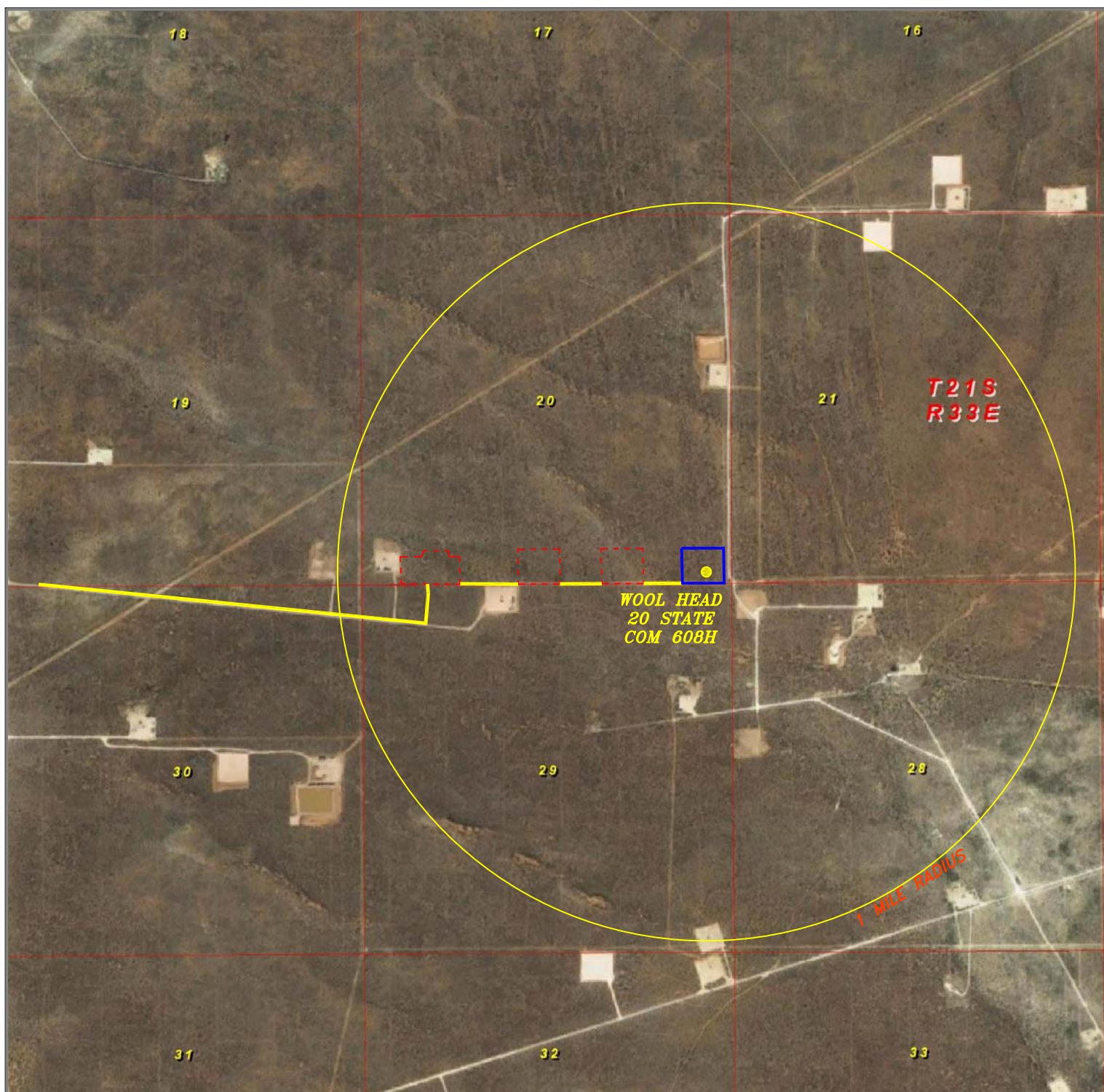
W.O. Number: KJG 34756

Survey Date: 07-26-2019

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND



**ADVANCE
ENERGY
PARTNERS
HAT MESA**

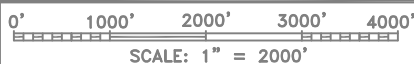


WOOL HEAD 20 STATE COM 608H

Located 150' FSL and 858' FEL
 Section 20, Township 21 South, Range 33 East,
 N.M.P.M., Lea County, New Mexico.



P.O. Box 1786
 1120 N. West County Rd.
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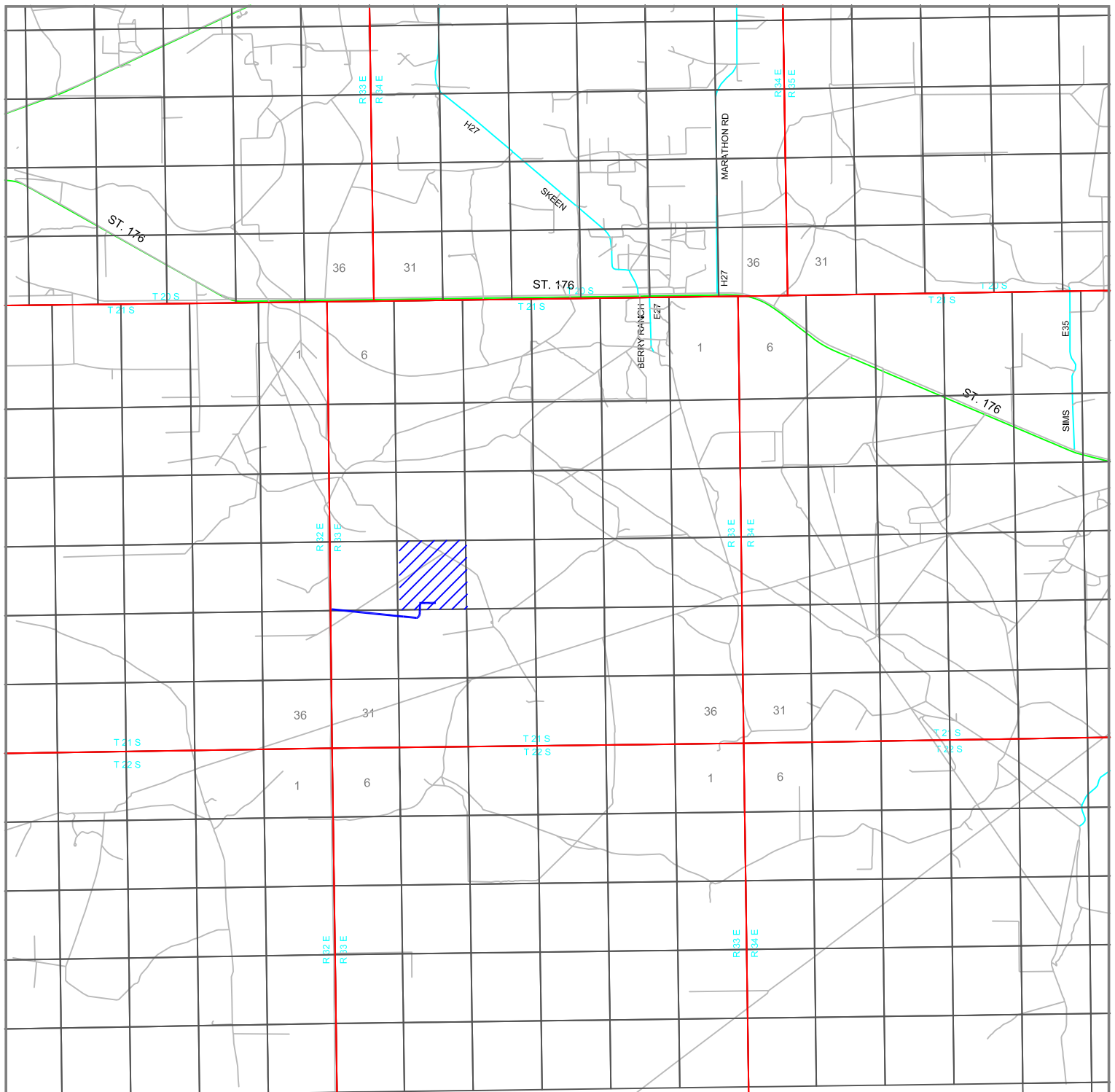
W.O. Number: KJG 34756

Survey Date: 07-26-2019

YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND



**ADVANCE
 ENERGY
 PARTNERS
 HAT MESA**



WOOL HEAD 20 STATE COM 608H

Located 150' FSL and 858' FEL
 Section 20, Township 21 South, Range 33 East,
 N.M.P.M., Lea County, New Mexico.



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 (575) 393-7316 - Office
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 basinsurveys.com

0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

W.O. Number: KJG 34756

Survey Date: 07-26-2019

YELLOW TINT - USA LAND
 BLUE TINT - STATE LAND
 NATURAL COLOR - FEE LAND



**ADVANCE
 ENERGY
 PARTNERS
 HAT MESA**