



End of Well Report

**Advance Energy Partners, LLC
Wool Head 20 State Com, Well No. 553H
Lea County, New Mexico**

Rig: H&P #620

Job No.: WT-19-167

Start Date: 11/01/2019

End Date: 12/14/2019

Directional Drillers:

Omar Alaniz, Stephen Long

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President

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www.aimdir.com





Performance Overview

Wool Head 20 State Com 553H (WT-19-167)

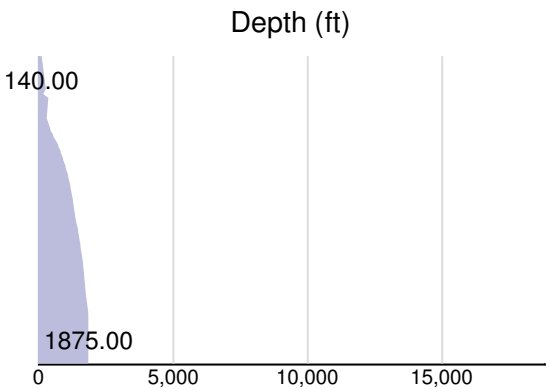
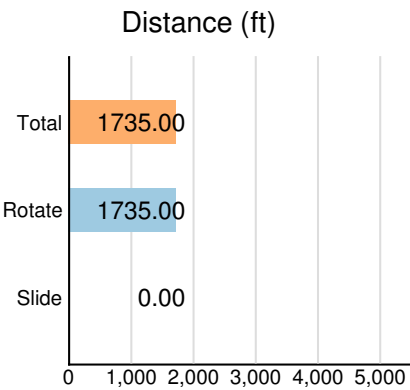
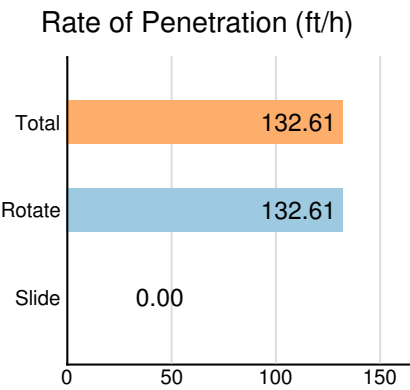
2019-11-01 to 2019-12-14

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

BHA Performance

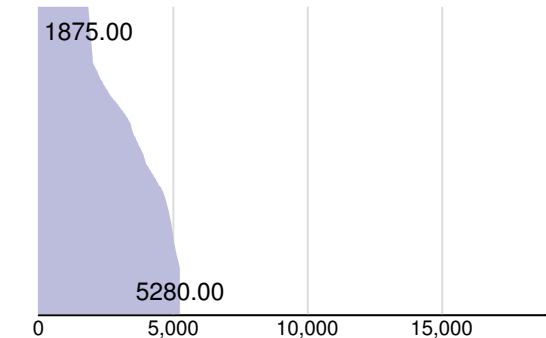
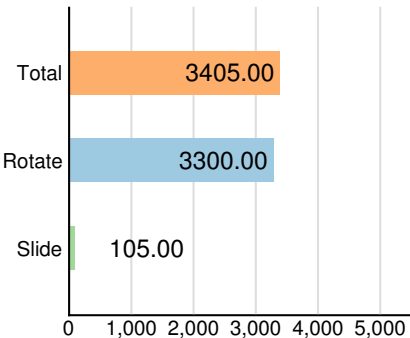
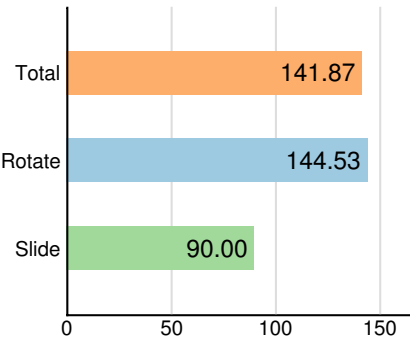
BHA 1

BHA #1 Surface
In: 11/01/2019 13:00
Out: 11/02/2019 09:15



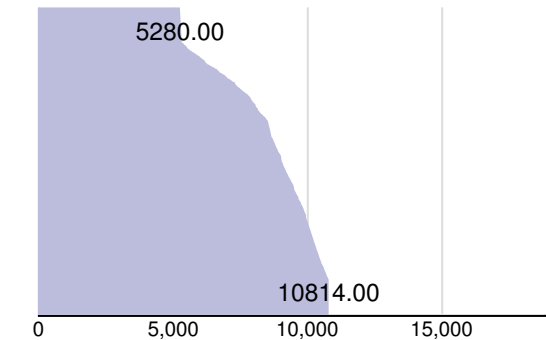
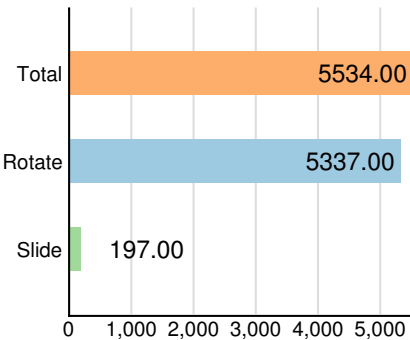
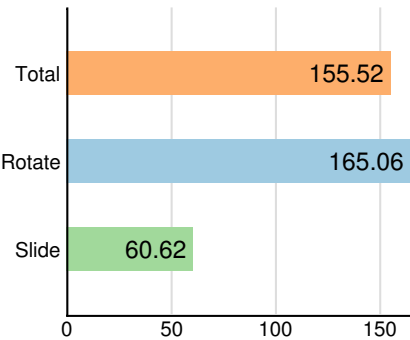
BHA 2

BHA #2
Intermediate 1
In: 11/08/2019 11:35
Out: 11/10/2019 01:15



BHA 3

BHA #3 8.5" Hole
In: 11/16/2019 20:30
Out: 11/19/2019 02:45

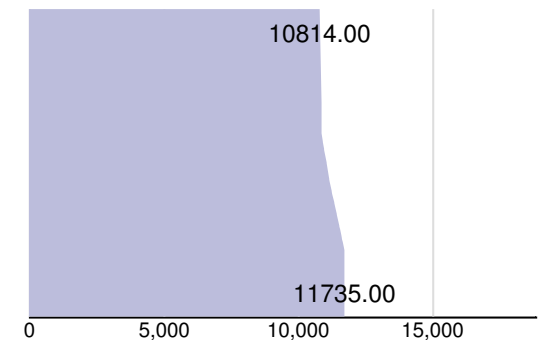
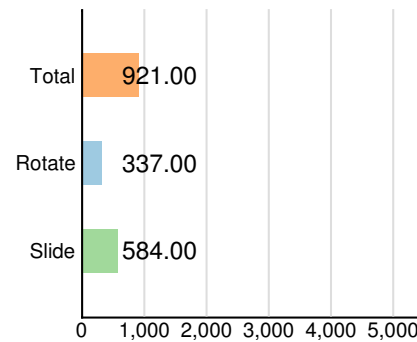
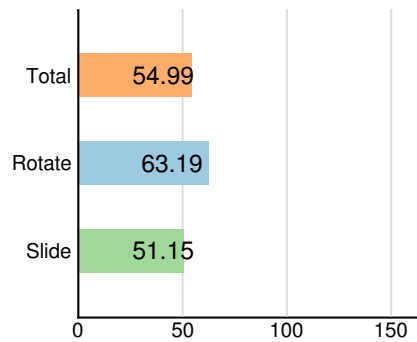


BHA 4

BHA #4 (Curve)

In: 11/30/2019 20:45

Out: 12/02/2019 14:00

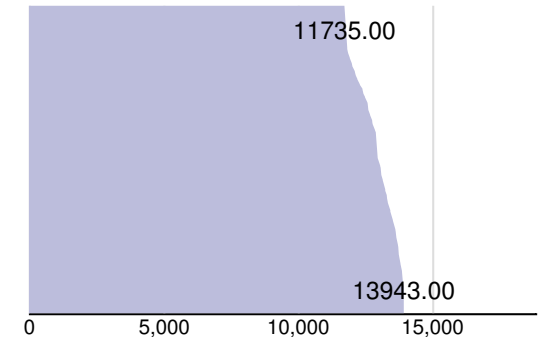
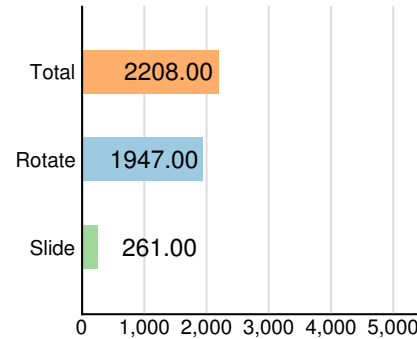
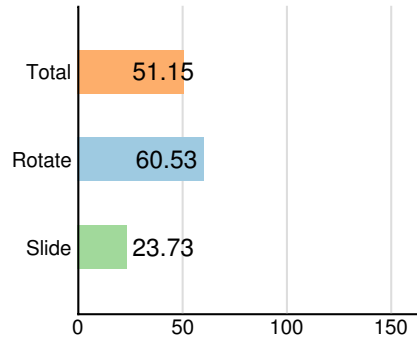


BHA 5

BHA #5

In: 12/02/2019 15:15

Out: 12/05/2019 03:30

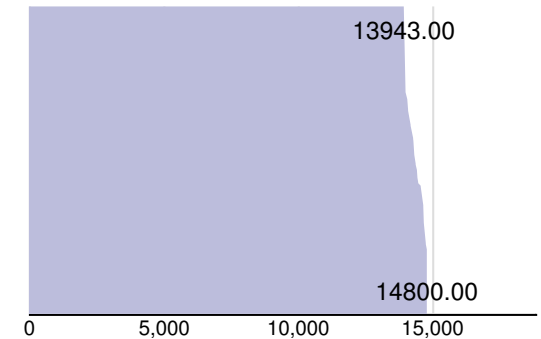
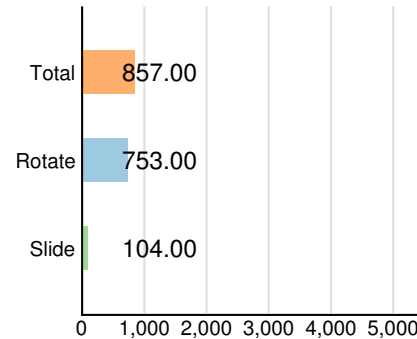
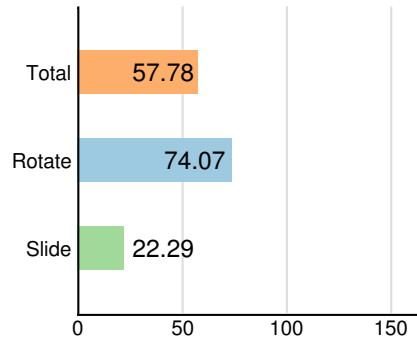


BHA 6

BHA #6(Lateral)

In: 12/05/2019 03:30

Out: 12/06/2019 08:30

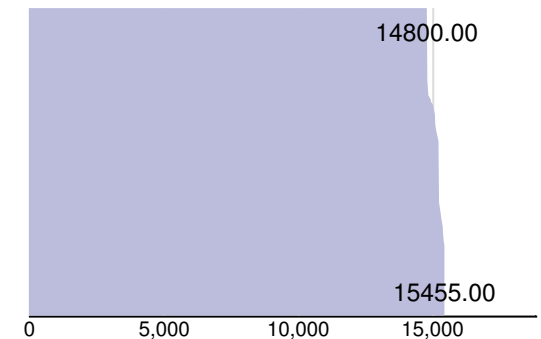
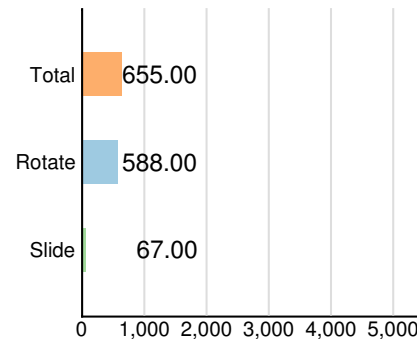
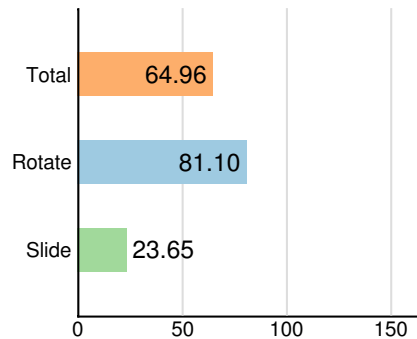


BHA 7

BHA #7 (Lateral)

In: 12/06/2019 08:30

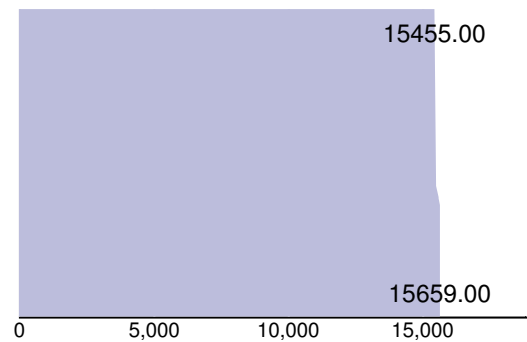
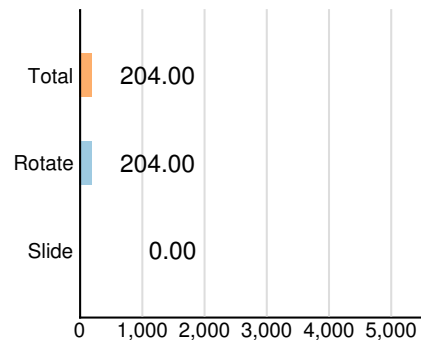
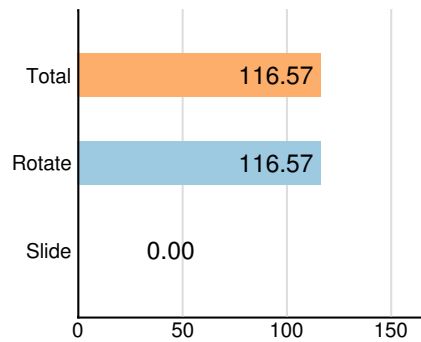
Out: 12/07/2019 13:00



BHA 8

BHA #8

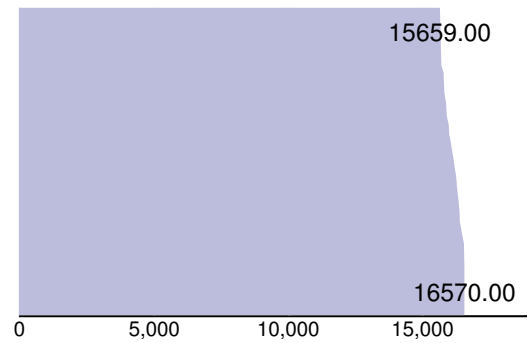
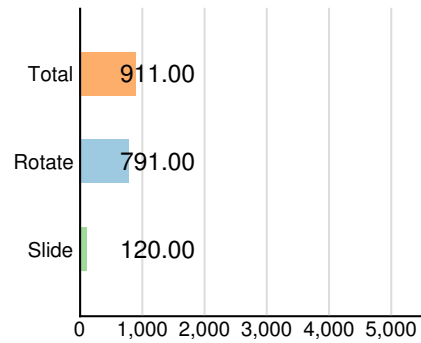
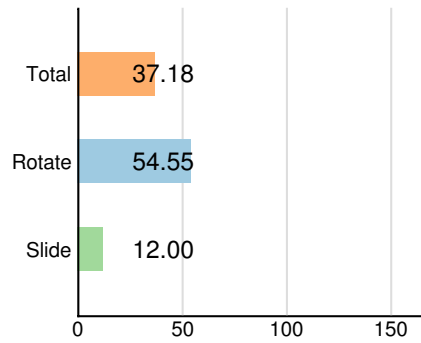
In: 12/07/2019 13:00
Out: 12/08/2019 11:45



BHA 9

BHA #9

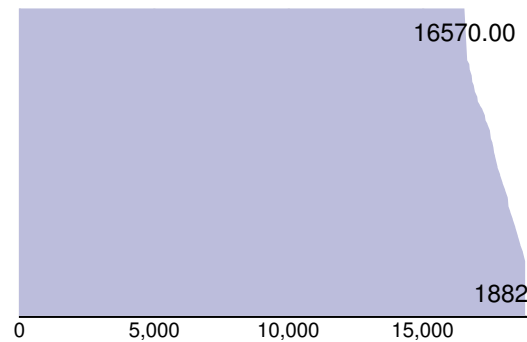
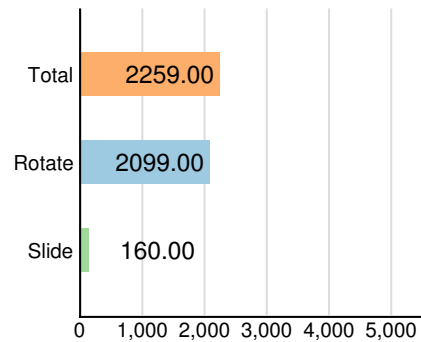
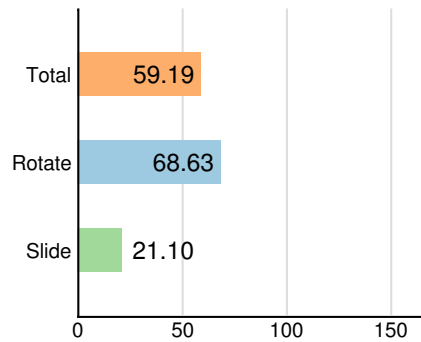
In: 12/08/2019 11:45
Out: 12/10/2019 02:30



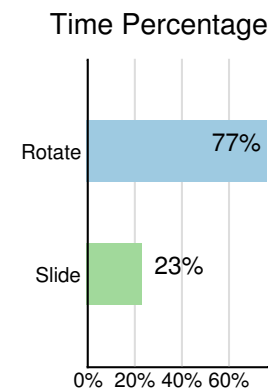
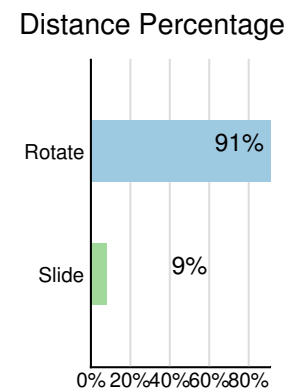
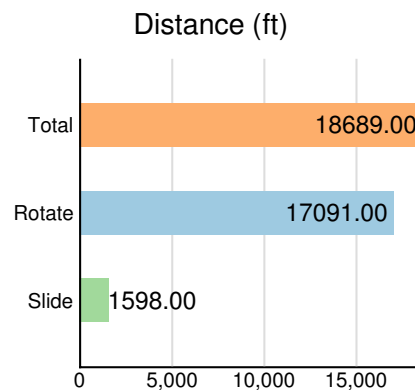
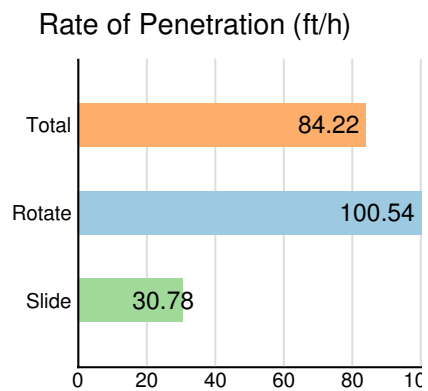
BHA 10

BHA # 10 Lateral

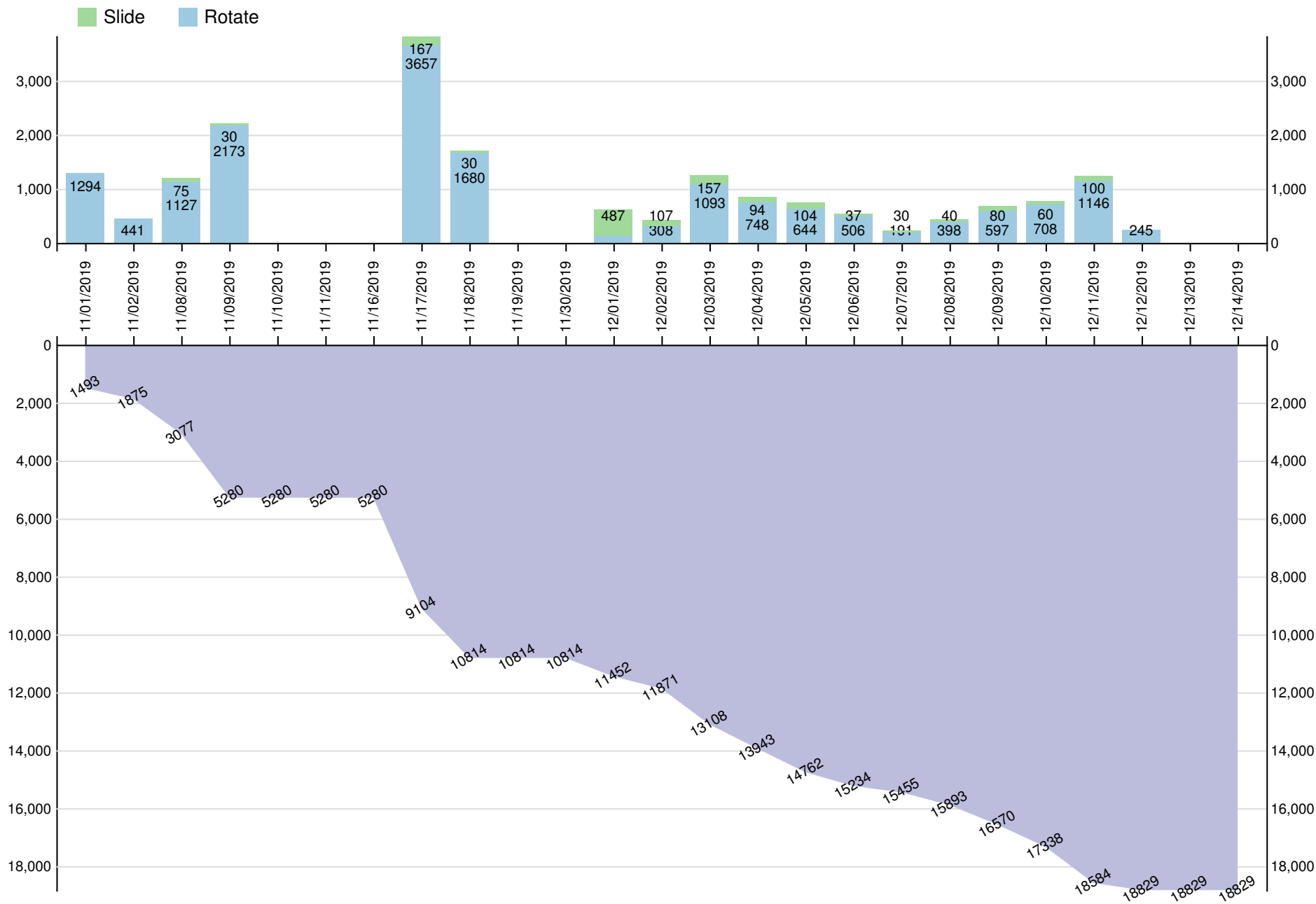
In: 12/10/2019 02:30
Out: 12/12/2019 15:20



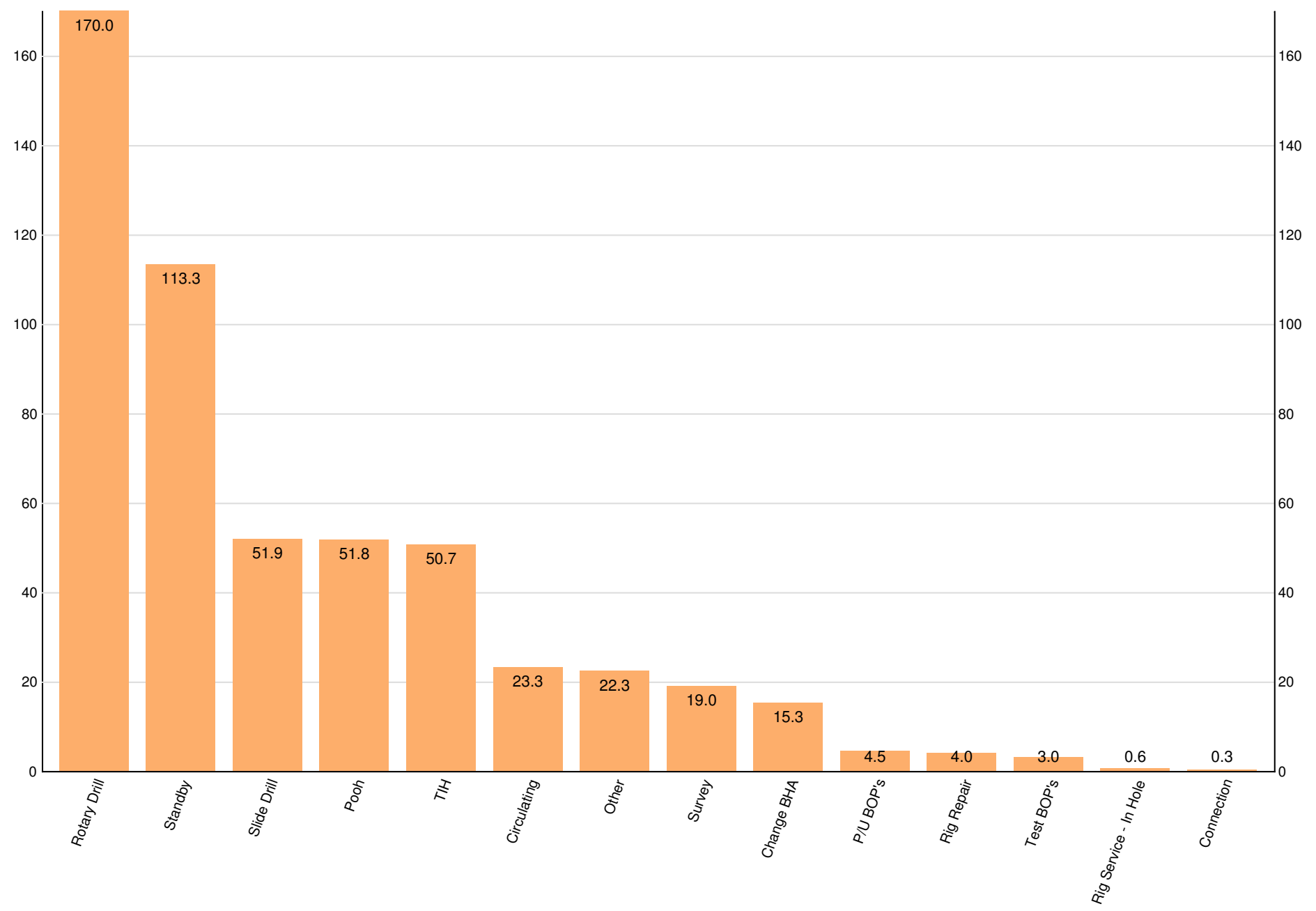
Total



Days vs. Depth



Directional Activity Hours





Proposed vs. As Drilled

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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

SITE DETAILS: Wool Head 20 State Com 553H

Site Centre Northing: 531175.50
Easting: 769794.20

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

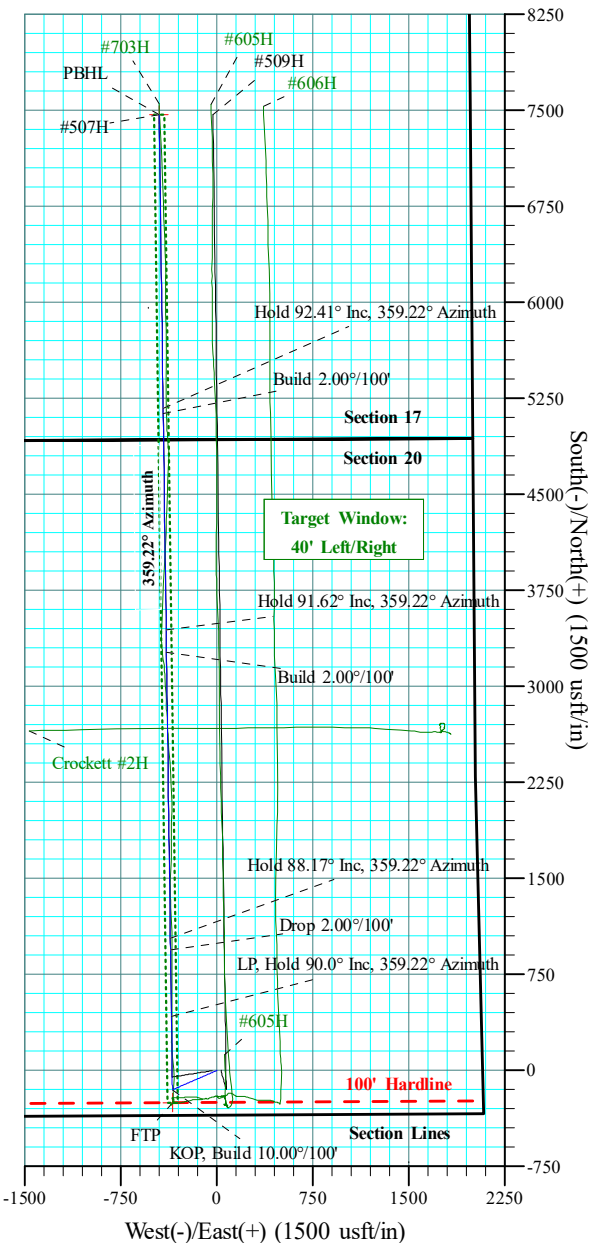
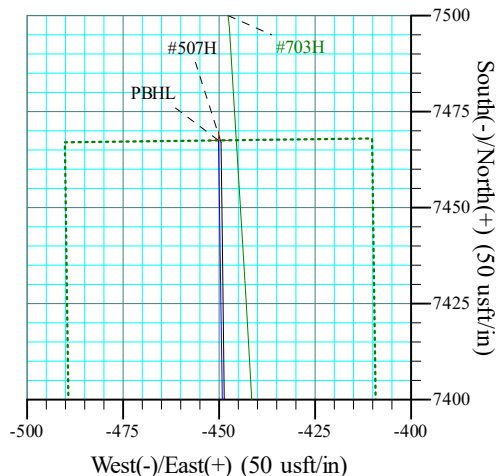
Depth Reference:
3721'GL+26.5'KB @ 3747.50usft (H&P 620)



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.21°

Magnetic Field
Strength: 48075.5nT
Dip Angle: 60.24°
Date: 10/28/2019
Model: MVHD

Magnetic North: 6.21° to Grid North

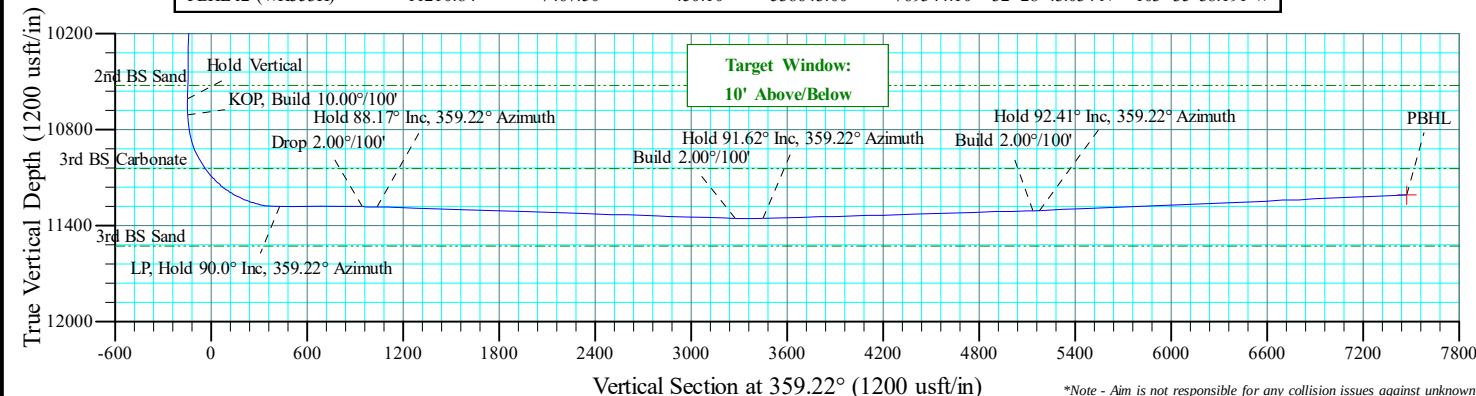


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5799.79	0.00	0.00	5799.79	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	6299.79	5.00	246.56	6299.16	-8.67	-20.00	1.00	246.56	-8.40	Hold 5.0° Inc, 246.56° Azimuth
4	10126.39	5.00	246.56	10111.19	-141.33	-326.00	0.00	0.00	-136.88	Drop 1.00°/100'
5	10626.39	0.00	0.00	10610.56	-150.00	-346.00	1.00	180.00	-145.28	Hold Vertical
6	10726.39	0.00	0.00	10710.56	-150.00	-346.00	0.00	0.00	-145.28	KOP, Build 10.00°/100'
7	11626.39	90.00	359.22	11283.52	422.90	-353.83	10.00	359.22	427.68	LP, Hold 90.0° Inc, 359.22° Azimuth
8	12144.71	90.00	359.22	11283.52	941.17	-360.91	0.00	0.00	946.00	Drop 2.00°/100'
9	12236.18	88.17	359.22	11284.98	1032.63	-362.16	2.00	180.00	1037.46	Hold 88.17° Inc, 359.22° Azimuth
10	14474.87	88.17	359.22	11356.45	3269.96	-392.74	0.00	0.00	3275.00	Build 2.00°/100'
11	14647.24	91.62	359.22	11356.77	3442.29	-395.09	2.00	0.00	3447.35	Hold 91.62° Inc, 359.22° Azimuth
12	16337.57	91.62	359.22	11309.04	5131.78	-418.18	0.00	0.00	5137.00	Build 2.00°/100'
13	16377.36	92.41	359.22	11307.64	5171.55	-418.72	2.00	0.00	5176.77	Hold 92.41° Inc, 359.22° Azimuth
14	18675.56	92.41	359.22	11210.84	7467.50	-450.10	0.00	0.00	7472.94	PBHL

DESIGN TARGET DETAILS

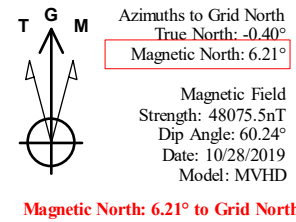
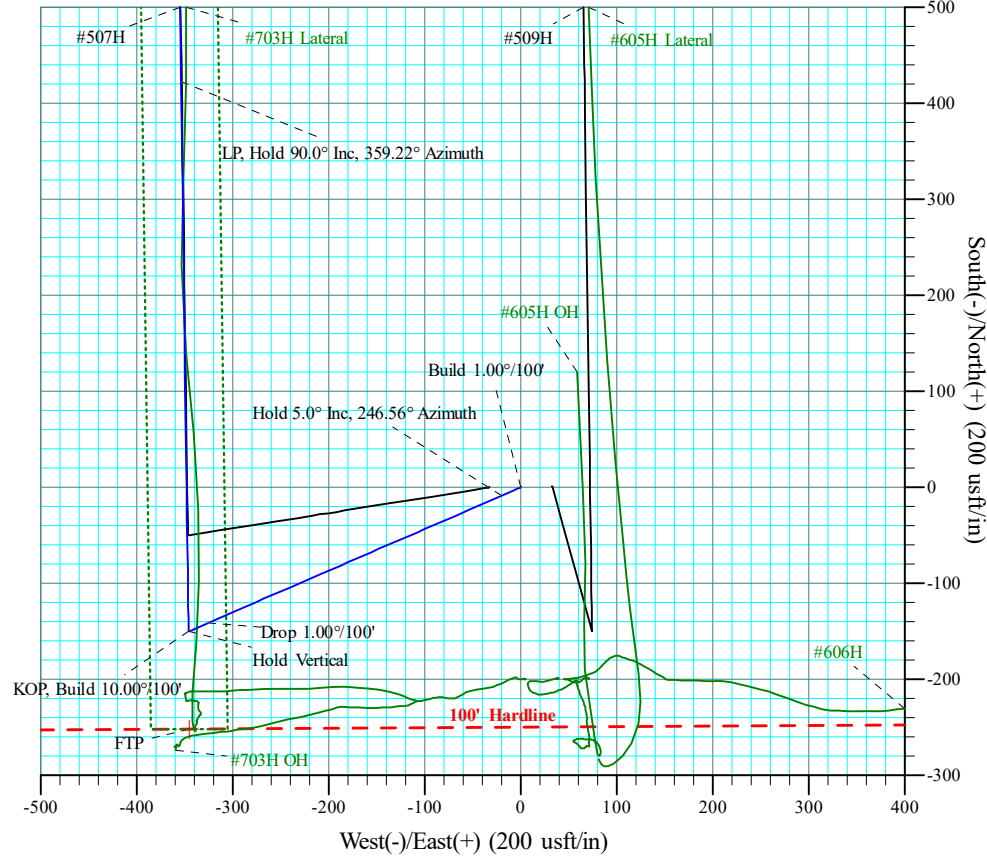
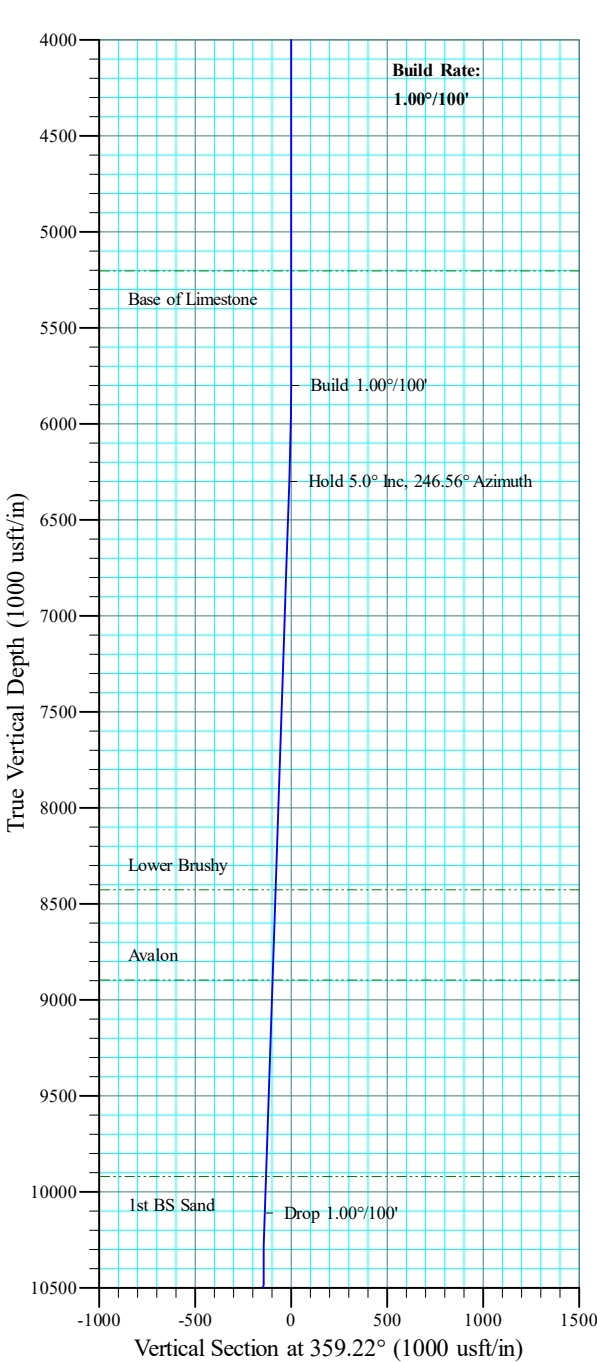
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH553H)	0.00	-251.90	-345.10	530923.60	769449.10	32° 27' 26.644 N	103° 35' 37.590 W
PBHL r2 (WH553H)	11210.84	7467.50	-450.10	538643.00	769344.10	32° 28' 43.034 N	103° 35' 38.191 W



Advance Energy Partners, LLC



Wool Head 20 State Com 553H
Lea County, New Mexico
WT-19-167
H&P 620
Plan 1.0



SLOTS		
Slot Name	+N/-S	+E/-W
507H	-0.10	-32.80
509H	0.30	33.00
553H	0.00	0.00
605H	-199.70	37.90
606H	-199.30	70.90
703H	-200.00	5.00
Crockett 2H	2628.74	1829.79

SITE DETAILS: Wool Head 20 State Com 553H	
Site Centre Northing:	531175.50
Easting:	769794.20
Positional Uncertainty:	0.00
Convergence:	0.40
Local North:	Grid
Depth Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)

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

*Note - Aim is not responsible for collision issues against any unknown offset wells.

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH553H)	0.00	-251.90	-345.10	530923.60	769449.10	32° 27' 26.644 N	103° 35' 37.590 W
PBHL r2 (WH553H)	11210.84	7467.50	-450.10	538643.00	769344.10	32° 28' 43.034 N	103° 35' 38.191 W

File: Advance Energy - Wool Head 20 State Com 553H Plan 1.0 Surface.wpc

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	5799.79	0.00	0.00	5799.79	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	6299.79	5.00	246.56	6299.16	-8.67	-20.00	1.00	246.56	-8.40	Hold 5.0° Inc, 246.56° Azimuth
4	10126.39	5.00	246.56	10111.19	-141.33	-326.00	0.00	0.00	-136.88	Drop 1.00°/100'
5	10626.39	0.00	0.00	10610.56	-150.00	-346.00	1.00	180.00	-145.28	Hold Vertical
6	10726.39	0.00	0.00	10710.56	-150.00	-346.00	0.00	0.00	-145.28	KOP, Build 10.00°/100'
7	11626.39	90.00	359.22	11283.52	422.90	-353.83	10.00	359.22	427.68	LP, Hold 90.0° Inc, 359.22° Azimuth
8	12144.71	90.00	359.22	11283.52	941.17	-360.91	0.00	0.00	946.00	Drop 2.00°/100'
9	12236.18	88.17	359.22	11284.98	1032.63	-362.16	2.00	180.00	1037.46	Hold 88.17° Inc, 359.22° Azimuth
10	14474.87	88.17	359.22	11356.45	3269.96	-392.74	0.00	0.00	3275.00	Build 2.00°/100'
11	14647.24	91.62	359.22	11356.77	3442.29	-395.09	2.00	0.00	3447.35	Hold 91.62° Inc, 359.22° Azimuth
12	16337.57	91.62	359.22	11309.04	5131.78	-418.18	0.00	0.00	5137.00	Build 2.00°/100'
13	16377.36	92.41	359.22	11307.64	5171.55	-418.72	2.00	0.00	5176.77	Hold 92.41° Inc, 359.22° Azimuth
14	18675.56	92.41	359.22	11210.84	7467.50	-450.10	0.00	0.00	7472.94	PBHL

Drawn By: IG

Date Created: 10/19/2019

Date Revised: 10/28/2019

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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 553H			
Site Position:		Northing:	531,175.50 usft	Latitude:	32° 27' 29.113 N
From:	Map	Easting:	769,794.20 usft	Longitude:	103° 35' 33.542 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#553H - Slot 553H					
Well Position	+N/-S	0.00 usft	Northing:	531,175.50 usft	Latitude:	32° 27' 29.113 N
	+E/-W	0.00 usft	Easting:	769,794.20 usft	Longitude:	103° 35' 33.542 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,721.00 usft

Wellbore	Lateral 1r3				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	10/28/2019	6.61	60.24	48,075.50012267

Design	Plan 1.0				
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	10/28/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	18,675.56	Plan 1.0 (Lateral 1r3)	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 (WH553H)									
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

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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
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
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	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 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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)
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
Base of Limestone									
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
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,799.79	0.00	0.00	5,799.79	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.00°/100'									
5,900.00	1.00	246.56	5,900.00	-0.35	-0.80	-0.34	1.00	1.00	0.00
6,000.00	2.00	246.56	5,999.96	-1.39	-3.21	-1.35	1.00	1.00	0.00
6,100.00	3.00	246.56	6,099.86	-3.13	-7.21	-3.03	1.00	1.00	0.00
6,200.00	4.00	246.56	6,199.67	-5.56	-12.82	-5.38	1.00	1.00	0.00
6,299.79	5.00	246.56	6,299.16	-8.67	-20.00	-8.40	1.00	1.00	0.00
Hold 5.0° Inc, 246.56° Azimuth									
6,400.00	5.00	246.56	6,398.98	-12.15	-28.02	-11.76	0.00	0.00	0.00
6,500.00	5.00	246.56	6,498.60	-15.61	-36.01	-15.12	0.00	0.00	0.00
6,600.00	5.00	246.56	6,598.22	-19.08	-44.01	-18.48	0.00	0.00	0.00
6,700.00	5.00	246.56	6,697.84	-22.55	-52.01	-21.84	0.00	0.00	0.00
6,800.00	5.00	246.56	6,797.46	-26.01	-60.00	-25.19	0.00	0.00	0.00
6,900.00	5.00	246.56	6,897.08	-29.48	-68.00	-28.55	0.00	0.00	0.00
7,000.00	5.00	246.56	6,996.70	-32.95	-76.00	-31.91	0.00	0.00	0.00
7,100.00	5.00	246.56	7,096.32	-36.41	-83.99	-35.27	0.00	0.00	0.00
7,200.00	5.00	246.56	7,195.94	-39.88	-91.99	-38.62	0.00	0.00	0.00
7,300.00	5.00	246.56	7,295.56	-43.35	-99.98	-41.98	0.00	0.00	0.00
7,400.00	5.00	246.56	7,395.18	-46.81	-107.98	-45.34	0.00	0.00	0.00
7,500.00	5.00	246.56	7,494.80	-50.28	-115.98	-48.70	0.00	0.00	0.00
7,600.00	5.00	246.56	7,594.42	-53.75	-123.97	-52.05	0.00	0.00	0.00
7,700.00	5.00	246.56	7,694.04	-57.21	-131.97	-55.41	0.00	0.00	0.00
7,800.00	5.00	246.56	7,793.66	-60.68	-139.97	-58.77	0.00	0.00	0.00
7,900.00	5.00	246.56	7,893.28	-64.15	-147.96	-62.13	0.00	0.00	0.00
8,000.00	5.00	246.56	7,992.90	-67.61	-155.96	-65.48	0.00	0.00	0.00
8,100.00	5.00	246.56	8,092.52	-71.08	-163.96	-68.84	0.00	0.00	0.00
8,200.00	5.00	246.56	8,192.13	-74.55	-171.95	-72.20	0.00	0.00	0.00
8,300.00	5.00	246.56	8,291.75	-78.01	-179.95	-75.56	0.00	0.00	0.00
8,400.00	5.00	246.56	8,391.37	-81.48	-187.95	-78.91	0.00	0.00	0.00
8,433.75	5.00	246.56	8,425.00	-82.65	-190.65	-80.05	0.00	0.00	0.00
Lower Brushy									
8,500.00	5.00	246.56	8,490.99	-84.95	-195.94	-82.27	0.00	0.00	0.00
8,600.00	5.00	246.56	8,590.61	-88.41	-203.94	-85.63	0.00	0.00	0.00
8,700.00	5.00	246.56	8,690.23	-91.88	-211.94	-88.99	0.00	0.00	0.00
8,800.00	5.00	246.56	8,789.85	-95.35	-219.93	-92.34	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 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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)
8,900.00	5.00	246.56	8,889.47	-98.81	-227.93	-95.70	0.00	0.00	0.00
8,905.55	5.00	246.56	8,895.00	-99.01	-228.37	-95.89	0.00	0.00	0.00
Avalon									
9,000.00	5.00	246.56	8,989.09	-102.28	-235.92	-99.06	0.00	0.00	0.00
9,100.00	5.00	246.56	9,088.71	-105.75	-243.92	-102.42	0.00	0.00	0.00
9,200.00	5.00	246.56	9,188.33	-109.21	-251.92	-105.77	0.00	0.00	0.00
9,300.00	5.00	246.56	9,287.95	-112.68	-259.91	-109.13	0.00	0.00	0.00
9,400.00	5.00	246.56	9,387.57	-116.15	-267.91	-112.49	0.00	0.00	0.00
9,500.00	5.00	246.56	9,487.19	-119.61	-275.91	-115.85	0.00	0.00	0.00
9,600.00	5.00	246.56	9,586.81	-123.08	-283.90	-119.20	0.00	0.00	0.00
9,700.00	5.00	246.56	9,686.43	-126.55	-291.90	-122.56	0.00	0.00	0.00
9,800.00	5.00	246.56	9,786.05	-130.01	-299.90	-125.92	0.00	0.00	0.00
9,900.00	5.00	246.56	9,885.67	-133.48	-307.89	-129.28	0.00	0.00	0.00
9,932.46	5.00	246.56	9,918.00	-134.60	-310.49	-130.37	0.00	0.00	0.00
1st BS Sand									
10,000.00	5.00	246.56	9,985.29	-136.95	-315.89	-132.63	0.00	0.00	0.00
10,100.00	5.00	246.56	10,084.90	-140.41	-323.89	-135.99	0.00	0.00	0.00
10,126.39	5.00	246.56	10,111.19	-141.33	-326.00	-136.88	0.00	0.00	0.00
Drop 1.00°/100'									
10,200.00	4.26	246.56	10,184.56	-143.69	-331.45	-139.17	1.00	-1.00	0.00
10,300.00	3.26	246.56	10,284.35	-146.30	-337.47	-141.70	1.00	-1.00	0.00
10,400.00	2.26	246.56	10,384.23	-148.22	-341.90	-143.55	1.00	-1.00	0.00
10,500.00	1.26	246.56	10,484.18	-149.45	-344.72	-144.74	1.00	-1.00	0.00
10,539.83	0.87	246.56	10,524.00	-149.74	-345.40	-145.02	1.00	-1.00	0.00
2nd BS Sand									
10,600.00	0.26	246.56	10,584.17	-149.98	-345.94	-145.25	1.00	-1.00	0.00
10,626.39	0.00	0.00	10,610.56	-150.00	-346.00	-145.28	1.00	-1.00	0.00
Hold Vertical									
10,700.00	0.00	0.00	10,684.17	-150.00	-346.00	-145.28	0.00	0.00	0.00
10,726.39	0.00	0.00	10,710.56	-150.00	-346.00	-145.28	0.00	0.00	0.00
KOP, Build 10.00°/100'									
10,750.00	2.36	359.22	10,734.16	-149.51	-346.01	-144.79	10.00	10.00	0.00
10,800.00	7.36	359.22	10,783.97	-145.28	-346.06	-140.55	10.00	10.00	0.00
10,850.00	12.36	359.22	10,833.21	-136.72	-346.18	-131.99	10.00	10.00	0.00
10,900.00	17.36	359.22	10,881.53	-123.90	-346.36	-119.17	10.00	10.00	0.00
10,950.00	22.36	359.22	10,928.54	-106.92	-346.59	-102.19	10.00	10.00	0.00
11,000.00	27.36	359.22	10,973.89	-85.91	-346.88	-81.18	10.00	10.00	0.00
11,050.00	32.36	359.22	11,017.24	-61.02	-347.22	-56.29	10.00	10.00	0.00
11,083.51	35.71	359.22	11,045.00	-42.27	-347.47	-37.54	10.00	10.00	0.00
3rd BS Carbonate									
11,100.00	37.36	359.22	11,058.25	-32.46	-347.61	-27.72	10.00	10.00	0.00
11,150.00	42.36	359.22	11,096.62	-0.42	-348.04	4.32	10.00	10.00	0.00
11,200.00	47.36	359.22	11,132.05	34.83	-348.53	39.57	10.00	10.00	0.00
11,250.00	52.36	359.22	11,164.27	73.04	-349.05	77.79	10.00	10.00	0.00
11,300.00	57.36	359.22	11,193.04	113.91	-349.61	118.66	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 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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)
11,350.00	62.36	359.22	11,218.14	157.13	-350.20	161.89	10.00	10.00	0.00
11,400.00	67.36	359.22	11,239.37	202.38	-350.82	207.14	10.00	10.00	0.00
11,450.00	72.36	359.22	11,256.58	249.30	-351.46	254.06	10.00	10.00	0.00
11,500.00	77.36	359.22	11,269.63	297.55	-352.12	302.31	10.00	10.00	0.00
11,550.00	82.36	359.22	11,278.43	346.75	-352.79	351.52	10.00	10.00	0.00
11,600.00	87.36	359.22	11,282.91	396.53	-353.47	401.30	10.00	10.00	0.00
11,626.39	90.00	359.22	11,283.52	422.90	-353.83	427.68	10.00	10.00	0.00
LP, Hold 90.0° Inc, 359.22° Azimuth									
11,700.00	90.00	359.22	11,283.52	496.51	-354.84	501.29	0.00	0.00	0.00
11,800.00	90.00	359.22	11,283.52	596.50	-356.20	601.29	0.00	0.00	0.00
11,900.00	90.00	359.22	11,283.52	696.49	-357.57	701.29	0.00	0.00	0.00
12,000.00	90.00	359.22	11,283.52	796.48	-358.93	801.29	0.00	0.00	0.00
12,100.00	90.00	359.22	11,283.52	896.47	-360.30	901.29	0.00	0.00	0.00
12,144.71	90.00	359.22	11,283.52	941.17	-360.91	946.00	0.00	0.00	0.00
Drop 2.00°/100'									
12,200.00	88.89	359.22	11,284.05	996.46	-361.67	1,001.29	2.00	-2.00	0.00
12,236.18	88.17	359.22	11,284.98	1,032.63	-362.16	1,037.46	2.00	-2.00	0.00
Hold 88.17° Inc, 359.22° Azimuth									
12,300.00	88.17	359.22	11,287.02	1,096.40	-363.03	1,101.24	0.00	0.00	0.00
12,400.00	88.17	359.22	11,290.21	1,196.34	-364.40	1,201.19	0.00	0.00	0.00
12,500.00	88.17	359.22	11,293.40	1,296.28	-365.76	1,301.14	0.00	0.00	0.00
12,600.00	88.17	359.22	11,296.59	1,396.22	-367.13	1,401.09	0.00	0.00	0.00
12,700.00	88.17	359.22	11,299.79	1,496.16	-368.50	1,501.04	0.00	0.00	0.00
12,800.00	88.17	359.22	11,302.98	1,596.10	-369.86	1,600.99	0.00	0.00	0.00
12,900.00	88.17	359.22	11,306.17	1,696.04	-371.23	1,700.94	0.00	0.00	0.00
13,000.00	88.17	359.22	11,309.36	1,795.98	-372.59	1,800.89	0.00	0.00	0.00
13,100.00	88.17	359.22	11,312.56	1,895.92	-373.96	1,900.84	0.00	0.00	0.00
13,200.00	88.17	359.22	11,315.75	1,995.86	-375.33	2,000.78	0.00	0.00	0.00
13,300.00	88.17	359.22	11,318.94	2,095.80	-376.69	2,100.73	0.00	0.00	0.00
13,400.00	88.17	359.22	11,322.13	2,195.74	-378.06	2,200.68	0.00	0.00	0.00
13,500.00	88.17	359.22	11,325.33	2,295.68	-379.42	2,300.63	0.00	0.00	0.00
13,600.00	88.17	359.22	11,328.52	2,395.62	-380.79	2,400.58	0.00	0.00	0.00
13,700.00	88.17	359.22	11,331.71	2,495.56	-382.15	2,500.53	0.00	0.00	0.00
13,800.00	88.17	359.22	11,334.90	2,595.50	-383.52	2,600.48	0.00	0.00	0.00
13,900.00	88.17	359.22	11,338.10	2,695.44	-384.89	2,700.43	0.00	0.00	0.00
14,000.00	88.17	359.22	11,341.29	2,795.38	-386.25	2,800.38	0.00	0.00	0.00
14,100.00	88.17	359.22	11,344.48	2,895.32	-387.62	2,900.33	0.00	0.00	0.00
14,200.00	88.17	359.22	11,347.67	2,995.26	-388.98	3,000.28	0.00	0.00	0.00
14,300.00	88.17	359.22	11,350.87	3,095.20	-390.35	3,100.22	0.00	0.00	0.00
14,400.00	88.17	359.22	11,354.06	3,195.14	-391.71	3,200.17	0.00	0.00	0.00
14,474.87	88.17	359.22	11,356.45	3,269.96	-392.74	3,275.00	0.00	0.00	0.00
Build 2.00°/100'									
14,500.00	88.67	359.22	11,357.14	3,295.08	-393.08	3,300.13	2.00	2.00	0.00
14,600.00	90.67	359.22	11,357.71	3,395.06	-394.45	3,400.12	2.00	2.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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)
14,647.24	91.62	359.22	11,356.77	3,442.29	-395.09	3,447.35	2.00	2.00	0.00
Hold 91.62° Inc, 359.22° Azimuth									
14,700.00	91.62	359.22	11,355.28	3,495.02	-395.81	3,500.09	0.00	0.00	0.00
14,800.00	91.62	359.22	11,352.45	3,594.97	-397.18	3,600.05	0.00	0.00	0.00
14,900.00	91.62	359.22	11,349.63	3,694.92	-398.54	3,700.01	0.00	0.00	0.00
15,000.00	91.62	359.22	11,346.81	3,794.88	-399.91	3,799.97	0.00	0.00	0.00
15,100.00	91.62	359.22	11,343.98	3,894.83	-401.28	3,899.93	0.00	0.00	0.00
15,200.00	91.62	359.22	11,341.16	3,994.78	-402.64	3,999.89	0.00	0.00	0.00
15,300.00	91.62	359.22	11,338.34	4,094.73	-404.01	4,099.85	0.00	0.00	0.00
15,400.00	91.62	359.22	11,335.51	4,194.68	-405.37	4,199.81	0.00	0.00	0.00
15,500.00	91.62	359.22	11,332.69	4,294.63	-406.74	4,299.77	0.00	0.00	0.00
15,600.00	91.62	359.22	11,329.87	4,394.58	-408.11	4,399.73	0.00	0.00	0.00
15,700.00	91.62	359.22	11,327.04	4,494.53	-409.47	4,499.69	0.00	0.00	0.00
15,800.00	91.62	359.22	11,324.22	4,594.48	-410.84	4,599.65	0.00	0.00	0.00
15,900.00	91.62	359.22	11,321.39	4,694.43	-412.20	4,699.61	0.00	0.00	0.00
16,000.00	91.62	359.22	11,318.57	4,794.38	-413.57	4,799.57	0.00	0.00	0.00
16,100.00	91.62	359.22	11,315.75	4,894.33	-414.94	4,899.53	0.00	0.00	0.00
16,200.00	91.62	359.22	11,312.92	4,994.29	-416.30	4,999.49	0.00	0.00	0.00
16,300.00	91.62	359.22	11,310.10	5,094.24	-417.67	5,099.45	0.00	0.00	0.00
16,337.57	91.62	359.22	11,309.04	5,131.78	-418.18	5,137.00	0.00	0.00	0.00
Build 2.00°/100'									
16,377.37	92.41	359.22	11,307.64	5,171.55	-418.72	5,176.77	2.00	2.00	0.00
Hold 92.41° Inc, 359.22° Azimuth									
16,400.00	92.41	359.22	11,306.69	5,194.17	-419.03	5,199.39	0.00	0.00	0.00
16,500.00	92.41	359.22	11,302.47	5,294.07	-420.40	5,299.30	0.00	0.00	0.00
16,600.00	92.41	359.22	11,298.26	5,393.97	-421.76	5,399.21	0.00	0.00	0.00
16,700.00	92.41	359.22	11,294.05	5,493.87	-423.13	5,499.12	0.00	0.00	0.00
16,800.00	92.41	359.22	11,289.84	5,593.77	-424.49	5,599.03	0.00	0.00	0.00
16,900.00	92.41	359.22	11,285.63	5,693.68	-425.86	5,698.95	0.00	0.00	0.00
17,000.00	92.41	359.22	11,281.41	5,793.58	-427.22	5,798.86	0.00	0.00	0.00
17,100.00	92.41	359.22	11,277.20	5,893.48	-428.59	5,898.77	0.00	0.00	0.00
17,200.00	92.41	359.22	11,272.99	5,993.38	-429.95	5,998.68	0.00	0.00	0.00
17,300.00	92.41	359.22	11,268.78	6,093.28	-431.32	6,098.59	0.00	0.00	0.00
17,400.00	92.41	359.22	11,264.57	6,193.19	-432.69	6,198.50	0.00	0.00	0.00
17,500.00	92.41	359.22	11,260.35	6,293.09	-434.05	6,298.41	0.00	0.00	0.00
17,600.00	92.41	359.22	11,256.14	6,392.99	-435.42	6,398.32	0.00	0.00	0.00
17,700.00	92.41	359.22	11,251.93	6,492.89	-436.78	6,498.24	0.00	0.00	0.00
17,800.00	92.41	359.22	11,247.72	6,592.79	-438.15	6,598.15	0.00	0.00	0.00
17,900.00	92.41	359.22	11,243.51	6,692.70	-439.51	6,698.06	0.00	0.00	0.00
18,000.00	92.41	359.22	11,239.29	6,792.60	-440.88	6,797.97	0.00	0.00	0.00
18,100.00	92.41	359.22	11,235.08	6,892.50	-442.24	6,897.88	0.00	0.00	0.00
18,200.00	92.41	359.22	11,230.87	6,992.40	-443.61	6,997.79	0.00	0.00	0.00
18,300.00	92.41	359.22	11,226.66	7,092.30	-444.97	7,097.70	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 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	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)
18,400.00	92.41	359.22	11,222.45	7,192.21	-446.34	7,197.62	0.00	0.00	0.00
18,500.00	92.41	359.22	11,218.23	7,292.11	-447.70	7,297.53	0.00	0.00	0.00
18,600.00	92.41	359.22	11,214.02	7,392.01	-449.07	7,397.44	0.00	0.00	0.00
18,675.57	92.41	359.22	11,210.84	7,467.50	-450.10	7,472.94	0.00	0.00	0.00
PBHL - PBHL r2 (WH553H)									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (WH553H) - plan misses target center by 427.26usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-251.90	-345.10	530,923.60	769,449.10	32° 27' 26.644 N	103° 35' 37.590 W
PBHL r2 (WH553H) - plan hits target center - Point	0.00	0.00	11,210.84	7,467.50	-450.10	538,643.00	769,344.10	32° 28' 43.034 N	103° 35' 38.191 W

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	Base of Limestone		0.00	
8,433.75	8,425.00	Lower Brushy		0.00	
8,905.55	8,895.00	Avalon		0.00	
9,932.46	9,918.00	1st BS Sand		0.00	
10,539.83	10,524.00	2nd BS Sand		0.00	
11,083.51	11,045.00	3rd BS Carbonate		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5800	5800	0	0	Build 1.00°/100'
6300	6299	-9	-20	Hold 5.0° Inc, 246.56° Azimuth
10,126	10,111	-141	-326	Drop 1.00°/100'
10,626	10,611	-150	-346	Hold Vertical
10,726	10,711	-150	-346	KOP, Build 10.00°/100'
11,626	11,284	423	-354	LP, Hold 90.0° Inc, 359.22° Azimuth
12,145	11,284	941	-361	Drop 2.00°/100'
12,236	11,285	1033	-362	Hold 88.17° Inc, 359.22° Azimuth
14,475	11,356	3270	-393	Build 2.00°/100'
14,647	11,357	3442	-395	Hold 91.62° Inc, 359.22° Azimuth
16,338	11,309	5132	-418	Build 2.00°/100'
16,377	11,308	5172	-419	Hold 92.41° Inc, 359.22° Azimuth
18,676	11,211	7467	-450	PBHL



Advance Energy Partners, LLC

Wool Head 20 State Com 553H

Lea County, New Mexico

WT-19-167

H&P 620

Plan 1.0 Final PVA



SITE DETAILS: Wool Head 20 State Com 553H

Site Centre Northing: 531175.50
Easting: 769794.20

Positional Uncertainty: 0.00
Convergence: 0.40
Local North: Grid

Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.21°



Magnetic Field
Strength: 48075.5nT
Dip Angle: 60.24°
Date: 10/28/2019
Model: MVHD

Magnetic North: 6.21° to Grid North

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

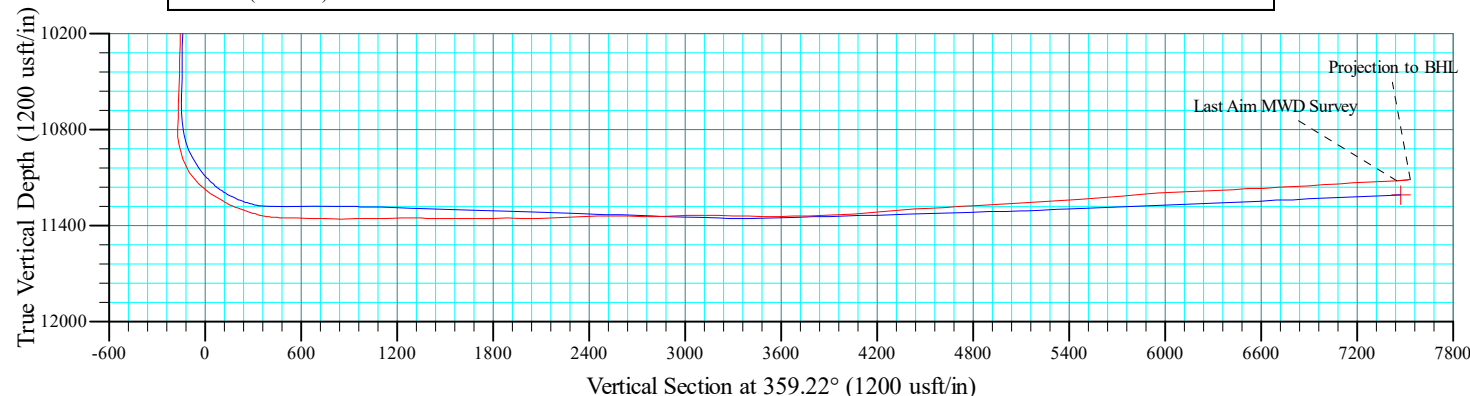
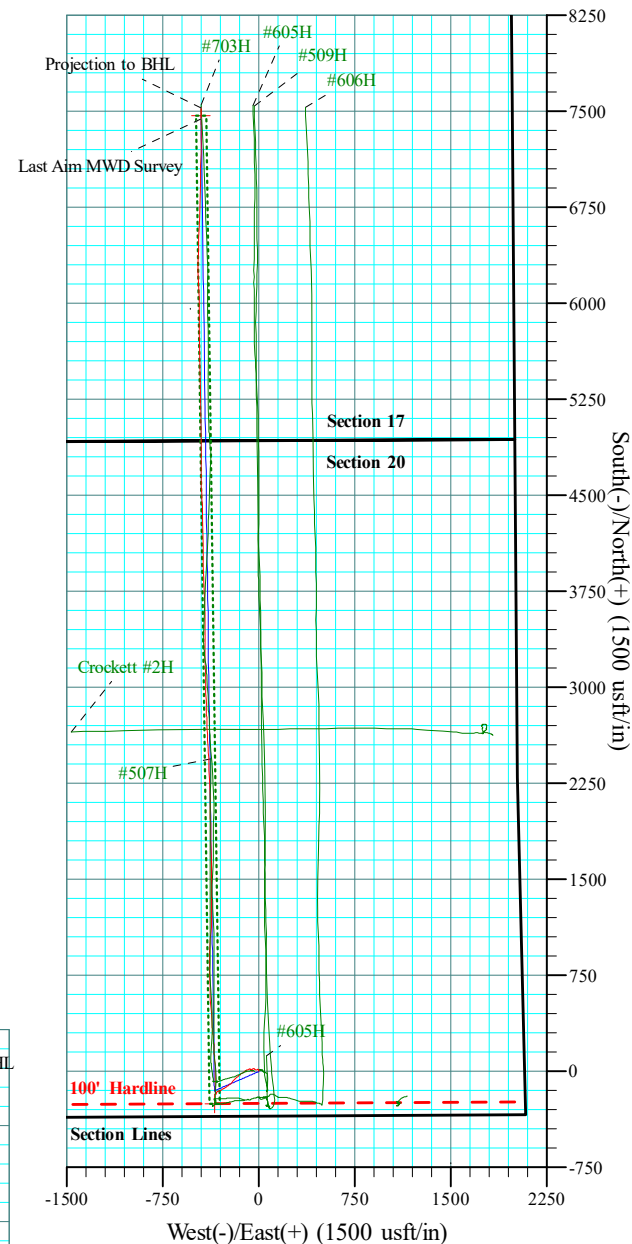
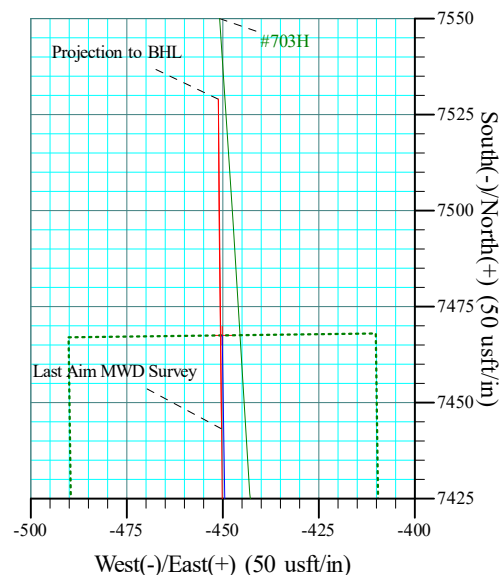
Depth Reference:
3721'GL+26.5'KB @ 3747.50usft (H&P 620)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	18743.00	93.46	359.44	11119.32	7443.12	-450.31	0.00	0.00	7448.56	Last Aim MWD Survey
2	18829.00	93.46	359.44	11114.13	7528.96	-451.14	0.00	0.00	7534.40	Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH553H)	0.00	-251.90	-345.10	530923.60	769449.10	32° 27' 26.644 N	103° 35' 37.590 W
PBHL r2 (WH553H)	11210.84	7467.50	-450.10	538643.00	769344.10	32° 28' 43.034 N	103° 35' 38.191 W





Survey Reports

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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 553H			
Site Position:		Northing:	531,175.50 usft	Latitude:	32° 27' 29.113 N
From:	Map	Easting:	769,794.20 usft	Longitude:	103° 35' 33.542 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#553H - Slot 553H					
Well Position	+N/-S	0.00 usft	Northing:	531,175.50 usft	Latitude:	32° 27' 29.113 N
	+E/-W	0.00 usft	Easting:	769,794.20 usft	Longitude:	103° 35' 33.542 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	11/1/2019	6.61	60.24	48,074.30257625

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	12/12/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
200.00	18,829.00	Aim MWD Survey (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
200.00	0.92	0.41	199.99	1.61	0.01	1.61	0.46	0.46	0.00
First Aim MWD Survey									
327.00	1.01	2.87	326.97	3.74	0.07	3.74	0.08	0.07	1.94
407.00	1.10	352.94	406.96	5.21	0.02	5.21	0.25	0.11	-12.41
501.00	1.01	344.50	500.94	6.90	-0.32	6.91	0.19	-0.10	-8.98
690.00	1.41	347.31	689.90	10.78	-1.27	10.79	0.21	0.21	1.49
783.00	1.01	340.90	782.88	12.67	-1.79	12.69	0.45	-0.43	-6.89
875.00	0.84	331.05	874.87	14.02	-2.38	14.06	0.25	-0.18	-10.71
967.00	0.84	351.09	966.86	15.28	-2.81	15.32	0.32	0.00	21.78
1,058.00	0.70	357.77	1,057.85	16.49	-2.94	16.53	0.18	-0.15	7.34

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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)
1,150.00	0.35	357.33	1,149.85	17.34	-2.97	17.38	0.38	-0.38	-0.48
1,242.00	0.53	271.99	1,241.84	17.63	-3.41	17.68	0.66	0.20	-92.76
1,336.00	1.19	255.12	1,335.83	17.40	-4.79	17.46	0.74	0.70	-17.95
1,430.00	1.76	242.37	1,429.80	16.48	-7.01	16.57	0.70	0.61	-13.56
1,524.00	1.89	241.93	1,523.75	15.08	-9.66	15.21	0.14	0.14	-0.47
1,619.00	1.98	247.91	1,618.70	13.72	-12.56	13.89	0.23	0.09	6.29
1,713.00	1.98	254.06	1,712.64	12.67	-15.63	12.88	0.23	0.00	6.54
1,807.00	2.55	274.54	1,806.57	12.39	-19.27	12.65	1.04	0.61	21.79
1,970.00	4.40	311.98	1,969.28	16.86	-27.54	17.23	1.74	1.13	22.97
2,064.00	2.86	303.28	2,063.09	20.56	-32.18	20.99	1.74	-1.64	-9.26
2,158.00	2.24	293.44	2,157.00	22.57	-35.83	23.06	0.81	-0.66	-10.47
2,253.00	2.02	279.02	2,251.94	23.57	-39.18	24.11	0.61	-0.23	-15.18
2,347.00	1.98	263.64	2,345.88	23.65	-42.43	24.23	0.57	-0.04	-16.36
2,441.00	1.98	239.65	2,439.82	22.65	-45.45	23.27	0.88	0.00	-25.52
2,536.00	2.37	224.88	2,534.76	20.43	-48.25	21.09	0.72	0.41	-15.55
2,630.00	2.20	222.07	2,628.68	17.72	-50.83	18.41	0.22	-0.18	-2.99
2,724.00	1.76	218.20	2,722.63	15.24	-52.93	15.96	0.49	-0.47	-4.12
2,818.00	1.45	216.80	2,816.59	13.16	-54.54	13.90	0.33	-0.33	-1.49
2,913.00	0.97	197.55	2,911.57	11.43	-55.50	12.18	0.66	-0.51	-20.26
3,007.00	0.70	145.43	3,005.56	10.19	-55.41	10.95	0.82	-0.29	-55.45
3,101.00	0.92	124.07	3,099.55	9.30	-54.46	10.04	0.39	0.23	-22.72
3,195.00	1.10	104.91	3,193.54	8.64	-52.97	9.36	0.40	0.19	-20.38
3,289.00	1.27	94.45	3,287.52	8.33	-51.06	9.03	0.29	0.18	-11.13
3,383.00	1.63	81.97	3,381.49	8.44	-48.69	9.10	0.51	0.38	-13.28
3,478.00	0.66	105.17	3,476.47	8.48	-46.83	9.12	1.11	-1.02	24.42
3,573.00	0.70	191.92	3,571.46	7.77	-46.42	8.40	0.98	0.04	91.32
3,667.00	0.66	198.34	3,665.45	6.70	-46.71	7.33	0.09	-0.04	6.83
3,761.00	0.84	208.01	3,759.45	5.57	-47.20	6.22	0.23	0.19	10.29
3,856.00	0.75	194.12	3,854.44	4.36	-47.68	5.00	0.22	-0.09	-14.62
3,951.00	0.48	196.58	3,949.43	3.37	-47.95	4.02	0.29	-0.28	2.59
4,045.00	0.57	241.14	4,043.43	2.77	-48.47	3.43	0.43	0.10	47.40
4,139.00	0.62	280.78	4,137.42	2.64	-49.38	3.31	0.43	0.05	42.17
4,234.00	0.70	284.30	4,232.42	2.88	-50.44	3.56	0.09	0.08	3.71
4,328.00	0.70	291.33	4,326.41	3.23	-51.54	3.93	0.09	0.00	7.48
4,422.00	0.97	297.22	4,420.40	3.80	-52.78	4.52	0.30	0.29	6.27
4,517.00	1.14	314.27	4,515.38	4.83	-54.17	5.57	0.37	0.18	17.95
4,611.00	1.01	315.15	4,609.37	6.07	-55.42	6.82	0.14	-0.14	0.94
4,706.00	1.14	321.65	4,704.35	7.40	-56.60	8.17	0.19	0.14	6.84
4,801.00	1.19	319.28	4,799.33	8.89	-57.83	9.68	0.07	0.05	-2.49
4,895.00	1.32	321.03	4,893.31	10.47	-59.15	11.28	0.14	0.14	1.86
4,990.00	1.36	320.68	4,988.28	12.20	-60.55	13.02	0.04	0.04	-0.37
5,084.00	1.54	324.99	5,082.25	14.09	-61.98	14.94	0.22	0.19	4.59
5,179.00	1.49	329.56	5,177.22	16.20	-63.34	17.07	0.14	-0.05	4.81

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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)
5,210.00	1.32	325.96	5,208.21	16.85	-63.74	17.71	0.62	-0.55	-11.61
5,374.00	1.36	317.87	5,372.17	19.86	-66.11	20.75	0.12	0.02	-4.93
5,468.00	1.49	319.01	5,466.14	21.61	-67.66	22.53	0.14	0.14	1.21
5,562.00	2.07	260.74	5,560.10	22.26	-70.14	23.21	1.92	0.62	-61.99
5,657.00	2.95	243.16	5,655.01	20.88	-74.01	21.88	1.22	0.93	-18.51
5,751.00	2.68	242.72	5,748.89	18.78	-78.12	19.84	0.29	-0.29	-0.47
5,846.00	2.73	241.41	5,843.79	16.68	-82.08	17.79	0.08	0.05	-1.38
5,940.00	2.86	246.77	5,937.68	14.68	-86.20	15.85	0.31	0.14	5.70
6,034.00	3.16	247.21	6,031.55	12.75	-90.75	13.99	0.32	0.32	0.47
6,129.00	3.34	246.68	6,126.39	10.64	-95.70	11.94	0.19	0.19	-0.56
6,223.00	4.13	233.85	6,220.19	7.56	-100.95	8.93	1.22	0.84	-13.65
6,317.00	4.75	233.41	6,313.91	3.24	-106.81	4.70	0.66	0.66	-0.47
6,411.00	4.66	234.90	6,407.60	-1.27	-113.06	0.27	0.16	-0.10	1.59
6,506.00	4.31	232.44	6,502.30	-5.67	-119.04	-4.05	0.42	-0.37	-2.59
6,600.00	4.13	234.64	6,596.05	-9.78	-124.60	-8.08	0.26	-0.19	2.34
6,695.00	5.14	233.67	6,690.74	-14.28	-130.82	-12.50	1.07	1.06	-1.02
6,789.00	5.45	233.85	6,784.34	-19.41	-137.82	-17.53	0.33	0.33	0.19
6,883.00	5.32	234.11	6,877.92	-24.60	-144.95	-22.62	0.14	-0.14	0.28
6,977.00	5.05	233.67	6,971.54	-29.60	-151.82	-27.53	0.29	-0.29	-0.47
7,072.00	4.92	233.23	7,066.18	-34.52	-158.45	-32.36	0.14	-0.14	-0.46
7,166.00	4.48	232.79	7,159.86	-39.15	-164.60	-36.91	0.47	-0.47	-0.47
7,261.00	3.91	238.86	7,254.61	-43.07	-170.33	-40.75	0.76	-0.60	6.39
7,355.00	5.19	226.29	7,348.31	-47.66	-176.15	-45.26	1.72	1.36	-13.37
7,449.00	5.98	223.83	7,441.86	-54.13	-182.61	-51.64	0.88	0.84	-2.62
7,544.00	5.63	223.30	7,536.38	-61.10	-189.23	-58.51	0.37	-0.37	-0.56
7,638.00	5.27	224.09	7,629.95	-67.55	-195.40	-64.89	0.39	-0.38	0.84
7,733.00	4.88	221.28	7,724.58	-73.72	-201.10	-70.98	0.49	-0.41	-2.96
7,827.00	4.26	218.38	7,818.28	-79.46	-205.91	-76.65	0.70	-0.66	-3.09
7,922.00	5.01	220.40	7,912.97	-85.39	-210.79	-82.51	0.81	0.79	2.13
8,017.00	5.14	219.26	8,007.60	-91.84	-216.17	-88.89	0.17	0.14	-1.20
8,112.00	4.62	234.11	8,102.26	-97.38	-221.96	-94.35	1.43	-0.55	15.63
8,206.00	4.62	237.45	8,195.95	-101.64	-228.22	-98.52	0.29	0.00	3.55
8,300.00	4.35	235.78	8,289.66	-105.68	-234.36	-102.48	0.32	-0.29	-1.78
8,394.00	4.35	234.55	8,383.39	-109.75	-240.21	-106.47	0.10	0.00	-1.31
8,488.00	4.13	231.21	8,477.13	-113.94	-245.75	-110.58	0.35	-0.23	-3.55
8,583.00	4.09	228.31	8,571.89	-118.34	-250.95	-114.91	0.22	-0.04	-3.05
8,677.00	4.40	237.45	8,665.63	-122.51	-256.49	-119.00	0.79	0.33	9.72
8,771.00	4.18	244.04	8,759.37	-125.95	-262.61	-122.36	0.57	-0.23	7.01
8,866.00	3.91	238.59	8,854.13	-129.15	-268.49	-125.48	0.49	-0.28	-5.74
8,960.00	3.78	233.50	8,947.92	-132.66	-273.71	-128.92	0.39	-0.14	-5.41
9,054.00	4.22	238.68	9,041.69	-136.30	-279.16	-132.49	0.61	0.47	5.51
9,148.00	3.96	245.62	9,135.45	-139.44	-285.07	-135.55	0.59	-0.28	7.38
9,243.00	3.69	240.35	9,230.24	-142.31	-290.71	-138.34	0.47	-0.28	-5.55

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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)
9,337.00	3.69	240.97	9,324.05	-145.27	-295.99	-141.23	0.04	0.00	0.66
9,432.00	2.99	233.50	9,418.89	-148.23	-300.65	-144.12	0.87	-0.74	-7.86
9,526.00	3.34	248.26	9,512.75	-150.70	-305.17	-146.53	0.94	0.37	15.70
9,620.00	3.56	261.09	9,606.58	-152.17	-310.59	-147.93	0.85	0.23	13.65
9,714.00	2.51	257.49	9,700.44	-153.07	-315.49	-148.76	1.13	-1.12	-3.83
9,809.00	1.63	243.51	9,795.38	-154.12	-318.73	-149.77	1.06	-0.93	-14.72
9,904.00	1.80	241.14	9,890.34	-155.44	-321.24	-151.05	0.19	0.18	-2.49
9,998.00	1.63	242.02	9,984.30	-156.78	-323.72	-152.36	0.18	-0.18	0.94
10,092.00	1.58	236.40	10,078.26	-158.13	-325.98	-153.67	0.18	-0.05	-5.98
10,187.00	1.32	232.79	10,173.23	-159.51	-327.94	-155.03	0.29	-0.27	-3.80
10,281.00	1.49	229.80	10,267.20	-160.96	-329.73	-156.45	0.20	0.18	-3.18
10,375.00	1.67	213.81	10,361.17	-162.88	-331.43	-158.36	0.50	0.19	-17.01
10,469.00	1.67	204.58	10,455.13	-165.27	-332.76	-160.72	0.29	0.00	-9.82
10,564.00	1.71	203.61	10,550.08	-167.82	-333.91	-163.26	0.05	0.04	-1.02
10,658.00	1.67	202.47	10,644.04	-170.38	-334.99	-165.80	0.06	-0.04	-1.21
10,744.00	1.58	198.51	10,730.01	-172.66	-335.85	-168.07	0.17	-0.10	-4.60
10,813.00	1.60	192.19	10,798.98	-174.50	-336.35	-169.91	0.26	0.03	-9.16
10,860.00	2.42	0.15	10,845.97	-174.15	-336.49	-169.55	8.51	1.74	357.36
10,907.00	9.34	352.67	10,892.70	-169.37	-336.97	-164.77	14.78	14.72	-15.91
11,002.00	20.59	352.94	10,984.33	-145.07	-340.02	-140.42	11.84	11.84	0.28
11,097.00	33.62	2.52	11,068.75	-102.01	-340.92	-97.36	14.42	13.72	10.08
11,191.00	42.68	0.85	11,142.60	-44.03	-339.30	-39.41	9.70	9.64	-1.78
11,286.00	59.14	358.21	11,202.30	29.43	-340.10	34.06	17.46	17.33	-2.78
11,380.00	58.63	355.14	11,250.88	109.76	-344.76	114.44	2.85	-0.54	-3.27
11,474.00	70.43	357.51	11,291.24	194.30	-350.11	199.05	12.76	12.55	2.52
11,569.00	72.08	354.26	11,321.77	284.01	-356.57	288.84	3.68	1.74	-3.42
11,663.00	80.56	355.84	11,343.99	374.92	-364.42	379.84	9.17	9.02	1.68
11,757.00	88.78	356.54	11,352.71	468.22	-370.63	473.23	8.78	8.74	0.74
11,852.00	88.58	355.93	11,354.90	562.99	-376.87	568.07	0.68	-0.21	-0.64
11,946.00	88.54	358.04	11,357.26	656.83	-381.81	661.96	2.24	-0.04	2.24
12,040.00	89.57	358.48	11,358.81	750.77	-384.66	755.94	1.19	1.10	0.47
12,134.00	89.92	0.85	11,359.23	844.76	-385.21	849.93	2.55	0.37	2.52
12,229.00	90.89	2.34	11,358.56	939.72	-382.57	944.84	1.87	1.02	1.57
12,323.00	90.23	4.54	11,357.64	1,033.54	-376.93	1,038.57	2.44	-0.70	2.34
12,417.00	90.78	3.22	11,356.81	1,127.32	-370.57	1,132.26	1.52	0.59	-1.40
12,512.00	90.76	358.48	11,355.53	1,222.27	-369.16	1,227.18	4.99	-0.02	-4.99
12,607.00	89.81	359.09	11,355.06	1,317.25	-371.18	1,322.18	1.19	-1.00	0.64
12,701.00	87.79	0.50	11,357.03	1,411.22	-371.51	1,416.14	2.62	-2.15	1.50
12,795.00	89.88	0.85	11,358.94	1,505.19	-370.41	1,510.09	2.25	2.22	0.37
12,890.00	90.10	359.53	11,358.96	1,600.18	-370.09	1,605.07	1.41	0.23	-1.39
12,984.00	90.98	358.30	11,358.07	1,694.16	-371.87	1,699.07	1.61	0.94	-1.31
13,078.00	91.90	359.09	11,355.71	1,788.10	-374.01	1,793.03	1.29	0.98	0.84
13,172.00	89.59	359.97	11,354.49	1,882.09	-374.78	1,887.01	2.63	-2.46	0.94
13,267.00	88.98	357.86	11,355.67	1,977.06	-376.58	1,982.00	2.31	-0.64	-2.22

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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)
13,361.00	91.09	359.09	11,355.61	2,071.02	-379.08	2,075.98	2.60	2.24	1.31
13,455.00	92.10	359.18	11,353.00	2,164.97	-380.50	2,169.95	1.08	1.07	0.10
13,549.00	92.30	357.24	11,349.39	2,258.85	-383.43	2,263.86	2.07	0.21	-2.06
13,643.00	92.10	358.04	11,345.78	2,352.70	-387.30	2,357.75	0.88	-0.21	0.85
13,738.00	91.04	357.25	11,343.18	2,447.58	-391.20	2,452.68	1.39	-1.12	-0.83
13,832.00	90.82	355.75	11,341.65	2,541.39	-396.94	2,546.56	1.61	-0.23	-1.60
13,926.00	88.14	358.92	11,342.51	2,635.26	-401.31	2,640.48	4.42	-2.85	3.37
14,021.00	87.44	357.25	11,346.17	2,730.14	-404.48	2,735.39	1.90	-0.74	-1.76
14,115.00	91.86	358.92	11,346.74	2,824.05	-407.62	2,829.34	5.03	4.70	1.78
14,209.00	92.25	356.37	11,343.37	2,917.91	-411.48	2,923.24	2.74	0.41	-2.71
14,303.00	92.08	359.53	11,339.82	3,011.77	-414.84	3,017.14	3.36	-0.18	3.36
14,397.00	91.20	358.92	11,337.13	3,105.72	-416.11	3,111.10	1.14	-0.94	-0.65
14,491.00	88.21	359.71	11,337.61	3,199.70	-417.24	3,205.08	3.29	-3.18	0.84
14,586.00	88.78	358.21	11,340.11	3,294.65	-418.96	3,300.05	1.69	0.60	-1.58
14,680.00	88.23	0.67	11,342.56	3,388.60	-419.88	3,394.01	2.68	-0.59	2.62
14,774.00	88.49	0.34	11,345.25	3,482.56	-419.05	3,487.94	0.45	0.28	-0.35
14,869.00	91.74	359.26	11,345.06	3,577.55	-419.38	3,582.92	3.60	3.42	-1.14
14,963.00	91.79	357.44	11,342.17	3,671.46	-422.09	3,676.87	1.94	0.05	-1.94
15,058.00	90.56	357.04	11,340.22	3,766.33	-426.66	3,771.79	1.36	-1.29	-0.42
15,152.00	92.58	358.42	11,337.64	3,860.21	-430.38	3,865.71	2.60	2.15	1.47
15,246.00	92.89	359.36	11,333.16	3,954.09	-432.20	3,959.60	1.05	0.33	1.00
15,340.00	93.26	359.25	11,328.11	4,047.94	-433.34	4,053.47	0.41	0.39	-0.12
15,434.00	94.71	358.92	11,321.58	4,141.70	-434.84	4,147.24	1.58	1.54	-0.35
15,528.00	94.69	359.53	11,313.88	4,235.38	-436.10	4,240.92	0.65	-0.02	0.65
15,622.00	94.45	357.77	11,306.39	4,329.05	-438.31	4,334.61	1.88	-0.26	-1.87
15,716.00	94.71	357.24	11,298.88	4,422.66	-442.39	4,428.27	0.63	0.28	-0.56
15,811.00	93.35	358.39	11,292.21	4,517.35	-446.00	4,523.00	1.87	-1.43	1.21
15,906.00	92.21	359.44	11,287.60	4,612.22	-447.80	4,617.89	1.63	-1.20	1.11
16,000.00	93.68	359.97	11,282.77	4,706.09	-448.28	4,711.76	1.66	1.56	0.56
16,094.00	93.42	358.92	11,276.95	4,799.90	-449.19	4,805.57	1.15	-0.28	-1.12
16,189.00	93.00	0.67	11,271.63	4,894.75	-449.53	4,900.42	1.89	-0.44	1.84
16,283.00	92.82	359.97	11,266.86	4,988.63	-449.01	4,994.28	0.77	-0.19	-0.74
16,377.00	92.98	358.83	11,262.10	5,082.50	-449.99	5,088.15	1.22	0.17	-1.21
16,472.00	94.52	358.12	11,255.89	5,177.26	-452.51	5,182.94	1.78	1.62	-0.75
16,567.00	93.24	359.36	11,248.11	5,291.96	-455.03	5,297.67	1.55	-1.11	1.08
16,662.00	93.44	358.48	11,242.57	5,386.78	-456.82	5,392.50	0.95	0.21	-0.93
16,756.00	94.19	358.12	11,236.32	5,480.53	-459.60	5,486.28	0.88	0.80	-0.38
16,850.00	94.03	359.44	11,229.58	5,574.27	-461.60	5,580.04	1.41	-0.17	1.40
16,944.00	94.30	358.92	11,222.75	5,668.01	-462.94	5,673.79	0.62	0.29	-0.55
17,038.00	95.72	359.62	11,214.54	5,761.64	-464.14	5,767.43	1.68	1.51	0.74
17,132.00	95.15	1.02	11,205.64	5,855.21	-463.61	5,860.98	1.60	-0.61	1.49
17,226.00	94.08	359.00	11,198.08	5,948.90	-463.60	5,954.66	2.43	-1.14	-2.15
17,320.00	93.44	358.04	11,191.91	6,042.67	-466.02	6,048.45	1.23	-0.68	-1.02

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 553H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 553H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#553H	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)	
17,434.00	91.31	358.21	11,188.02	6,136.53	-469.09	6,142.35	2.27	-2.27	0.18	
17,529.00	91.70	357.60	11,185.52	6,231.43	-472.56	6,237.29	0.76	0.41	-0.64	
17,623.00	92.65	359.97	11,181.95	6,325.34	-474.56	6,331.21	2.71	1.01	2.52	
17,717.00	93.07	3.22	11,177.26	6,419.17	-471.94	6,425.00	3.48	0.45	3.46	
17,812.00	93.42	2.69	11,171.88	6,513.89	-467.05	6,519.65	0.67	0.37	-0.56	
17,906.00	91.99	1.82	11,167.45	6,607.71	-463.36	6,613.41	1.78	-1.52	-0.93	
18,001.00	92.89	1.55	11,163.40	6,702.58	-460.57	6,708.23	0.99	0.95	-0.28	
18,095.00	92.98	0.85	11,158.59	6,796.44	-458.60	6,802.05	0.75	0.10	-0.74	
18,189.00	93.22	0.94	11,153.51	6,890.29	-457.14	6,895.87	0.27	0.26	0.10	
18,283.00	94.14	2.17	11,147.47	6,984.06	-454.59	6,989.60	1.63	0.98	1.31	
18,378.00	93.68	1.38	11,141.00	7,078.79	-451.66	7,084.28	0.96	-0.48	-0.83	
18,472.00	93.40	0.85	11,135.19	7,172.59	-449.83	7,178.05	0.64	-0.30	-0.56	
18,566.00	93.44	0.06	11,129.58	7,266.42	-449.09	7,271.86	0.84	0.04	-0.84	
18,660.00	93.20	359.44	11,124.14	7,360.26	-449.50	7,365.70	0.71	-0.26	-0.66	
18,743.00	93.46	359.44	11,119.32	7,443.12	-450.31	7,448.56	0.31	0.31	0.00	
Last Aim MWD Survey										
18,829.00	93.46	359.44	11,114.13	7,528.96	-451.14	7,534.40	0.00	0.00	0.00	
Projection to BHL										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	199.99	1.61	0.01	First Aim MWD Survey	
18,743.00	11,119.32	7,443.12	-450.31	Last Aim MWD Survey	
18,829.00	11,114.13	7,528.96	-451.14	Projection to BHL	



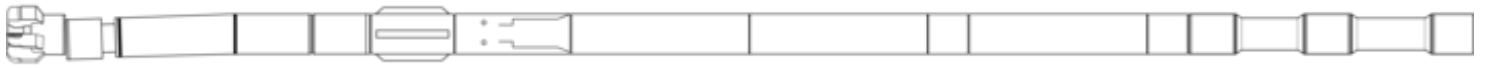
BHA Reports

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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

	Job Number WT-19-167	Operator Advance Energy Partners			Rig Name H&P #620				
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H			Legal Well Name AFE Wool Head 20 State Com 553H				
	Play Delaware Basin	State/Province and Country New Mexico, US			County Lea	Company Man			
	BHA #1 - BHA #1 Surface (Directional)								
Motor Details			Date/Depth/Distances			Hours			
Size(in)	8.00	Date In	2019-11-01 13:00	Downhole Hours		20.25			
Lobe/Stage	7/8, 4.0	Depth In (ft)	140.00	Drilling/Circulating Hours		14.08			
Bend Angle	1.50	Date Out	2019-11-02 09:15	Drilling Hours		13.08			
Speed (rev/gal)	0.16	Depth Out (ft)	1875.00	Circulating Hours		1.00			
Wear Pad OD (in)	8.250	Distance Slid (ft)	0.00	Sliding Hours		0.00			
Incident	No	Distance Rotated (ft)	1735.00	Rotating Hours		13.08			
Motor Results			% Distance Sliding	0.00%	% Hours Sliding		0.00%		
Average Total ROP (ft/h)	132.61	% Distance Rotating	100.00%	% Hours Rotating		100.00%			
Average Slide ROP (ft/h)	0.00	BHA Objective							
Average Rotating ROP (ft/h)	132.61	Drill Surface							
Bit Details			POOH Reason/Notes Total Depth/Casing Point: POOH to run surface casing						
OD (in)	17.500								
Vendor	Baker								
S/N	5293469								
Nozzles	9X12's								
Total Flow Area (in²)	0.994								
MWD			Incident Notes						
Max Downhole Temp (°F)	N/A	Directional: On surface motor drained good no visible damage, bit one missing cutter							
			MWD:						
Bit Distances			Comments						
Bit To Survey (Bit to Survey): 63.00 ft, Bend (Bit to Bend): 6.25 ft			Directional: Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 4.0 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 900psi, Max Operating Torque: 14,994 ft/lbs, Protracted Angle 1.45, Bit; Baker Hughes DP606S, SN: 5293469, Jets 9x12's TFA: 0.994, Bit Runs: 8						
Mud Properties			Parameters						
Type	Water	Flow Rate (gpm)	455.00 - 850.00	Motor RPM		73.00 - 136.00			
WT	9.80	On Bottom Pressure (psi)	1100.00 - 2650.00	Surface RPM		35.00 - 80.00			
VIS	31.00	Off Bottom Pressure (psi)	800.00 - 1800.00	Rotating WOB (klbs)		10.00 - 30.00			
PV	6.00	Stall Pressure (psi)	0.00	Sliding WOB (klbs)		0.00 - 0.00			
YP	15.00	Stalls	0	Temp (°F)		77.00 - 95.00			
			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: DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Baker	5293469	6 5/8" Reg Pin			17.500		1.75	1.75
Mud Motor Description: 8" 7/8 4.0 @1.5 Fix Slick Sleeve, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4.0	Aim	800-40-005	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortack Stab	DTI	DR38905	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.91	39.85
UBHO Sub Description: NM UBHO, Type: NM	Aim	GT8066848	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.77	43.62
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	73.69
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	104.14
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	107.69
Drill Collar Description: (9 jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		266.72	374.41
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	376.71
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1305.11



	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620					
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H					
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man					
	BHA #2 - BHA #2 Intermediate 1 (Directional)								
Motor Details		Date/Depth/Distances		Hours					
Size(in)	8.00	Date In	2019-11-08 11:35	Downhole Hours	37.67				
Lobe/Stage	7/8, 5.9	Depth In (ft)	1875.00	Drilling/Circulating Hours	25.25				
Bend Angle	1.50	Date Out	2019-11-10 01:15	Drilling Hours	24.00				
Speed (rev/gal)	0.16	Depth Out (ft)	5280.00	Circulating Hours	1.25				
Wear Pad OD (in)	8.250	Distance Slid (ft)	105.00	Sliding Hours	1.17				
Incident	No	Distance Rotated (ft)	3300.00	Rotating Hours	22.83				
Motor Results		% Distance Sliding	3.08%	% Hours Sliding	4.86%				
Average Total ROP (ft/h)	141.87	% Distance Rotating	96.92%	% Hours Rotating	95.14%				
Average Slide ROP (ft/h)	90.00	BHA Objective							
Average Rotating ROP (ft/h)	144.53	Drill Intermediate to casing point							
Bit Details		POOH Reason/Notes Total Depth/Casing Point: Motor performed well. drained well with minimal slack in bearings. motor was tight during draining. Bit was graded 2-2 with chipped and broken cutters on heel and gauge.							
OD (in)	12.250								
Vendor	Baker								
S/N	5294611								
Nozzles	6x12's								
Total Flow Area (in²)	0.663								
MWD		Incident Notes							
Max Downhole Temp (°F)	N/A	Directional: N/a							
		MWD:							
Bit Distances		Comments							
Bit To Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 4.75 ft		Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 5.9 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 1330psi, Max Operating Torque: 22,000 ft/lbs, Protracted Angle 1.5, Bit; Baker Hughes D606TX, SN: 5294611, Jets 6x12's TFA: 0.663, Bit Runs: 2							
Mud Properties		Parameters							
Type	Water Based	Flow Rate (gpm)	615.00 - 805.00	Motor RPM	73.00 - 136.00				
WT	10.40	On Bottom Pressure (psi)	2700.00 - 4300.00	Surface RPM	60.00 - 70.00				
VIS	27.00	Off Bottom Pressure (psi)	2150.00 - 3500.00	Rotating WOB (klbs)	25.00 - 50.00				
PV	1.00	Stall Pressure (psi)	1330.00	Sliding WOB (klbs)	32.00 - 33.00				
YP	1.00	Stalls	0	Temp (°F)	100.00 - 140.00				
		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: <i>D606TX</i> , Style: <i>PDC</i> , Gauge Length (in): <i>4.00</i> , Size (in): <i>12.25</i>	Baker	5294611	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: <i>8" 7/8 5.9 @1.5 Fixed W/12" Stab</i> , Size (in): <i>8.00</i> , Bend Angle (°): <i>1.5</i> , Rotor Lobe: <i>7</i> , Stator Lobe: <i>8</i> , Stator Stage: <i>5.9</i>	Aim	800003AIM	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		36.49	37.74
Stabilizer Description: <i>12" NM Nortack Stab</i>	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	46.51
UBHO Sub Description: <i>Steel UBHO</i> , Type: <i>Steel</i>	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.000		4.05	50.56
Drill Collar Description: <i>8" NMDC (MWD Tool)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	80.63
Drill Collar Description: <i>8" NMDC (Spacer)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	111.08
Crossover Sub Description: <i>X-Over (6 5/8 Reg Pin x4 1/2 XH Box)</i> , Type: <i>Steel</i>	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	114.63
Drill Collar Description: <i>(21 jts) 6.5" DC</i> , Style: <i>Spiral Drill</i> , Type: <i>Steel</i>	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		617.97	732.60
Crossover Sub Description: <i>X-Over (4 1/2 IF Box x 4 1/2 XH Pin)</i> , Type: <i>Steel</i>	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	734.90
HWDP Description: <i>(30 Jts) 5" HWDP</i> , Style: <i>Slick</i>			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1663.30





Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-11-16 20:30	Downhole Hours	54.25
Lobe/Stage	7/8, 8.5	Depth In (ft)	5280.00	Drilling/Circulating Hours	38.25
Bend Angle	1.50	Date Out	2019-11-19 02:45	Drilling Hours	35.58
Speed (rev/gal)	0.26	Depth Out (ft)	10814.00	Circulating Hours	2.67
Wear Pad OD (in)	8.250	Distance Slid (ft)	197.00	Sliding Hours	3.25
Incident	No	Distance Rotated (ft)	5337.00	Rotating Hours	32.33
Motor Results		% Distance Sliding	3.56%	% Hours Sliding	9.13%
Average Total ROP (ft/h)	155.52	% Distance Rotating	96.44%	% Hours Rotating	90.87%
Average Slide ROP (ft/h)	60.62	BHA Objective			
Average Rotating ROP (ft/h)	165.06	Drill 8.5" hole down to KOP			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Total Depth/Casing Point: Motor was still tight on surface while draining. 1/8 slack in bearings. Bit was graded 3-5	
Vendor	Security		
S/N	13271296		
Nozzles	6x12's		
Total Flow Area (in²)	0.663		

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

Bit Distances		Comments	
Bit To Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft		Directional: : Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2	

Mud Properties		Parameters	
Type	Brine	Flow Rate (gpm)	650.00 - 750.00
WT	9.40	On Bottom Pressure (psi)	3000.00 - 3900.00
VIS	28.00	Off Bottom Pressure (psi)	2400.00 - 3700.00
PV	1.00	Stall Pressure (psi)	1930.02
YP	2.00	Stalls	0
		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: <i>Security GT65DRM</i> , Style: <i>PDC</i> , Gauge Length (in): <i>3.00</i> , Size (in): <i>8.50</i>	Security	13271296	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: <i>7" 7/8 8.5 @1.5 Fixed W/8.25" Stab</i> , Size (in): <i>7.00</i> , Bend Angle (°): <i>1.5</i> , Rotor Lobe: <i>7</i> , Stator Lobe: <i>8</i> , Stator Stage: <i>8.5</i>	Aim	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.18
Stabilizer Description: <i>8 1/4" Steel Autotack Stab</i>	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.21
UBHO Sub Description: <i>NM UBHO</i> , Type: <i>NM</i>	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		3.96	47.17
Drill Collar Description: <i>6.5" NMDC (MWD Tool)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	Gator	GT6730195	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		30.55	77.72
Drill Collar Description: <i>6.5" NMDC (Spacer)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	Gator	GT6730199	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.88	108.60
Crossover Sub Description: <i>X-Over (4 1/2 IF Pin x4 1/2 XH Box)</i> , Type: <i>Steel</i>	Gator	GT10412	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.500		4.18	112.78
Drill Collar Description: <i>(18 Jts) 6.5" DC</i> , Style: <i>Spiral Drill</i> , Type: <i>Steel</i>	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		529.69	642.47
Crossover Sub Description: <i>X-Over (4 1/2 IF Box x 4 1/2 XH Pin)</i> , Type: <i>Steel</i>	Gator	GT10419	4 1/2" IF Box	4 1/2" XH Pin	2.875	6.750		4.30	646.77
HWDP Description: <i>(30 Jts) 5" HWDP</i> , Style: <i>Slick</i>			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1575.17



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #4 - BHA #4 (Curve) (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	6.75	Date In	2019-11-30 20:45	Downhole Hours	41.25
Lobe/Stage	7/8, 5.0	Depth In (ft)	10814.00	Drilling/Circulating Hours	19.33
Bend Angle	2.12	Date Out	2019-12-02 14:00	Drilling Hours	16.75
Speed (rev/gal)	0.28	Depth Out (ft)	11735.00	Circulating Hours	2.58
Wear Pad OD (in)	7.250	Distance Slid (ft)	584.00	Sliding Hours	11.42
Incident	No	Distance Rotated (ft)	337.00	Rotating Hours	5.33
Motor Results		% Distance Sliding	63.41%	% Hours Sliding	68.16%
Average Total ROP (ft/h)	54.99	% Distance Rotating	36.59%	% Hours Rotating	31.84%
Average Slide ROP (ft/h)	51.15	BHA Objective			
Average Rotating ROP (ft/h)	63.19	Drill Curve			

Bit Details

OD (in)	8.500
Vendor	Security
S/N	13235606
Nozzles	6x22's
Total Flow Area (in²)	2.227

POOH Reason/Notes

Change Bottom Hole Assembly: P/U LATERAL BHA

MWD

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

Directional: N/A

MWD:

Bit Distances

Bit To Bend: 4.04 ft, Resistivity: 39.79 ft, NB Inc: 32.49 ft, Gamma: 32.89 ft, Survey: 72.00 ft

Comments

Directional: 6 3/4" 7/8 5.0 Stg 2.12 FBH Slick Sleeve Motor Flow Rate 300-600 Rev/Gal 0.28 Max Diff: 1130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit Security 8.5" Type: GTD64C, SN: 13235606 TFA: 2.227 , Jets 6X22'S Bit Runs: 3

Mud Properties

Type	Oil Based
WT	9.50
VIS	45.00
PV	2.00
YP	3.00

Parameters

Flow Rate (gpm)	575.00 - 700.00	Motor RPM	73.00 - 136.00
On Bottom Pressure (psi)	3275.00 - 3600.00	Surface RPM	20.00 - 35.00
Off Bottom Pressure (psi)	2700.00 - 3100.00	Rotating WOB (klbs)	35.00 - 42.00
Stall Pressure (psi)	0.00	Sliding WOB (klbs)	50.00 - 50.00
Stalls	0	Temp (°F)	132.00 - 132.00
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: Security GTD64C, Style: PDC, Gauge Length (in): 2.75, Size (in): 8.50	Security	13235606	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 6 3/4" 7/8 5.0 @2.12 Fixed W/" SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	650-015	4 1/2" IF Box	4 1/2" Reg Box		6.750		25.82	26.77
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	29.38
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	49.19
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	63.50
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	92.62
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	96.58
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	128.01





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #5 - BHA #5 (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-12-02 15:15	Downhole Hours	60.25
Lobe/Stage	7/8, 8.5	Depth In (ft)	11735.00	Drilling/Circulating Hours	44.67
Bend Angle	1.75	Date Out	2019-12-05 03:30	Drilling Hours	43.17
Speed (rev/gal)	0.26	Depth Out (ft)	13943.00	Circulating Hours	1.50
Wear Pad OD (in)	7.250	Distance Slid (ft)	261.00	Sliding Hours	11.00
Incident	Yes	Distance Rotated (ft)	1947.00	Rotating Hours	32.17
Motor Results		% Distance Sliding	11.82%	% Hours Sliding	25.48%
Average Total ROP (ft/h)	51.15	% Distance Rotating	88.18%	% Hours Rotating	74.52%
Average Slide ROP (ft/h)	23.73	BHA Objective			
Average Rotating ROP (ft/h)	60.53	DRILL LATERAL			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP	
Vendor	BAKER		
S/N	5293009		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: On surface motor did not drain , no external damage , Bit 2-2
		MWD:

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.74 / Bit HUGHES 8.5" Type: DD506Twx, SN: 5293009 TFA: 2.227 , Jets 6X22'S Bit Runs: 1

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	730.00 - 750.00
WT	9.30	On Bottom Pressure (psi)	3850.00 - 4600.00
VIS	56.00	Off Bottom Pressure (psi)	3200.00 - 4100.00
PV	17.00	Stall Pressure (psi)	0.00
YP	7.00	Stalls	0
		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: HUGHES DD506Twx, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5293009	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W" SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-029	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #6 - BHA #6(Lateral) (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In 2019-12-05 03:30	Downhole Hours 29.00
Lobe/Stage	7/8, 8.5	Depth In (ft) 13943.00	Drilling/Circulating Hours 15.67
Bend Angle	1.75	Date Out 2019-12-06 08:30	Drilling Hours 14.83
Speed (rev/gal)	0.26	Depth Out (ft) 14800.00	Circulating Hours 0.83
Wear Pad OD (in)	7.250	Distance Slid (ft) 104.00	Sliding Hours 4.67
Incident	No	Distance Rotated (ft) 753.00	Rotating Hours 10.17
Motor Results		% Distance Sliding 12.14%	% Hours Sliding 31.46%
Average Total ROP (ft/h)	57.78	% Distance Rotating 87.86%	% Hours Rotating 68.54%
Average Slide ROP (ft/h)	22.29	BHA Objective	
Average Rotating ROP (ft/h)	74.07	Drill Lateral	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Penetration Rate: POOH due to reduced ROP	
Vendor	BAKER		
S/N	5289707		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: At surface bit had heel row wiped out
		MWD:

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5289707 TFA: 2.227 , Jets 6X22'S Bit Runs: 3

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm) 700.00 - 750.00	Motor RPM 73.00 - 136.00
WT	9.30	On Bottom Pressure (psi) 4250.00 - 4800.00	Surface RPM 45.00 - 50.00
VIS	64.00	Off Bottom Pressure (psi) 4000.00 - 4100.00	Rotating WOB (klbs) 40.00 - 42.00
PV	17.00	Stall Pressure (psi) 1910.00	Sliding WOB (klbs) 50.00 - 70.00
YP	9.00	Stalls 0	Temp (°F) 184.00 - 187.00
		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: HUGHES DD506TWX, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5289707	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #7 - BHA #7 (Lateral) (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-12-06 08:30	Downhole Hours	28.50
Lobe/Stage	7/8, 8.5	Depth In (ft)	14800.00	Drilling/Circulating Hours	15.33
Bend Angle	1.75	Date Out	2019-12-07 13:00	Drilling Hours	10.08
Speed (rev/gal)	0.26	Depth Out (ft)	15455.00	Circulating Hours	5.25
Wear Pad OD (in)	7.250	Distance Slid (ft)	67.00	Sliding Hours	2.83
Incident	No	Distance Rotated (ft)	588.00	Rotating Hours	7.25
Motor Results		% Distance Sliding	10.23%	% Hours Sliding	28.10%
Average Total ROP (ft/h)	64.96	% Distance Rotating	89.77%	% Hours Rotating	71.90%
Average Slide ROP (ft/h)	23.65	BHA Objective			
Average Rotating ROP (ft/h)	81.10	Drill Lateral			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	MWD Incident: BAD SURVEYS	
Vendor	NOV		
S/N	A268858		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	150.80	Directional: AZM OFF 3 DEG AT DIFF SURVEYS
		MWD: Had an issue with JTDAS 3110 throwing up inconsistent azimuths.

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: TKC66, SN: 5293516 TFA: 2.227 , Jets 6X22'S Bit Runs: 0

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	700.00 - 700.00
WT	9.40	On Bottom Pressure (psi)	4250.00 - 4800.00
VIS	68.00	Off Bottom Pressure (psi)	4100.00 - 4100.00
PV	17.00	Stall Pressure (psi)	0.00
YP	7.00	Stalls	0
		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: REED TKC66, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A268858	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #7 - BHA #7 (Lateral) (MWD)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In 2019-12-06 08:30	Downhole Hours 28.50
Lobe/Stage	7/8, 8.5	Depth In (ft) 14800.00	Drilling/Circulating Hours 15.33
Bend Angle	1.75	Date Out 2019-12-07 13:00	Drilling Hours 10.08
Speed (rev/gal)	0.26	Depth Out (ft) 15455.00	Circulating Hours 5.25
Wear Pad OD (in)	7.250	Distance Slid (ft) 67.00	Sliding Hours 2.83
Incident	No	Distance Rotated (ft) 588.00	Rotating Hours 7.25
Motor Results		% Distance Sliding 10.23%	% Hours Sliding 28.10%
Average Total ROP (ft/h)	64.96	% Distance Rotating 89.77%	% Hours Rotating 71.90%
Average Slide ROP (ft/h)	23.65	BHA Objective	
Average Rotating ROP (ft/h)	81.10	Drill Lateral	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	MWD Incident: BAD SURVEYS	
Vendor	NOV		
S/N	A268858		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	150.80	Directional: AZM OFF 3 DEG AT DIFF SURVEYS
		MWD: Had an issue with JTDAS 3110 throwing up inconsistent azimuths.

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		MWD: POOH due to L-Tool sending up inconsistent azimuth

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm) 700.00 - 700.00	Motor RPM 73.00 - 136.00
WT	9.40	On Bottom Pressure (psi) 4250.00 - 4800.00	Surface RPM 45.00 - 45.00
VIS	68.00	Off Bottom Pressure (psi) 4100.00 - 4100.00	Rotating WOB (klbs) 42.00 - 42.00
PV	17.00	Stall Pressure (psi) 0.00	Sliding WOB (klbs) 70.00 - 70.00
YP	7.00	Stalls 0	Temp (°F) -0.00 - -0.00
		NPT 0.0	

Items (MWD)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Other Description: L-Tool	Schlumberger	JTDAS 3110							0.00





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #8 - BHA #8 (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-12-07 13:00	Downhole Hours	22.75
Lobe/Stage	7/8, 8.5	Depth In (ft)	15455.00	Drilling/Circulating Hours	2.75
Bend Angle	1.75	Date Out	2019-12-08 11:45	Drilling Hours	1.75
Speed (rev/gal)	0.26	Depth Out (ft)	15659.00	Circulating Hours	1.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	0.00	Sliding Hours	0.00
Incident	No	Distance Rotated (ft)	204.00	Rotating Hours	1.75
Motor Results		% Distance Sliding	0.00%	% Hours Sliding	0.00%
Average Total ROP (ft/h)	116.57	% Distance Rotating	100.00%	% Hours Rotating	100.00%
Average Slide ROP (ft/h)	0.00	BHA Objective			
Average Rotating ROP (ft/h)	116.57	Drill 8.5" lateral per plan 1.0			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: POOH Due to Tool only giving resistivity counts every 10-15 Ft	
Vendor	NOV		
S/N	A256219		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	176.90	Directional: AWR Failure
		MWD: AWR sending resistivity counts every 10-15ft, geologist wanted more data.

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	650.00 - 650.00
WT	9.50	On Bottom Pressure (psi)	4500.00 - 4500.00
VIS	64.00	Off Bottom Pressure (psi)	3950.00 - 3950.00
PV	2.00	Stall Pressure (psi)	1910.00
YP	3.00	Stalls	0
		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: REED SKC616M, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.24	58.97
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.27
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.34
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.30
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	137.73





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #8 - BHA #8 (MWD)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In 2019-12-07 13:00	Downhole Hours 22.75
Lobe/Stage	7/8, 8.5	Depth In (ft) 15455.00	Drilling/Circulating Hours 2.75
Bend Angle	1.75	Date Out 2019-12-08 11:45	Drilling Hours 1.75
Speed (rev/gal)	0.26	Depth Out (ft) 15659.00	Circulating Hours 1.00
Wear Pad OD (in)	7.250	Distance Slid (ft) 0.00	Sliding Hours 0.00
Incident	No	Distance Rotated (ft) 204.00	Rotating Hours 1.75
Motor Results		% Distance Sliding 0.00%	% Hours Sliding 0.00%
Average Total ROP (ft/h)	116.57	% Distance Rotating 100.00%	% Hours Rotating 100.00%
Average Slide ROP (ft/h)	0.00	BHA Objective	
Average Rotating ROP (ft/h)	116.57	Drill 8.5" lateral per plan 1.0	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: POOH Due to Tool only giving resistivity counts every 10-15 Ft	
Vendor	NOV		
S/N	A256219		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	176.90	Directional: AWR Failure
		MWD: AWR sending resistivity counts every 10-15ft, geologist wanted more data.

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		MWD: AWR sending resistivity counts every 10-15ft, geologist wanted more data.

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm) 650.00 - 650.00	Motor RPM 73.00 - 136.00
WT	9.50	On Bottom Pressure (psi) 4500.00 - 4500.00	Surface RPM 40.00 - 40.00
VIS	64.00	Off Bottom Pressure (psi) 3950.00 - 3950.00	Rotating WOB (klbs) 40.00 - 40.00
PV	2.00	Stall Pressure (psi) 1910.00	Sliding WOB (klbs) 0.00 - 0.00
YP	3.00	Stalls 0	Temp (°F) 150.00 - 165.00
		NPT 0.0	

Items (MWD)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Other Description: AWR - Resistivity Tool	Schlumberger	R67M513D							0.00





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #9 - BHA #9 (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-12-08 11:45	Downhole Hours	38.75
Lobe/Stage	7/8, 8.5	Depth In (ft)	15659.00	Drilling/Circulating Hours	25.33
Bend Angle	1.75	Date Out	2019-12-10 02:30	Drilling Hours	24.50
Speed (rev/gal)	0.26	Depth Out (ft)	16570.00	Circulating Hours	0.83
Wear Pad OD (in)	7.250	Distance Slid (ft)	120.00	Sliding Hours	10.00
Incident	No	Distance Rotated (ft)	791.00	Rotating Hours	14.50
Motor Results		% Distance Sliding	13.17%	% Hours Sliding	40.82%
Average Total ROP (ft/h)	37.18	% Distance Rotating	86.83%	% Hours Rotating	59.18%
Average Slide ROP (ft/h)	12.00	BHA Objective			
Average Rotating ROP (ft/h)	54.55	Drill 8.5" Lateral			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while rocking pipe. Decision was made to pooh to change bit, motor and also pick up agitator. Motor Drained well with .25" slack in bearings. bit had 1 chipped cutter on inner row and the heel row was wiped out.	
Vendor	NOV		
S/N	A256219		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	180.50	Directional:
		MWD: L-Tool was sending up inconsistent azimuths

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	650.00 - 700.00
WT	9.40	On Bottom Pressure (psi)	4250.00 - 4400.00
VIS	54.00	Off Bottom Pressure (psi)	3800.00 - 4100.00
PV	16.00	Stall Pressure (psi)	1910.00
YP	5.00	Stalls	0
		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: REED SKC616M, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W"/ TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.84
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.91
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.87
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.30





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #9 - BHA #9 (MWD)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-12-08 11:45
Lobe/Stage	7/8, 8.5	Depth In (ft)	15659.00
Bend Angle	1.75	Date Out	2019-12-10 02:30
Speed (rev/gal)	0.26	Depth Out (ft)	16570.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	120.00
Incident	No	Distance Rotated (ft)	791.00
Motor Results		% Distance Sliding	13.17%
Average Total ROP (ft/h)	37.18	% Distance Rotating	86.83%
Average Slide ROP (ft/h)	12.00	BHA Objective	
Average Rotating ROP (ft/h)	54.55	Drill 8.5" Lateral	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while rocking pipe. Decision was made to pooh to change bit, motor and also pick up agitator. Motor Drained well with .25" slack in bearings. bit had 1 chipped cutter on inner row and the heel row was wiped out.	
Vendor	NOV		
S/N	A256219		
Nozzles	6x22's		
Total Flow Area (in²)	2.227		

MWD		Incident Notes
Max Downhole Temp (°F)	180.50	Directional:
		MWD: L-Tool was sending up inconsistent azimuths

Bit Distances		Comments
Bit To Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft		MWD: L-Tool was sending up inconsistent azimuths

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	650.00 - 700.00
WT	9.40	On Bottom Pressure (psi)	4250.00 - 4400.00
VIS	54.00	Off Bottom Pressure (psi)	3800.00 - 4100.00
PV	16.00	Stall Pressure (psi)	1910.00
YP	5.00	Stalls	0
		NPT	0.0

Items (MWD)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Other	Schlumberger	JTDAS 2291							0.00
Description: <i>Electronics</i>									





Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #10 - BHA # 10 Lateral (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-12-10 02:30
Lobe/Stage	7/8, 8.5	Depth In (ft)	16570.00
Bend Angle	1.75	Date Out	2019-12-12 15:20
Speed (rev/gal)	0.26	Depth Out (ft)	18829.00
Wear Pad OD (in)	7.000	Distance Slid (ft)	160.00
Incident	No	Distance Rotated (ft)	2099.00
Motor Results		% Distance Sliding	7.08%
Average Total ROP (ft/h)	59.19	% Distance Rotating	92.92%
Average Slide ROP (ft/h)	21.10		
Average Rotating ROP (ft/h)	68.63		

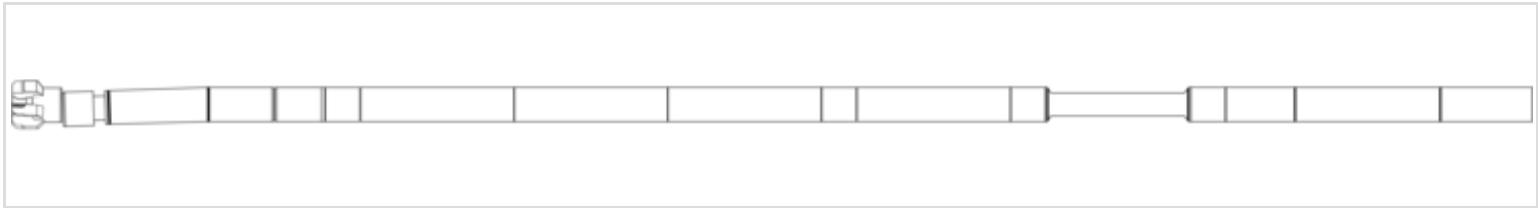
Bit Details		BHA Objective
OD (in)	8.500	Drill 8.5" Lateral
Vendor	Security	

S/N	13083534	POOH Reason/Notes
Nozzles	7x20's	Total Depth/Casing Point: WELL TD
Total Flow Area (in²)	2.148	
MWD		Incident Notes
Max Downhole Temp (°F)	195.00	Directional: N/A
		MWD: AWR stopped sending up any resistivity / continuous inc counts all together

Bit Distances		Comments
Bit To Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft		Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit Security 8.5" Type: GTD74D, SN: 13083534 TFA: 2.148 , Jets 7X20'S Bit Runs: 1

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.40	On Bottom Pressure (psi)
VIS	59.00	Off Bottom Pressure (psi)
PV	16.00	Stall Pressure (psi)
YP	5.00	Stalls
		NPT
		Motor RPM
		Surface RPM
		Rotating WOB (klbs)
		Sliding WOB (klbs)
		Temp (°F)

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GTD74D, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13083534	4 1/2" Reg Pin			8.500		1.02	1.02
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-004	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.26
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.87
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.68
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.98
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	103.05
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	107.01
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.44
Drill Pipe Description: 36 Stands 5" Drill pipe, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		3396.78	3535.22
Agitator Description: 6 3/4 Agitator, Size (in): 6.75	NOV	AGHF0675-0037	4 1/2" IF Box	4 1/2" IF Pin		6.750		25.14	3560.36





Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

BHA #10 - BHA # 10 Lateral (MWD)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In 2019-12-10 02:30	Downhole Hours 60.83
Lobe/Stage	7/8, 8.5	Depth In (ft) 16570.00	Drilling/Circulating Hours 42.50
Bend Angle	1.75	Date Out 2019-12-12 15:20	Drilling Hours 38.17
Speed (rev/gal)	0.26	Depth Out (ft) 18829.00	Circulating Hours 4.33
Wear Pad OD (in)	7.000	Distance Slid (ft) 160.00	Sliding Hours 7.58
Incident	No	Distance Rotated (ft) 2099.00	Rotating Hours 30.58
Motor Results		% Distance Sliding 7.08%	% Hours Sliding 19.87%
Average Total ROP (ft/h)	59.19	% Distance Rotating 92.92%	% Hours Rotating 80.13%
Average Slide ROP (ft/h)	21.10	BHA Objective	
Average Rotating ROP (ft/h)	68.63	Drill 8.5" Lateral	

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Total Depth/Casing Point: WELL TD	
Vendor	Security		
S/N	13083534		
Nozzles	7x20's		
Total Flow Area (in²)	2.148		

MWD		Incident Notes
Max Downhole Temp (°F)	195.00	Directional: N/A
		MWD: AWR stopped sending up any resistivity / continuous inc counts all together

Bit Distances		Comments
Bit To Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft		MWD: AWR stopped sending up any resistivity / continuous inc counts all together

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm) 650.00 - 675.00	Motor RPM 73.00 - 136.00
WT	9.40	On Bottom Pressure (psi) 4250.00 - 5000.00	Surface RPM 35.00 - 45.00
VIS	59.00	Off Bottom Pressure (psi) 3800.00 - 4600.00	Rotating WOB (klbs) 42.00 - 67.00
PV	16.00	Stall Pressure (psi) 1910.00	Sliding WOB (klbs) 43.00 - 70.00
YP	5.00	Stalls 0	Temp (°F) 191.00 - 191.00
		NPT 0.0	

Items (MWD)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Drill Collar	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	19.81
Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM									





Mud Motor Reports

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 1 (BHA #1 Surface)

Motor Details		Date/Depth/Distances		Hours	
S/N	800-40-005	Date In	2019-11-01 13:00	Downhole Hours	20.25
Size (in)	8.0	Depth In (ft)	140.00	Drilling/Circulating Hours	14.08
Lobe/Stage	7/8, 4.00	Date Out	2019-11-02 09:15		
Bend Angle	1.5	Depth Out (ft)	1875.00	Circulating Hours	1.00
Speed (rev/gal)	0.16	Total Drilled (ft)	1735.00	Drilling Hours	13.08
Wear Pad OD (in)	8.250	Distance Slid (ft)	0.00	Sliding Hours	0.00
Manufacturer	N/A	Distance Rotated (ft)	1735.00	Rotating Hours	13.08
Motor Results		% Distance Sliding	0.00%	% Hours Rotating	100.00%
Motor Incident	No	% Distance Rotating	100.00%	% Hours Sliding	0.00%
Average Total ROP (ft/h)	132.61	BHA Parameters			
Average Slide ROP (ft/h)	0.00	Flow Rate (gpm)	455.00 - 850.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	132.61	Stalls	0	Surface RPM	35.00 - 80.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	10.00 - 30.00
OD (in)	17.500	On Bottom Pressure (psi)	1100.00 - 2650.00	Sliding WOB (klbs)	0.00 - 0.00
Vendor	Baker	Off Bottom Pressure (psi)	800.00 - 1800.00	Temp (°F)	77.00 - 95.00
S/N	5293469	NPT	0.0		
Nozzles	9X12's	BHA Objective			
Total Flow Area (in²)	0.994	Drill Surface			
Bit Type	PDC				
Bit Distances					
Survey (Bit to Survey): 63.00 ft, Bend (Bit to Bend): 6.25 ft					
Mud Properties					
Type	Water				
WT	9.80				
VIS	31.00				
PV	6.00				
YP	15.00				
POOH Reason/Notes					
Total Depth/Casing Point: POOH to run surface casing					
Incident Notes					
Directional: On surface motor drained good no visible damage, bit one missing cutter					
MWD:					
Comments					
Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 4.0 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 900psi, Max Operating Torque: 14,994 ft/lbs, Protracted Angle 1.45, Bit; Baker Hughes DP606S, SN: 5293469, Jets 9x12's TFA: 0.994, Bit Runs: 8					
MWD:					

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 2 (BHA #2 Intermediate 1)				
Motor Details		Date/Depth/Distances		Hours
S/N	800003AIM	Date In	2019-11-08 11:35	Downhole Hours
Size (in)	8.0	Depth In (ft)	1875.00	Drilling/Circulating Hours
Lobe/Stage	7/8, 5.90	Date Out	2019-11-10 01:15	
Bend Angle	1.5	Depth Out (ft)	5280.00	Circulating Hours
Speed (rev/gal)	0.16	Total Drilled (ft)	3405.00	Drilling Hours
Wear Pad OD (in)	8.250	Distance Slid (ft)	105.00	Sliding Hours
Manufacturer	N/A	Distance Rotated (ft)	3300.00	Rotating Hours
Motor Results		% Distance Sliding	3.08%	% Hours Rotating
Motor Incident	No	% Distance Rotating	96.92%	% Hours Sliding
Average Total ROP (ft/h)	141.87	BHA Parameters		
Average Slide ROP (ft/h)	90.00	Flow Rate (gpm)	615.00 - 805.00	Motor RPM
Average Rotating ROP (ft/h)	144.53	Stalls	0	Surface RPM
Bit Details		Stall Pressure (psi)	1330.00	Rotating WOB (klbs)
OD (in)	12.250	On Bottom Pressure (psi)	2700.00 - 4300.00	Sliding WOB (klbs)
Vendor	Baker	Off Bottom Pressure (psi)	2150.00 - 3500.00	Temp (°F)
S/N	5294611	NPT	0.0	
Nozzles	6x12's	BHA Objective		
Total Flow Area (in²)	0.663	Drill Intermediate to casing point		
Bit Type	PDC			
Bit Distances				
Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 4.75 ft				
Mud Properties				
Type	Water Based			
WT	10.40			
VIS	27.00			
PV	1.00			
YP	1.00			
POOH Reason/Notes				
Total Depth/Casing Point: Motor performed well. drained well with minimal slack in bearings. motor was tight during draining. Bit was graded 2-2 with chipped and broken cutters on heel and gauge.				
Incident Notes				
Directional: N/a				
MWD:				
Comments				
Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 5.9 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 1330psi, Max Operating Torque: 22,000 ft/lbs, Protracted Angle 1.5, Bit: Baker Hughes D606TX, SN: 5294611, Jets 6x12's TFA: 0.663, Bit Runs: 2				
MWD:				

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 3 (BHA #3 8.5" Hole)				
Motor Details		Date/Depth/Distances		Hours
S/N	700-40-002	Date In	2019-11-16 20:30	Downhole Hours
Size (in)	7.0	Depth In (ft)	5280.00	Drilling/Circulating Hours
Lobe/Stage	7/8, 8.50	Date Out	2019-11-19 02:45	
Bend Angle	1.5	Depth Out (ft)	10814.00	Circulating Hours
Speed (rev/gal)	0.26	Total Drilled (ft)	5534.00	Drilling Hours
Wear Pad OD (in)	8.250	Distance Slid (ft)	197.00	Sliding Hours
Manufacturer	N/A	Distance Rotated (ft)	5337.00	Rotating Hours
Motor Results		% Distance Sliding	3.56%	% Hours Rotating
Motor Incident	No	% Distance Rotating	96.44%	% Hours Sliding
Average Total ROP (ft/h)	155.52	BHA Parameters		
Average Slide ROP (ft/h)	60.62	Flow Rate (gpm)	650.00 - 750.00	Motor RPM
Average Rotating ROP (ft/h)	165.06	Stalls	0	Surface RPM
Bit Details		Stall Pressure (psi)	1930.02	Rotating WOB (klbs)
OD (in)	8.500	On Bottom Pressure (psi)	3000.00 - 3900.00	Sliding WOB (klbs)
Vendor	Security	Off Bottom Pressure (psi)	2400.00 - 3700.00	Temp (°F)
S/N	13271296	NPT	0.0	
Nozzles	6x12's	BHA Objective		
Total Flow Area (in²)	0.663	Drill 8.5" hole down to KOP		
Bit Type	PDC			
Bit Distances				
Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft				
Mud Properties				
Type	Brine			
WT	9.40			
VIS	28.00			
PV	1.00			
YP	2.00			
POOH Reason/Notes				
Total Depth/Casing Point: Motor was still tight on surface while draining. 1/8 slack in bearings. Bit was graded 3-5				
Incident Notes				
Directional: N/a				
MWD:				
Comments				
Directional: : Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2				
MWD:				



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 4 (BHA #4 (Curve))

Motor Details		Date/Depth/Distances		Hours	
S/N	650-015	Date In	2019-11-30 20:45	Downhole Hours	41.25
Size (in)	6.75	Depth In (ft)	10814.00	Drilling/Circulating Hours	19.33
Lobe/Stage	7/8, 5.00	Date Out	2019-12-02 14:00		
Bend Angle	2.12	Depth Out (ft)	11735.00	Circulating Hours	2.58
Speed (rev/gal)	0.28	Total Drilled (ft)	921.00	Drilling Hours	16.75
Wear Pad OD (in)	7.250	Distance Slid (ft)	584.00	Sliding Hours	11.42
Manufacturer	N/A	Distance Rotated (ft)	337.00	Rotating Hours	5.33
Motor Results		% Distance Sliding	63.41%	% Hours Rotating	31.84%
Motor Incident	No	% Distance Rotating	36.59%	% Hours Sliding	68.16%
Average Total ROP (ft/h)	54.99	BHA Parameters			
Average Slide ROP (ft/h)	51.15	Flow Rate (gpm)	575.00 - 700.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	63.19	Stalls	0	Surface RPM	20.00 - 35.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	35.00 - 42.00
OD (in)	8.500	On Bottom Pressure (psi)	3275.00 - 3600.00	Sliding WOB (klbs)	50.00 - 50.00
Vendor	Security	Off Bottom Pressure (psi)	2700.00 - 3100.00	Temp (°F)	132.00 - 132.00
S/N	13235606	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill Curve			
Bit Type	PDC				
Bit Distances					
Bend: 4.04 ft, Resistivity: 39.79 ft, NB Inc: 32.49 ft, Gamma: 32.89 ft, Survey: 72.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.50				
VIS	45.00				
PV	2.00				
YP	3.00				
POOH Reason/Notes					
Change Bottom Hole Assembly: P/U LATERAL BHA					
Incident Notes					
Directional: N/A					
MWD:					
Comments					
Directional: 6 3/4" 7/8 5.0 Stg 2.12 FBH Slick Sleeve Motor Flow Rate 300-600 Rev/Gal 0.28 Max Diff: 1130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit Security 8.5" Type: GTD64C, SN: 13235606 TFA: 2.227 , Jets 6X22'S Bit Runs: 3					
MWD:					

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 5 (BHA #5)				
Motor Details		Date/Depth/Distances		Hours
S/N	700-40-029	Date In	2019-12-02 15:15	Downhole Hours
Size (in)	7.0	Depth In (ft)	11735.00	Drilling/Circulating Hours
Lobe/Stage	7/8, 8.50	Date Out	2019-12-05 03:30	
Bend Angle	1.75	Depth Out (ft)	13943.00	Circulating Hours
Speed (rev/gal)	0.26	Total Drilled (ft)	2208.00	Drilling Hours
Wear Pad OD (in)	7.250	Distance Slid (ft)	261.00	Sliding Hours
Manufacturer	N/A	Distance Rotated (ft)	1947.00	Rotating Hours
Motor Results		% Distance Sliding	11.82%	% Hours Rotating
Motor Incident	Yes	% Distance Rotating	88.18%	% Hours Sliding
Average Total ROP (ft/h)	51.15	BHA Parameters		
Average Slide ROP (ft/h)	23.73	Flow Rate (gpm)	730.00 - 750.00	Motor RPM
Average Rotating ROP (ft/h)	60.53	Stalls	0	Surface RPM
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)
OD (in)	8.500	On Bottom Pressure (psi)	3850.00 - 4600.00	Sliding WOB (klbs)
Vendor	BAKER	Off Bottom Pressure (psi)	3200.00 - 4100.00	Temp (°F)
S/N	5293009	NPT	0.0	
Nozzles	6x22's	BHA Objective		
Total Flow Area (in²)	2.227	DRILL LATERAL		
Bit Type	PDC			
Bit Distances				
Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft				
Mud Properties				
Type	Oil Based			
WT	9.30			
VIS	56.00			
PV	17.00			
YP	7.00			
POOH Reason/Notes				
Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP				
Incident Notes				
Directional: On surface motor did not drain , no external damage , Bit 2-2				
MWD:				
Comments				
Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.74 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5293009 TFA: 2.227 , Jets 6X22'S Bit Runs: 1				
MWD:				



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 6 (BHA #6(Lateral))

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-024	Date In	2019-12-05 03:30	Downhole Hours	29.00
Size (in)	7.0	Depth In (ft)	13943.00	Drilling/Circulating Hours	15.67
Lobe/Stage	7/8, 8.50	Date Out	2019-12-06 08:30		
Bend Angle	1.75	Depth Out (ft)	14800.00	Circulating Hours	0.83
Speed (rev/gal)	0.26	Total Drilled (ft)	857.00	Drilling Hours	14.83
Wear Pad OD (in)	7.250	Distance Slid (ft)	104.00	Sliding Hours	4.67
Manufacturer	N/A	Distance Rotated (ft)	753.00	Rotating Hours	10.17
Motor Results		% Distance Sliding	12.14%	% Hours Rotating	68.54%
Motor Incident	No	% Distance Rotating	87.86%	% Hours Sliding	31.46%
Average Total ROP (ft/h)	57.78	BHA Parameters			
Average Slide ROP (ft/h)	22.29	Flow Rate (gpm)	700.00 - 750.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	74.07	Stalls	0	Surface RPM	45.00 - 50.00
Bit Details		Stall Pressure (psi)	1910.00	Rotating WOB (klbs)	40.00 - 42.00
OD (in)	8.500	On Bottom Pressure (psi)	4250.00 - 4800.00	Sliding WOB (klbs)	50.00 - 70.00
Vendor	BAKER	Off Bottom Pressure (psi)	4000.00 - 4100.00	Temp (°F)	184.00 - 187.00
S/N	5289707	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill Lateral			
Bit Type	PDC				
Bit Distances					
Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft					
Mud Properties					
Type	Oil Based				
WT	9.30				
VIS	64.00				
PV	17.00				
YP	9.00				
POOH Reason/Notes					
Penetration Rate: POOH due to reduced ROP					
Incident Notes					
Directional: At surface bit had heel row wiped out					
MWD:					
Comments					
Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5289707 TFA: 2.227 , Jets 6X22'S Bit Runs: 3					
MWD:					



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 7 (BHA #7 (Lateral))

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-024	Date In	2019-12-06 08:30	Downhole Hours	28.50
Size (in)	7.0	Depth In (ft)	14800.00	Drilling/Circulating Hours	15.33
Lobe/Stage	7/8, 8.50	Date Out	2019-12-07 13:00		
Bend Angle	1.75	Depth Out (ft)	15455.00	Circulating Hours	5.25
Speed (rev/gal)	0.26	Total Drilled (ft)	655.00	Drilling Hours	10.08
Wear Pad OD (in)	7.250	Distance Slid (ft)	67.00	Sliding Hours	2.83
Manufacturer	N/A	Distance Rotated (ft)	588.00	Rotating Hours	7.25
Motor Results		% Distance Sliding	10.23%	% Hours Rotating	71.90%
Motor Incident	No	% Distance Rotating	89.77%	% Hours Sliding	28.10%
Average Total ROP (ft/h)	64.96	BHA Parameters			
Average Slide ROP (ft/h)	23.65	Flow Rate (gpm)	700.00 - 700.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	81.10	Stalls	0	Surface RPM	45.00 - 45.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	42.00 - 42.00
OD (in)	8.500	On Bottom Pressure (psi)	4250.00 - 4800.00	Sliding WOB (klbs)	70.00 - 70.00
Vendor	NOV	Off Bottom Pressure (psi)	4100.00 - 4100.00	Temp (°F)	-0.00 - -0.00
S/N	A268858	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill Lateral			
Bit Type	PDC				
Bit Distances					
Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	68.00				
PV	17.00				
YP	7.00				
POOH Reason/Notes					
MWD Incident: BAD SURVEYS					
Incident Notes					
Directional: AZM OFF 3 DEG AT DIFF SURVEYS					
MWD: Had an issue with JTDAS 3110 throwing up inconsistent azimuths.					
Comments					
Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: TKC66, SN: 5293516 TFA: 2.227 , Jets 6X22'S Bit Runs: 0					
MWD: POOH due to L-Tool sending up inconsistent azimuth					



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 8 (BHA #8)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-024	Date In	2019-12-07 13:00	Downhole Hours	22.75
Size (in)	7.0	Depth In (ft)	15455.00	Drilling/Circulating Hours	2.75
Lobe/Stage	7/8, 8.50	Date Out	2019-12-08 11:45		
Bend Angle	1.75	Depth Out (ft)	15659.00	Circulating Hours	1.00
Speed (rev/gal)	0.26	Total Drilled (ft)	204.00	Drilling Hours	1.75
Wear Pad OD (in)	7.250	Distance Slid (ft)	0.00	Sliding Hours	0.00
Manufacturer	N/A	Distance Rotated (ft)	204.00	Rotating Hours	1.75
Motor Results		% Distance Sliding	0.00%	% Hours Rotating	100.00%
Motor Incident	No	% Distance Rotating	100.00%	% Hours Sliding	0.00%
Average Total ROP (ft/h)	116.57	BHA Parameters			
Average Slide ROP (ft/h)	0.00	Flow Rate (gpm)	650.00 - 650.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	116.57	Stalls	0	Surface RPM	40.00 - 40.00
Bit Details		Stall Pressure (psi)	1910.00	Rotating WOB (klbs)	40.00 - 40.00
OD (in)	8.500	On Bottom Pressure (psi)	4500.00 - 4500.00	Sliding WOB (klbs)	0.00 - 0.00
Vendor	NOV	Off Bottom Pressure (psi)	3950.00 - 3950.00	Temp (°F)	150.00 - 165.00
S/N	A256219	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill 8.5" lateral per plan 1.0			
Bit Type	PDC				
Bit Distances					
Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft					
Mud Properties					
Type	Oil Based				
WT	9.50				
VIS	64.00				
PV	2.00				
YP	3.00				
POOH Reason/Notes					
Change Bottom Hole Assembly: POOH Due to Tool only giving resistivity counts every 10-15 Ft					
Incident Notes					
Directional: AWR Failure					
MWD: AWR sending resistivity counts every 10-15ft, geologist wanted more data.					
Comments					
Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0					
MWD: AWR sending resistivity counts every 10-15ft, geologist wanted more data.					



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 9 (BHA #9)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-024	Date In	2019-12-08 11:45	Downhole Hours	38.75
Size (in)	7.0	Depth In (ft)	15659.00	Drilling/Circulating Hours	25.33
Lobe/Stage	7/8, 8.50	Date Out	2019-12-10 02:30		
Bend Angle	1.75	Depth Out (ft)	16570.00	Circulating Hours	0.83
Speed (rev/gal)	0.26	Total Drilled (ft)	911.00	Drilling Hours	24.50
Wear Pad OD (in)	7.250	Distance Slid (ft)	120.00	Sliding Hours	10.00
Manufacturer	N/A	Distance Rotated (ft)	791.00	Rotating Hours	14.50
Motor Results		% Distance Sliding	13.17%	% Hours Rotating	59.18%
Motor Incident	No	% Distance Rotating	86.83%	% Hours Sliding	40.82%
Average Total ROP (ft/h)	37.18	BHA Parameters			
Average Slide ROP (ft/h)	12.00	Flow Rate (gpm)	650.00 - 700.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	54.55	Stalls	0	Surface RPM	35.00 - 40.00
Bit Details		Stall Pressure (psi)	1910.00	Rotating WOB (klbs)	48.00 - 67.00
OD (in)	8.500	On Bottom Pressure (psi)	4250.00 - 4400.00	Sliding WOB (klbs)	70.00 - 70.00
Vendor	NOV	Off Bottom Pressure (psi)	3800.00 - 4100.00	Temp (°F)	-0.00 - -0.00
S/N	A256219	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill 8.5" Lateral			
Bit Type	PDC				
Bit Distances					
Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft, Resistivity: 50.10 ft, Survey: 80.27 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	54.00				
PV	16.00				
YP	5.00				

POOH Reason/Notes

Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while rocking pipe. Decision was made to pooh to change bit, motor and also pick up agitator. Motor Drained well with .25" slack in bearings. bit had 1 chipped cutter on inner row and the heel row was wiped out.

Incident Notes

Directional:

MWD: L-Tool was sending up inconsistent azimuths

Comments

Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0

MWD: L-Tool was sending up inconsistent azimuths



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 10 (BHA # 10 Lateral)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-004	Date In	2019-12-10 02:30	Downhole Hours	60.83
Size (in)	7.0	Depth In (ft)	16570.00	Drilling/Circulating Hours	42.50
Lobe/Stage	7/8, 8.50	Date Out	2019-12-12 15:20		
Bend Angle	1.75	Depth Out (ft)	18829.00	Circulating Hours	4.33
Speed (rev/gal)	0.26	Total Drilled (ft)	2259.00	Drilling Hours	38.17
Wear Pad OD (in)	7.000	Distance Slid (ft)	160.00	Sliding Hours	7.58
Manufacturer	N/A	Distance Rotated (ft)	2099.00	Rotating Hours	30.58
Motor Results		% Distance Sliding	7.08%	% Hours Rotating	80.13%
Motor Incident	No	% Distance Rotating	92.92%	% Hours Sliding	19.87%
Average Total ROP (ft/h)	59.19	BHA Parameters			
Average Slide ROP (ft/h)	21.10	Flow Rate (gpm)	650.00 - 675.00	Motor RPM	73.00 - 136.00
Average Rotating ROP (ft/h)	68.63	Stalls	0	Surface RPM	35.00 - 45.00
Bit Details		Stall Pressure (psi)	1910.00	Rotating WOB (klbs)	42.00 - 67.00
OD (in)	8.500	On Bottom Pressure (psi)	4250.00 - 5000.00	Sliding WOB (klbs)	43.00 - 70.00
Vendor	Security	Off Bottom Pressure (psi)	3800.00 - 4600.00	Temp (°F)	191.00 - 191.00
S/N	13083534	NPT	0.0		
Nozzles	7x20's	BHA Objective			
Total Flow Area (in²)	2.148	Drill 8.5" Lateral			
Bit Type	PDC				
Bit Distances					
Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	59.00				
PV	16.00				
YP	5.00				
POOH Reason/Notes					
Total Depth/Casing Point: WELL TD					
Incident Notes					
Directional: N/A					
MWD: AWR stopped sending up any resistivity / continuous inc counts all together					
Comments					
Directional: 7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit Security 8.5" Type: GTD74D, SN: 13083534 TFA: 2.148 , Jets 7X20'S Bit Runs: 1					
MWD: AWR stopped sending up any resistivity / continuous inc counts all together					



Slide/Rotate Reports

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #1 (BHA #1 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	11-01	14:00	15:10	11-01	1.17	140.00	296.00	156.00	133.71	N/A	455.00	35.0	10.00	1100.00	800.00	
Rotate	11-01	15:30	15:45	11-01	0.25	296.00	390.00	94.00	376.00	N/A	650.00	40.0	10.00	1500.00	1000.00	
Rotate	11-01	17:05	17:50	11-01	0.75	390.00	470.00	80.00	106.67	N/A	650.00	40.0	10.00	1500.00	1000.00	
Rotate	11-01	17:55	18:10	11-01	0.25	470.00	564.00	94.00	376.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	18:15	18:50	11-01	0.58	564.00	753.00	189.00	324.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	18:55	19:15	11-01	0.33	753.00	846.00	93.00	279.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	19:20	19:45	11-01	0.42	846.00	938.00	92.00	220.80	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	19:50	20:15	11-01	0.42	938.00	1030.00	92.00	220.80	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	20:20	20:50	11-01	0.5	1030.00	1121.00	91.00	182.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	20:55	21:35	11-01	0.67	1121.00	1213.00	92.00	138.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	21:40	22:30	11-01	0.83	1213.00	1305.00	92.00	110.40	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	22:35	23:40	11-01	1.08	1305.00	1399.00	94.00	86.77	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-01	23:45	00:25	11-02	0.67	1399.00	1493.00	94.00	141.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-02	00:30	01:30	11-02	1.0	1493.00	1587.00	94.00	94.00	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-02	01:35	02:40	11-02	1.08	1587.00	1682.00	95.00	87.69	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-02	02:45	04:30	11-02	1.75	1682.00	1776.00	94.00	53.71	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-02	04:35	05:50	11-02	1.25	1776.00	1870.00	94.00	75.20	N/A	850.00	80.0	30.00	2650.00	1800.00	
Rotate	11-02	05:55	06:00	11-02	0.08	1870.00	1875.00	5.00	60.00	N/A	850.00	80.0	30.00	2650.00	1800.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #2 (BHA #2 Intermediate 1)

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	11-08	16:25	17:55	11-08	1.5	1875.00	2040.00	165.00	110.00	N/A	615.00	60.0	25.00	2700.00	2150.00	
Rotate	11-08	18:15	18:25	11-08	0.17	2040.00	2050.00	10.00	60.00	N/A	615.00	60.0	25.00	2700.00	2150.00	
Slide	11-08	18:25	18:40	11-08	0.25	2050.00	2075.00	25.00	100.00	155.0	700.00	N/A	32.00	3300.00	2600.00	
Rotate	11-08	18:40	19:00	11-08	0.33	2075.00	2134.00	59.00	177.00	N/A	700.00	60.0	25.00	3100.00	2600.00	
Rotate	11-08	19:05	19:35	11-08	0.5	2134.00	2228.00	94.00	188.00	N/A	800.00	60.0	30.00	4000.00	3200.00	
Rotate	11-08	19:40	19:45	11-08	0.08	2228.00	2239.00	11.00	132.00	N/A	800.00	60.0	30.00	4000.00	3200.00	
Slide	11-08	19:45	20:00	11-08	0.25	2239.00	2264.00	25.00	100.00	180.0	800.00	N/A	32.00	3600.00	3200.00	
Rotate	11-08	20:00	20:20	11-08	0.33	2264.00	2323.00	59.00	177.00	N/A	800.00	60.0	30.00	4000.00	3200.00	
Rotate	11-08	20:25	20:50	11-08	0.42	2323.00	2417.00	94.00	225.60	N/A	800.00	60.0	35.00	4000.00	3200.00	
Rotate	11-08	20:55	21:00	11-08	0.08	2417.00	2427.00	10.00	120.00	N/A	800.00	60.0	35.00	4000.00	3200.00	
Slide	11-08	21:00	21:10	11-08	0.17	2427.00	2452.00	25.00	150.00	170.0	800.00	N/A	32.00	3600.00	3200.00	
Rotate	11-08	21:10	21:25	11-08	0.25	2452.00	2511.00	59.00	236.00	N/A	800.00	60.0	35.00	4000.00	3200.00	
Rotate	11-08	21:30	21:55	11-08	0.42	2511.00	2606.00	95.00	228.00	N/A	800.00	60.0	35.00	4000.00	3200.00	
Rotate	11-08	22:00	22:25	11-08	0.42	2606.00	2700.00	94.00	225.60	N/A	800.00	60.0	35.00	4000.00	3200.00	
Rotate	11-08	22:30	22:50	11-08	0.33	2700.00	2794.00	94.00	282.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-08	22:55	23:10	11-08	0.25	2794.00	2888.00	94.00	376.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-08	23:15	23:35	11-08	0.33	2888.00	2983.00	95.00	285.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-08	23:40	00:00	11-09	0.33	2983.00	3077.00	94.00	282.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	00:05	00:25	11-09	0.33	3077.00	3171.00	94.00	282.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	00:30	00:50	11-09	0.33	3171.00	3265.00	94.00	282.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	00:55	01:20	11-09	0.42	3265.00	3359.00	94.00	225.60	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	01:25	01:55	11-09	0.5	3359.00	3453.00	94.00	188.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	02:00	02:05	11-09	0.08	3453.00	3463.00	10.00	120.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Slide	11-09	02:05	02:35	11-09	0.5	3463.00	3493.00	30.00	60.00	250.0	805.00	N/A	33.00	4000.00	3500.00	
Rotate	11-09	02:35	03:05	11-09	0.5	3493.00	3548.00	55.00	110.00	N/A	800.00	60.0	40.00	4000.00	3200.00	
Rotate	11-09	03:10	03:40	11-09	0.5	3548.00	3643.00	95.00	190.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	03:45	04:25	11-09	0.67	3643.00	3737.00	94.00	141.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	04:30	05:00	11-09	0.5	3737.00	3831.00	94.00	188.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	05:05	05:40	11-09	0.58	3831.00	3926.00	95.00	162.86	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	05:45	06:45	11-09	1.0	3926.00	4021.00	95.00	95.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	06:50	07:15	11-09	0.42	4021.00	4115.00	94.00	225.60	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	07:20	07:45	11-09	0.42	4115.00	4209.00	94.00	225.60	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	07:50	08:15	11-09	0.42	4209.00	4304.00	95.00	228.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	08:20	08:45	11-09	0.42	4304.00	4398.00	94.00	225.60	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	08:50	09:20	11-09	0.5	4398.00	4492.00	94.00	188.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	09:25	09:45	11-09	0.33	4492.00	4587.00	95.00	285.00	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	09:50	10:25	11-09	0.58	4587.00	4681.00	94.00	161.14	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	10:30	11:25	11-09	0.92	4681.00	4776.00	95.00	103.64	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	11:30	12:40	11-09	1.17	4776.00	4871.00	95.00	81.43	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	12:45	14:10	11-09	1.42	4871.00	4965.00	94.00	66.35	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	14:15	16:20	11-09	2.08	4965.00	5060.00	95.00	45.60	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	16:25	17:50	11-09	1.42	5060.00	5154.00	94.00	66.35	N/A	800.00	60.0	45.00	4300.00	3500.00	
Rotate	11-09	17:55	19:05	11-09	1.17	5154.00	5249.00	95.00	81.43	N/A	800.00	70.0	50.00	4000.00	3500.00	
Rotate	11-09	19:10	19:35	11-09	0.42	5249.00	5280.00	31.00	74.40	N/A	800.00	70.0	50.00	4000.00	3500.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

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

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	11-17	02:20	02:40	11-17	0.33	5280.00	5349.00	69.00	207.00	N/A	650.00	30.0	34.00	3000.00	2400.00	
Rotate	11-17	02:45	03:00	11-17	0.25	5349.00	5444.00	95.00	380.00	N/A	735.00	40.0	38.00	3650.00	3050.00	
Rotate	11-17	03:05	03:25	11-17	0.33	5444.00	5538.00	94.00	282.00	N/A	735.00	40.0	38.00	3650.00	3050.00	
Rotate	11-17	03:30	03:35	11-17	0.08	5538.00	5548.00	10.00	120.00	N/A	735.00	40.0	38.00	3650.00	3050.00	
Slide	11-17	03:35	03:45	11-17	0.17	5548.00	5573.00	25.00	150.00	230.0	735.00	N/A	28.00	3450.00	3100.00	
Rotate	11-17	03:45	03:55	11-17	0.17	5573.00	5632.00	59.00	354.00	N/A	735.00	40.0	38.00	3650.00	3100.00	
Rotate	11-17	04:00	04:15	11-17	0.25	5632.00	5727.00	95.00	380.00	N/A	735.00	40.0	38.00	3800.00	3100.00	
Rotate	11-17	04:20	04:30	11-17	0.17	5727.00	5821.00	94.00	564.00	N/A	735.00	40.0	38.00	3800.00	3100.00	
Rotate	11-17	04:35	04:50	11-17	0.25	5821.00	5916.00	95.00	380.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	04:55	05:05	11-17	0.17	5916.00	6010.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	05:10	05:15	11-17	0.08	6010.00	6020.00	10.00	120.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Slide	11-17	05:15	05:20	11-17	0.08	6020.00	6040.00	20.00	240.00	160.0	735.00	N/A	28.00	3450.00	3100.00	
Rotate	11-17	05:20	05:30	11-17	0.17	6040.00	6104.00	64.00	384.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	05:35	05:50	11-17	0.25	6104.00	6199.00	95.00	380.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	05:55	06:00	11-17	0.08	6199.00	6210.00	11.00	132.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Slide	11-17	06:00	06:10	11-17	0.17	6210.00	6225.00	15.00	90.00	230.0	735.00	N/A	28.00	3450.00	3100.00	
Rotate	11-17	06:10	06:25	11-17	0.25	6225.00	6293.00	68.00	272.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	06:30	06:40	11-17	0.17	6293.00	6387.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	06:45	06:55	11-17	0.17	6387.00	6481.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	07:00	07:10	11-17	0.17	6481.00	6576.00	95.00	570.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	07:15	07:25	11-17	0.17	6576.00	6670.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	07:30	07:55	11-17	0.42	6670.00	6765.00	95.00	228.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	08:00	08:10	11-17	0.17	6765.00	6859.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	08:15	08:25	11-17	0.17	6859.00	6953.00	94.00	564.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	08:30	08:55	11-17	0.42	6953.00	7047.00	94.00	225.60	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	09:00	09:10	11-17	0.17	7047.00	7142.00	95.00	570.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	09:15	09:30	11-17	0.25	7142.00	7236.00	94.00	376.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	09:35	09:45	11-17	0.17	7236.00	7331.00	95.00	570.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Rotate	11-17	09:50	10:00	11-17	0.17	7331.00	7344.00	13.00	78.00	N/A	735.00	40.0	40.00	3800.00	3100.00	
Slide	11-17	10:00	10:10	11-17	0.17	7344.00	7364.00	20.00	120.00	235.0	750.00	N/A	40.00	3900.00	3700.00	
Rotate	11-17	10:10	10:25	11-17	0.25	7364.00	7425.00	61.00	244.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	10:30	10:45	11-17	0.25	7425.00	7519.00	94.00	376.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	10:50	11:10	11-17	0.33	7519.00	7614.00	95.00	285.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	11:15	11:30	11-17	0.25	7614.00	7708.00	94.00	376.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	11:35	11:50	11-17	0.25	7708.00	7803.00	95.00	380.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	11:55	12:20	11-17	0.42	7803.00	7897.00	94.00	225.60	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	12:25	12:30	11-17	0.08	7897.00	7912.00	15.00	180.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Slide	11-17	12:30	12:45	11-17	0.25	7912.00	7932.00	20.00	80.00	300.0	750.00	N/A	40.00	3900.00	3700.00	
Rotate	11-17	12:45	13:05	11-17	0.33	7932.00	7992.00	60.00	180.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	13:10	13:35	11-17	0.42	7992.00	8087.00	95.00	228.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	13:40	13:45	11-17	0.08	8087.00	8093.00	6.00	72.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Slide	11-17	13:45	14:05	11-17	0.33	8093.00	8115.00	22.00	66.00	300.0	750.00	N/A	40.00	3900.00	3700.00	
Rotate	11-17	14:05	14:20	11-17	0.25	8115.00	8182.00	67.00	268.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	14:35	15:05	11-17	0.5	8182.00	8276.00	94.00	188.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	15:10	15:30	11-17	0.33	8276.00	8370.00	94.00	282.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	15:35	15:55	11-17	0.33	8370.00	8464.00	94.00	282.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	16:00	16:35	11-17	0.58	8464.00	8558.00	94.00	161.14	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	17:45	18:30	11-17	0.75	8558.00	8653.00	95.00	126.67	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	18:35	18:50	11-17	0.25	8653.00	8667.00	14.00	56.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Slide	11-17	18:50	19:20	11-17	0.5	8667.00	8687.00	20.00	40.00	300.0	750.00	N/A	40.00	3900.00	3700.00	
Rotate	11-17	19:20	19:45	11-17	0.42	8687.00	8747.00	60.00	144.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	19:50	20:50	11-17	1.0	8747.00	8841.00	94.00	94.00	N/A	750.00	40.0	40.00	3900.00	3300.00	
Rotate	11-17	20:55	21:50	11-17	0.92	8841.00	8936.00	95.00	103.64	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-17	21:55	22:35	11-17	0.67	8936.00	9030.00	94.00	141.00	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-17	22:40	22:45	11-17	0.08	9030.00	9040.00	10.00	120.00	N/A	700.00	40.0	42.00	3500.00	3100.00	
Slide	11-17	22:45	23:35	11-17	0.83	9040.00	9065.00	25.00	30.00	290.0	700.00	N/A	40.00	3300.00	3100.00	
Rotate	11-17	23:35	00:00	11-18	0.42	9065.00	9104.00	39.00	93.60	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	00:00	00:15	11-18	0.25	9104.00	9124.00	20.00	80.00	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	00:20	01:15	11-18	0.92	9124.00	9218.00	94.00	102.55	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	01:20	02:10	11-18	0.83	9218.00	9313.00	95.00	114.00	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	02:15	03:00	11-18	0.75	9313.00	9407.00	94.00	125.33	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	03:05	03:50	11-18	0.75	9407.00	9502.00	95.00	126.67	N/A	700.00	40.0	42.00	3500.00	3100.00	
Rotate	11-18	03:55	04:00	11-18	0.08	9502.00	9512.00	10.00	120.00	N/A	700.00	40.0	42.00	3500.00	3100.00	
Slide	11-18	04:00	04:45	11-18	0.75	9512.00	9542.00	30.00	40.00	280.0	700.00	N/A	40.00	3300.00	3100.00	

Rotate	11-18	04:45	05:10	11-18	0.42	9542.00	9596.00	54.00	129.60	N/A	700.00	40.0	42.00	3600.00	3100.00
Rotate	11-18	05:15	06:00	11-18	0.75	9596.00	9690.00	94.00	125.33	N/A	700.00	40.0	42.00	3600.00	3100.00
Rotate	11-18	06:15	07:00	11-18	0.75	9690.00	9784.00	94.00	125.33	N/A	700.00	40.0	42.00	3600.00	3100.00
Rotate	11-18	07:05	08:00	11-18	0.92	9784.00	9879.00	95.00	103.64	N/A	700.00	40.0	42.00	3600.00	3100.00
Rotate	11-18	08:05	09:10	11-18	1.08	9879.00	9974.00	95.00	87.69	N/A	700.00	40.0	42.00	3600.00	3100.00
Rotate	11-18	09:35	10:50	11-18	1.25	9974.00	10068.00	94.00	75.20	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	10:55	12:10	11-18	1.25	10068.00	10162.00	94.00	75.20	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	12:15	13:35	11-18	1.33	10162.00	10257.00	95.00	71.25	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	13:40	14:55	11-18	1.25	10257.00	10351.00	94.00	75.20	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	15:00	16:10	11-18	1.17	10351.00	10445.00	94.00	80.57	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	16:15	17:30	11-18	1.25	10445.00	10539.00	94.00	75.20	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	17:35	18:25	11-18	0.83	10539.00	10634.00	95.00	114.00	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	18:30	19:35	11-18	1.08	10634.00	10728.00	94.00	86.77	N/A	700.00	35.0	42.00	3600.00	3100.00
Rotate	11-18	19:40	20:30	11-18	0.83	10728.00	10814.00	86.00	103.20	N/A	700.00	35.0	42.00	3600.00	3100.00



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #4 (BHA #4 (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	12-01	07:30	09:20	12-01	1.83	10814.00	10885.00	71.00	38.73	0.0		N/A				
Slide	12-01	13:25	14:30	12-01	1.08	10885.00	10932.00	47.00	43.38	0.0		N/A				
Slide	12-01	14:35	15:30	12-01	0.92	10932.00	10979.00	47.00	51.27	0.0		N/A				
Rotate	12-01	15:35	15:45	12-01	0.17	10979.00	10985.00	6.00	36.00	N/A	700.00	35.0	42.00	3600.00	3100.00	
Slide	12-01	15:45	17:20	12-01	1.58	10985.00	11074.00	89.00	56.21	35.0	575.00	N/A	50.00	3300.00	2700.00	
Slide	12-01	17:25	19:20	12-01	1.92	11074.00	11160.00	86.00	44.87	5.0	575.00	N/A	50.00	3300.00	2700.00	
Rotate	12-01	19:20	19:30	12-01	0.17	11160.00	11169.00	9.00	54.00	N/A	700.00	35.0	42.00	3600.00	3100.00	
Rotate	12-01	19:35	19:50	12-01	0.25	11169.00	11181.00	12.00	48.00	N/A	575.00	20.0	35.00	3275.00	2750.00	
Slide	12-01	19:50	21:10	12-01	1.33	11181.00	11263.00	82.00	61.50	350.0	575.00	N/A	50.00	3300.00	2700.00	
Slide	12-01	21:15	21:35	12-01	0.33	11263.00	11280.00	17.00	51.00	0.0	575.00	N/A	50.00	3300.00	2700.00	
Rotate	12-01	21:35	22:40	12-01	1.08	11280.00	11358.00	78.00	72.00	N/A	575.00	20.0	35.00	3275.00	2750.00	
Rotate	12-01	22:45	23:15	12-01	0.5	11358.00	11388.00	30.00	60.00	N/A	575.00	20.0	35.00	3275.00	2750.00	
Slide	12-01	23:15	00:15	12-02	1.0	11388.00	11452.00	64.00	64.00	5.0	575.00	N/A	50.00	3300.00	2700.00	
Rotate	12-02	00:20	01:50	12-02	1.5	11452.00	11546.00	94.00	62.67	N/A	575.00	20.0	35.00	3275.00	2750.00	
Rotate	12-02	01:55	02:20	12-02	0.42	11546.00	11578.00	32.00	76.80	N/A	575.00	20.0	35.00	3275.00	2750.00	
Slide	12-02	02:20	03:05	12-02	0.75	11578.00	11621.00	43.00	57.33	20.0	575.00	N/A	50.00	3300.00	2700.00	
Rotate	12-02	03:05	03:30	12-02	0.42	11621.00	11641.00	20.00	48.00	N/A	575.00	20.0	35.00	3275.00	2750.00	
Rotate	12-02	03:35	04:00	12-02	0.42	11641.00	11674.00	33.00	79.20	N/A	575.00	20.0	35.00	3275.00	2750.00	
Slide	12-02	04:00	04:40	12-02	0.67	11674.00	11712.00	38.00	57.00	30.0	575.00	N/A	50.00	3300.00	2700.00	
Rotate	12-02	04:40	05:05	12-02	0.42	11712.00	11735.00	23.00	55.20	N/A	575.00	20.0	35.00	3275.00	2750.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #5 (BHA #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
Rotate	12-02	21:20	23:25	12-02	2.08	11735.00	11839.00	104.00	49.92	N/A	750.00	50.0	30.00	3850.00	3200.00	
Rotate	12-02	23:30	23:45	12-02	0.25	11839.00	11841.00	2.00	8.00	N/A	750.00	50.0	30.00	3850.00	3200.00	
Slide	12-02	23:45	00:30	12-03	0.75	11841.00	11871.00	30.00	40.00	80.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	00:30	01:25	12-03	0.92	11871.00	11934.00	63.00	68.73	N/A	750.00	50.0	30.00	3850.00	3200.00	
Rotate	12-03	01:30	02:30	12-03	1.0	11934.00	12008.00	74.00	74.00	N/A	750.00	50.0	30.00	3850.00	3200.00	
Slide	12-03	02:30	03:00	12-03	0.5	12008.00	12028.00	20.00	40.00	45.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	03:05	04:05	12-03	1.0	12028.00	12122.00	94.00	94.00	N/A	750.00	50.0	30.00	3850.00	3200.00	
Rotate	12-03	04:10	04:20	12-03	0.17	12122.00	12129.00	7.00	42.00	N/A	750.00	50.0	30.00	3850.00	3200.00	
Slide	12-03	04:20	04:55	12-03	0.58	12129.00	12159.00	30.00	51.43	80.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	04:55	05:35	12-03	0.67	12159.00	12216.00	57.00	85.50	N/A	750.00	50.0	30.00	3850.00	3200.00	
Rotate	12-03	05:40	06:40	12-03	1.0	12216.00	12311.00	95.00	95.00	N/A	750.00	50.0	30.00	3850.00	3200.00	
Rotate	12-03	06:45	07:30	12-03	0.75	12311.00	12405.00	94.00	125.33	N/A						
Rotate	12-03	07:35	07:45	12-03	0.17	12405.00	12411.00	6.00	36.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-03	07:45	08:30	12-03	0.75	12411.00	12443.00	32.00	42.67	250.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	08:30	09:05	12-03	0.58	12443.00	12499.00	56.00	96.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	09:10	10:15	12-03	1.08	12499.00	12594.00	95.00	87.69	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	10:20	10:25	12-03	0.08	12594.00	12600.00	6.00	72.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-03	10:25	11:40	12-03	1.25	12600.00	12625.00	25.00	20.00	145.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	11:40	12:35	12-03	0.92	12625.00	12689.00	64.00	69.82	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	12:40	13:40	12-03	1.0	12689.00	12765.00	76.00	76.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-03	13:40	14:15	12-03	0.58	12765.00	12777.00	12.00	20.57	0.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-03	14:15	14:20	12-03	0.08	12777.00	12783.00	6.00	72.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	14:25	15:40	12-03	1.25	12783.00	12877.00	94.00	75.20	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	15:45	16:00	12-03	0.25	12877.00	12901.00	24.00	96.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	19:30	21:00	12-03	1.5	12901.00	12972.00	71.00	47.33	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	21:05	22:35	12-03	1.5	12972.00	13066.00	94.00	62.67	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-03	22:40	23:00	12-03	0.33	13066.00	13083.00	17.00	51.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-03	23:00	00:25	12-04	1.42	13083.00	13108.00	25.00	17.65	140.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-04	00:25	01:20	12-04	0.92	13108.00	13160.00	52.00	56.73	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	01:25	03:15	12-04	1.83	13160.00	13254.00	94.00	51.27	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	03:30	04:20	12-04	0.83	13254.00	13309.00	55.00	66.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-04	04:20	05:00	12-04	0.67	13309.00	13321.00	12.00	18.00	0.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-04	05:00	05:45	12-04	0.75	13321.00	13349.00	28.00	37.33	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	05:50	07:20	12-04	1.5	13349.00	13443.00	94.00	62.67	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	07:35	09:15	12-04	1.67	13443.00	13537.00	94.00	56.40	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	09:20	11:05	12-04	1.75	13537.00	13631.00	94.00	53.71	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	11:10	11:30	12-04	0.33	13631.00	13642.00	11.00	33.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-04	11:30	12:40	12-04	1.17	13642.00	13667.00	25.00	21.43	180.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-04	12:40	14:05	12-04	1.42	13667.00	13725.00	58.00	40.94	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	14:10	14:30	12-04	0.33	13725.00	13738.00	13.00	39.00	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-04	14:30	16:00	12-04	1.5	13738.00	13758.00	20.00	13.33	160.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-04	16:00	17:45	12-04	1.75	13758.00	13820.00	62.00	35.43	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	17:50	19:10	12-04	1.33	13820.00	13873.00	53.00	39.75	N/A	730.00	65.0	40.00	4550.00	4000.00	
Slide	12-04	19:10	21:00	12-04	1.83	13873.00	13903.00	30.00	16.36	140.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-04	21:00	21:35	12-04	0.58	13903.00	13914.00	11.00	18.86	N/A	730.00	65.0	40.00	4550.00	4000.00	
Rotate	12-04	21:40	22:15	12-04	0.58	13914.00	13943.00	29.00	49.71	N/A	730.00	50.0	40.00	4550.00	4000.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #6 (BHA #6(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	12-05	10:50	11:30	12-05	0.67	13943.00	14008.00	65.00	97.50	N/A	730.00	50.0	40.00	4550.00	4000.00	
Rotate	12-05	11:35	12:15	12-05	0.67	14008.00	14073.00	65.00	97.50	N/A	730.00	50.0	40.00	4550.00	4000.00	
Slide	12-05	12:15	13:15	12-05	1.0	14073.00	14103.00	30.00	30.00	30.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-05	13:20	14:40	12-05	1.33	14103.00	14197.00	94.00	70.50	N/A	730.00	50.0	40.00	4550.00	4000.00	
Rotate	12-05	14:45	15:55	12-05	1.17	14197.00	14291.00	94.00	80.57	N/A	730.00	50.0	40.00	4550.00	4000.00	
Rotate	12-05	16:00	16:10	12-05	0.17	14291.00	14300.00	9.00	54.00	N/A	730.00	50.0	40.00	4550.00	4000.00	
Slide	12-05	16:10	17:30	12-05	1.33	14300.00	14334.00	34.00	25.50	120.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-05	17:30	18:20	12-05	0.83	14334.00	14385.00	51.00	61.20	N/A	730.00	50.0	40.00	4550.00	4000.00	
Rotate	12-05	18:25	18:55	12-05	0.5	14385.00	14431.00	46.00	92.00	N/A	730.00	50.0	40.00	4550.00	4000.00	
Slide	12-05	18:55	19:40	12-05	0.75	14431.00	14451.00	20.00	26.67	180.0	750.00	N/A	50.00	4600.00	4100.00	
Rotate	12-05	19:40	20:05	12-05	0.42	14451.00	14479.00	28.00	67.20	N/A	730.00	50.0	40.00	4550.00	4000.00	
Rotate	12-05	20:10	20:25	12-05	0.25	14479.00	14573.00	94.00	376.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-05	20:30	22:15	12-05	1.75	14573.00	14668.00	95.00	54.29	N/A	700.00	45.0	42.00	4800.00	4100.00	
Slide	12-05	22:20	23:55	12-05	1.58	14668.00	14688.00	20.00	12.63	60.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-05	23:55	01:50	12-06	1.92	14688.00	14762.00	74.00	38.61	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-06	01:55	02:25	12-06	0.5	14762.00	14800.00	38.00	76.00	N/A	700.00	45.0	42.00	4800.00	4100.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #7 (BHA #7 (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
Slide	12-06	15:00	15:15	12-06	0.25	14800.00	14820.00	20.00	80.00	359.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-06	15:15	16:30	12-06	1.25	14820.00	14856.00	36.00	28.80	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-06	16:35	17:00	12-06	0.42	14856.00	14951.00	95.00	228.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-06	17:10	17:30	12-06	0.33	14951.00	15045.00	94.00	282.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-06	17:40	18:20	12-06	0.67	15045.00	15099.00	54.00	81.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Slide	12-06	18:20	19:20	12-06	1.0	15099.00	15116.00	17.00	17.00	45.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-06	19:20	19:40	12-06	0.33	15116.00	15140.00	24.00	72.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-06	19:45	20:50	12-06	1.08	15140.00	15234.00	94.00	86.77	N/A	700.00	45.0	42.00	4800.00	4100.00	
Slide	12-07	01:30	02:30	12-07	1.0	15234.00	15254.00	20.00	20.00	20.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-07	02:30	03:45	12-07	1.25	15254.00	15328.00	74.00	59.20	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-07	03:50	04:45	12-07	0.92	15328.00	15391.00	63.00	68.73	N/A	700.00	45.0	42.00	4800.00	4100.00	
Slide	12-07	04:45	05:20	12-07	0.58	15391.00	15401.00	10.00	17.14	65.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-07	05:20	05:50	12-07	0.5	15401.00	15422.00	21.00	42.00	N/A	700.00	45.0	42.00	4800.00	4100.00	
Rotate	12-07	06:00	06:30	12-07	0.5	15422.00	15455.00	33.00	66.00	N/A	700.00	45.0	42.00	4800.00	4100.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #8 (BHA #8)

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	12-08	01:35	02:00	12-08	0.42	15455.00	15516.00	61.00	146.40	N/A	650.00	40.0	40.00	4500.00	3950.00	
Rotate	12-08	02:05	02:55	12-08	0.83	15516.00	15610.00	94.00	112.80	N/A	650.00	40.0	40.00	4500.00	3950.00	
Rotate	12-08	03:00	03:30	12-08	0.5	15610.00	15659.00	49.00	98.00	N/A	650.00	40.0	40.00	4500.00	3950.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #9 (BHA #9)

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	12-08	17:30	17:45	12-08	0.25	15659.00	15704.00	45.00	180.00	N/A	650.00	35.0	48.00	4400.00	3900.00	
Slide	12-08	17:50	19:05	12-08	1.25	15704.00	15717.00	13.00	10.40	90.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-08	19:05	19:55	12-08	0.83	15717.00	15798.00	81.00	97.20	N/A	650.00	35.0	48.00	4400.00	3900.00	
Slide	12-08	20:25	22:30	12-08	2.08	15798.00	15825.00	27.00	12.96	120.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-08	22:30	23:50	12-08	1.33	15825.00	15893.00	68.00	51.00	N/A	650.00	35.0	48.00	4400.00	3900.00	
Slide	12-09	00:00	01:25	12-09	1.42	15893.00	15916.00	23.00	16.24	80.0	700.00	N/A	70.00	4250.00	4100.00	
Rotate	12-09	01:25	02:30	12-09	1.08	15916.00	15988.00	72.00	66.46	N/A	650.00	35.0	48.00	4400.00	3900.00	
Slide	12-09	02:45	03:40	12-09	0.92	15988.00	16005.00	17.00	18.55	20.0	675.00	N/A	70.00	4250.00	4100.00	
Rotate	12-09	03:40	05:05	12-09	1.42	16005.00	16082.00	77.00	54.35	N/A	675.00	40.0	50.00	4350.00	3900.00	
Rotate	12-09	05:10	07:00	12-09	1.83	16082.00	16176.00	94.00	51.27	N/A	675.00	40.0	50.00	4350.00	3900.00	
Rotate	12-09	07:05	09:15	12-09	2.17	16176.00	16271.00	95.00	43.85	N/A	675.00	40.0	50.00	4350.00	3900.00	
Rotate	12-09	09:30	09:40	12-09	0.17	16271.00	16280.00	9.00	54.00	N/A	675.00	40.0	50.00	4350.00	3900.00	
Slide	12-09	09:40	10:10	12-09	0.5	16280.00	16289.00	9.00	18.00	0.0	675.00	N/A	70.00	4250.00	4100.00	
Rotate	12-09	10:10	12:30	12-09	2.33	16289.00	16365.00	76.00	32.57	N/A	675.00	40.0	50.00	4350.00	3900.00	
Rotate	12-09	12:50	13:15	12-09	0.42	16365.00	16386.00	21.00	50.40	N/A	675.00	40.0	67.00	4350.00	3900.00	
Slide	12-09	13:15	14:45	12-09	1.5	16386.00	16401.00	15.00	10.00	15.0	675.00	N/A	70.00	4250.00	4100.00	
Rotate	12-09	14:45	15:45	12-09	1.0	16401.00	16459.00	58.00	58.00	N/A	650.00	40.0	67.00	4350.00	3800.00	
Rotate	12-09	15:50	17:30	12-09	1.67	16459.00	16554.00	95.00	57.00	N/A	650.00	40.0	67.00	4350.00	3800.00	
Slide	12-09	17:55	20:15	12-09	2.33	16554.00	16570.00	16.00	6.86	60.0	675.00	N/A	70.00	4250.00	4100.00	



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #10 (BHA # 10 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	12-10	11:30	12:40	12-10	1.17	16570.00	16673.00	103.00	88.29	N/A	650.00	40.0	67.00	4350.00	3800.00	
Rotate	12-10	12:45	13:30	12-10	0.75	16673.00	16751.00	78.00	104.00	N/A	650.00	40.0	67.00	4350.00	3800.00	
Slide	12-10	13:30	14:15	12-10	0.75	16751.00	16763.00	12.00	16.00	40.0	675.00	N/A	70.00	4250.00	4100.00	
Rotate	12-10	14:15	14:30	12-10	0.25	16763.00	16768.00	5.00	20.00	N/A	650.00	40.0	67.00	4350.00	3800.00	
Rotate	12-10	14:35	15:45	12-10	1.17	16768.00	16840.00	72.00	61.71	N/A	650.00	40.0	67.00	4350.00	3800.00	
Slide	12-10	15:45	16:55	12-10	1.17	16840.00	16862.00	22.00	18.86	100.0	675.00	N/A	70.00	4250.00	4100.00	
Rotate	12-10	17:00	17:40	12-10	0.67	16862.00	16915.00	53.00	79.50	N/A	650.00	40.0	67.00	4350.00	3800.00	
Rotate	12-10	18:25	18:50	12-10	0.42	16915.00	16956.00	41.00	98.40	N/A	650.00	35.0	47.00	5000.00	4350.00	
Rotate	12-10	18:55	20:00	12-10	1.08	16956.00	17050.00	94.00	86.77	N/A	650.00	35.0	47.00	5000.00	4350.00	
Slide	12-10	20:05	20:55	12-10	0.83	17050.00	17070.00	20.00	24.00	100.0	675.00	N/A	43.00	4250.00	4100.00	
Rotate	12-10	20:55	21:35	12-10	0.67	17070.00	17144.00	74.00	111.00	N/A	650.00	35.0	47.00	5000.00	4350.00	
Rotate	12-10	21:40	22:25	12-10	0.75	17144.00	17238.00	94.00	125.33	N/A	650.00	35.0	52.00	5000.00	4350.00	
Rotate	12-10	22:30	23:40	12-10	1.17	17238.00	17332.00	94.00	80.57	N/A	650.00	35.0	52.00	5000.00	4350.00	
Slide	12-10	23:45	00:00	12-11	0.25	17332.00	17338.00	6.00	24.00	70.0	675.00	N/A	43.00	4250.00	4100.00	
Slide	12-11	00:00	00:40	12-11	0.67	17338.00	17358.00	20.00	30.00	100.0	675.00	N/A	43.00	4250.00	4100.00	
Rotate	12-11	00:40	01:20	12-11	0.67	17358.00	17426.00	68.00	102.00	N/A	650.00	35.0	52.00	5000.00	4350.00	
Rotate	12-11	01:25	02:40	12-11	1.25	17426.00	17520.00	94.00	75.20	N/A	650.00	35.0	52.00	5000.00	4350.00	
Slide	12-11	02:45	04:15	12-11	1.5	17520.00	17555.00	35.00	23.33	70.0	675.00	N/A	48.00	4350.00	4100.00	
Rotate	12-11	04:15	05:05	12-11	0.83	17555.00	17615.00	60.00	72.00	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	05:10	06:00	12-11	0.83	17615.00	17649.00	34.00	40.80	N/A	650.00	35.0	48.00	5000.00	4350.00	
Slide	12-11	06:00	07:00	12-11	1.0	17649.00	17674.00	25.00	25.00	90.0	675.00	N/A	48.00	4350.00	4100.00	
Rotate	12-11	07:00	07:40	12-11	0.67	17674.00	17709.00	35.00	52.50	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	07:45	09:50	12-11	2.08	17709.00	17803.00	94.00	45.12	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	10:00	11:20	12-11	1.33	17803.00	17898.00	95.00	71.25	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	11:30	13:00	12-11	1.5	17898.00	17992.00	94.00	62.67	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	13:05	14:25	12-11	1.33	17992.00	18087.00	95.00	71.25	N/A	650.00	35.0	48.00	5000.00	4350.00	
Rotate	12-11	14:30	15:55	12-11	1.42	18087.00	18181.00	94.00	66.35	N/A	650.00	35.0	48.00	5000.00	4550.00	
Rotate	12-11	16:00	16:15	12-11	0.25	18181.00	18189.00	8.00	32.00	N/A	650.00	35.0	48.00	5000.00	4550.00	
Slide	12-11	16:15	17:40	12-11	1.42	18189.00	18209.00	20.00	14.12	70.0	675.00	N/A	48.00	4350.00	4100.00	
Rotate	12-11	17:40	18:40	12-11	1.0	18209.00	18275.00	66.00	66.00	N/A	650.00	35.0	48.00	5000.00	4550.00	
Rotate	12-11	18:45	20:10	12-11	1.42	18275.00	18369.00	94.00	66.35	N/A	650.00	35.0	48.00	5000.00	4550.00	
Rotate	12-11	20:15	21:45	12-11	1.5	18369.00	18464.00	95.00	63.33	N/A	650.00	35.0	48.00	5000.00	4550.00	
Rotate	12-11	21:50	23:30	12-11	1.67	18464.00	18558.00	94.00	56.40	N/A	650.00	35.0	48.00	5000.00	4550.00	
Rotate	12-11	23:35	00:00	12-12	0.42	18558.00	18584.00	26.00	62.40	N/A						
Rotate	12-12	00:00	01:15	12-12	1.25	18584.00	18652.00	68.00	54.40	N/A						
Rotate	12-12	01:20	02:40	12-12	1.33	18652.00	18746.00	94.00	70.50	N/A	650.00	45.0	42.00	5000.00	4600.00	
Rotate	12-12	02:45	04:30	12-12	1.75	18746.00	18829.00	83.00	47.43	N/A	650.00	45.0	42.00	5000.00	4600.00	



Daily Reports

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Nov 01 00:00 - 23:59 (Day 1 of 25)

Billing: \$14,600.00 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	140.00	Downhole Hours	11.00	Rotating WOB (klbs)	10.00 - 30.00
Bit Depth (ft)	1399.00	Drilling Hours	7.25	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	1399.00	Hours Circulating	0.00	Rotating SPM	141.00 - 261.00
Total Distance (ft)	1259.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	1259.00	Hours Rotating	7.25	Motor RPM	73.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	35.00 - 80.00
Inclination In	0.92			Flow Rate (gpm)	455.00 - 850.00
Inclination Out	1.19			On Bottom Pressure (psi)	1100.00 - 2650.00
Azimuth In	0.41	% Hours Rotating	100%	Off Bottom Pressure (psi)	800.00 - 1800.00
Azimuth Out	255.12	% Hours Sliding	0%		
AVG Total ROP (ft/h)	170.91	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	170.91	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller

BHA #1 - BHA #1 Surface

Date In: Nov 1, 2019, 13:00 Date Out: Nov 2, 2019, 9:15

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 4.0 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 900psi, Max Operating Torque: 14,994 ft/lbs, Protracted Angle 1.45, Bit: Baker Hughes DP606S, SN: 5293469, Jets 9x12's TFA: 0.994, Bit Runs: 8
Vendor	Baker	Lobe/Stage	7/8, 4.0	
S/N	5293469	Bend Angle	1.5	
Nozzles	9X12's	Speed (rev/gal)	0.16	
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.250	MWD Comments
Drilling Hours for Day	7.25	Bit Distances		
Total Drilled for Day (ft)	1259.00	Survey (Bit to Survey): 63.00 ft, Bend (Bit to Bend): 6.25 ft		
Drilling Hours for BHA	13.08			
Total Drilled for BHA (ft)	1735.00			POOH Reason
				Total Depth/Casing Point: POOH to run surface casing

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Baker	5293469	6 5/8" Reg Pin			17.500		1.75	1.75
Mud Motor Description: 8" 7/8 4.0 @1.5 Fix Slick Sleeve, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4.0	Aim	800-40-005	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortack Stab	DTI	DR38905	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.91	39.85
UBHO Sub Description: NM UBHO, Type: NM	Aim	GT8066848	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.77	43.62
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	73.69
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	104.14
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	107.69
Drill Collar Description: (9 jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		266.72	374.41
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	376.71
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1305.11

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	11-01	00:00	08:30	11-01			Stand-by while rigging down on the 507H
Standby	15	11-01	08:30	13:00	11-01			Standby while skidding and rigging up over the 553H
Change BHA	6	11-01	13:00	14:00	11-01			P/U BHA # 1
Rotary Drill	1	11-01	14:00	15:10	11-01	140.00	296.00	Pressure On (psi): <i>1100.00</i> , Pressure Off (psi): <i>800.00</i> , Weight On Bit (klbs): <i>10.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>7500.00</i> , Flow Rate (gpm): <i>455.00</i> , Strokes Per Minute: <i>141.00</i>
Survey	46	11-01	15:10	15:30	11-01	200.00	200.00	Inclination (°): <i>0.920</i> , Azimuth (°): <i>0.410</i> , TVD (ft): <i>199.99</i> , Dogleg (°/100 ft): <i>0.46</i> , Sensor Depth (ft): <i>200.00</i> , Bit To Sensor (ft): <i>0.00</i>
Rotary Drill	1	11-01	15:30	15:45	11-01	296.00	390.00	Pressure On (psi): <i>1500.00</i> , Pressure Off (psi): <i>1000.00</i> , Weight On Bit (klbs): <i>10.00</i> , Surface RPM: <i>40</i> , Surface Torque (ft lbf): <i>10500.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>203.00</i>
Pooh	7	11-01	15:45	16:10	11-01			POOH to P/U 6.5" DC
TIH	8	11-01	16:10	17:00	11-01			TIH W/ 6.5" DC
Survey	46	11-01	17:00	17:05	11-01	327.00	327.00	Inclination (°): <i>1.010</i> , Azimuth (°): <i>2.870</i> , TVD (ft): <i>326.97</i> , Dogleg (°/100 ft): <i>0.08</i> , Sensor Depth (ft): <i>327.00</i> , Bit To Sensor (ft): <i>0.00</i>
Rotary Drill	1	11-01	17:05	17:50	11-01	390.00	470.00	Pressure On (psi): <i>1500.00</i> , Pressure Off (psi): <i>1000.00</i> , Weight On Bit (klbs): <i>10.00</i> , Surface RPM: <i>40</i> , Surface Torque (ft lbf): <i>10500.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>203.00</i>
Survey	46	11-01	17:50	17:55	11-01	470.00	470.00	Inclination (°): <i>1.100</i> , Azimuth (°): <i>352.940</i> , TVD (ft): <i>406.96</i> , Dogleg (°/100 ft): <i>0.25</i> , Sensor Depth (ft): <i>407.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	17:55	18:10	11-01	470.00	564.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	18:10	18:15	11-01	564.00	564.00	Inclination (°): <i>1.010</i> , Azimuth (°): <i>344.500</i> , TVD (ft): <i>500.94</i> , Dogleg (°/100 ft): <i>0.19</i> , Sensor Depth (ft): <i>501.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	18:15	18:50	11-01	564.00	753.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	18:50	18:55	11-01	753.00	753.00	Inclination (°): <i>1.410</i> , Azimuth (°): <i>347.310</i> , TVD (ft): <i>689.90</i> , Dogleg (°/100 ft): <i>0.21</i> , Sensor Depth (ft): <i>690.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	18:55	19:15	11-01	753.00	846.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	19:15	19:20	11-01	846.00	846.00	Inclination (°): <i>1.010</i> , Azimuth (°): <i>340.900</i> , TVD (ft): <i>782.88</i> , Dogleg (°/100 ft): <i>0.45</i> , Sensor Depth (ft): <i>783.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	19:20	19:45	11-01	846.00	938.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	19:45	19:50	11-01	938.00	938.00	Inclination (°): <i>0.840</i> , Azimuth (°): <i>331.050</i> , TVD (ft): <i>874.87</i> , Dogleg (°/100 ft): <i>0.25</i> , Sensor Depth (ft): <i>875.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	19:50	20:15	11-01	938.00	1030.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	20:15	20:20	11-01	1030.00	1030.00	Inclination (°): <i>0.840</i> , Azimuth (°): <i>351.090</i> , TVD (ft): <i>966.86</i> , Dogleg (°/100 ft): <i>0.32</i> , Sensor Depth (ft): <i>967.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	20:20	20:50	11-01	1030.00	1121.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	20:50	20:55	11-01	1121.00	1121.00	Inclination (°): <i>0.700</i> , Azimuth (°): <i>357.770</i> , TVD (ft): <i>1057.85</i> , Dogleg (°/100 ft): <i>0.18</i> , Sensor Depth (ft): <i>1058.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	20:55	21:35	11-01	1121.00	1213.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	21:35	21:40	11-01	1213.00	1213.00	Inclination (°): <i>0.350</i> , Azimuth (°): <i>357.330</i> , TVD (ft): <i>1149.85</i> , Dogleg (°/100 ft): <i>0.38</i> , Sensor Depth (ft): <i>1150.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	21:40	22:30	11-01	1213.00	1305.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	22:30	22:35	11-01	1305.00	1305.00	Inclination (°): <i>0.530</i> , Azimuth (°): <i>271.990</i> , TVD (ft): <i>1241.84</i> , Dogleg (°/100 ft): <i>0.66</i> , Sensor Depth (ft): <i>1242.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	22:35	23:40	11-01	1305.00	1399.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>
Survey	46	11-01	23:40	23:45	11-01	1399.00	1399.00	Inclination (°): <i>1.190</i> , Azimuth (°): <i>255.120</i> , TVD (ft): <i>1335.83</i> , Dogleg (°/100 ft): <i>0.74</i> , Sensor Depth (ft): <i>1336.00</i> , Bit To Sensor (ft): <i>63.00</i>
Rotary Drill	1	11-01	23:45	00:25	11-02	1399.00	1493.00	Pressure On (psi): <i>2650.00</i> , Pressure Off (psi): <i>1800.00</i> , Weight On Bit (klbs): <i>30.00</i> , Surface RPM: <i>80</i> , Surface Torque (ft lbf): <i>20000.00</i> , Flow Rate (gpm): <i>850.00</i> , Strokes Per Minute: <i>261.00</i>

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Nov 02 00:00 - 23:59 (Day 2 of 25)

Billing: N/A (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1399.00	Downhole Hours	9.25	Rotating WOB (klbs)	30.00 - 30.00
Bit Depth (ft)	1875.00	Drilling Hours	5.83	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	1875.00	Hours Circulating	1.00	Rotating SPM	261.00 - 261.00
Total Distance (ft)	476.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	476.00	Hours Rotating	5.83	Motor RPM	73.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	80.00 - 80.00
Inclination In	1.76			Flow Rate (gpm)	850.00 - 850.00
Inclination Out	2.55			On Bottom Pressure (psi)	2650.00 - 2650.00
Azimuth In	242.37	% Hours Rotating	100%	Off Bottom Pressure (psi)	1800.00 - 1800.00
Azimuth Out	274.54	% Hours Sliding	0%		
AVG Total ROP (ft/h)	81.60	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	81.60	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller

BHA #1 - BHA #1 Surface

Date In: Nov 1, 2019, 13:00 Date Out: Nov 2, 2019, 9:15

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Directional: Directional: Aim Motor: 8" 1.5 FBH 7/8 4.0 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 900psi, Max Operating Torque: 14,994 ft/lbs, Protracted Angle 1.45, Bit: Baker Hughes DP606S, SN: 5293469, Jets 9x12's TFA: 0.994, Bit Runs: 8
Vendor	Baker	Lobe/Stage	7/8, 4.0	
S/N	5293469	Bend Angle	1.5	
Nozzles	9X12's	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.250	
Drilling Hours for Day	5.83	Bit Distances		POOH Reason Total Depth/Casing Point: POOH to run surface casing
Total Drilled for Day (ft)	476.00	Survey (Bit to Survey): 63.00 ft, Bend (Bit to Bend): 6.25 ft		
Drilling Hours for BHA	13.08			
Total Drilled for BHA (ft)	1735.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Baker	5293469	6 5/8" Reg Pin			17.500		1.75	1.75
Mud Motor Description: 8" 7/8 4.0 @1.5 Fix Slick Sleeve, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4.0	Aim	800-40-005	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortack Stab	DTI	DR38905	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.91	39.85
UBHO Sub Description: NM UBHO, Type: NM	Aim	GT8066848	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.77	43.62
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	73.69
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	104.14
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	107.69
Drill Collar Description: (9 jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		266.72	374.41
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	376.71
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1305.11

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	11-01	23:45	00:25	11-02	1399.00	1493.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Survey	46	11-02	00:25	00:30	11-02	1493.00	1493.00	Inclination (°): 1.760, Azimuth (°): 242.370, TVD (ft): 1429.80, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 1430.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	11-02	00:30	01:30	11-02	1493.00	1587.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Survey	46	11-02	01:30	01:35	11-02	1587.00	1587.00	Inclination (°): 1.890, Azimuth (°): 241.930, TVD (ft): 1523.75, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 1524.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	11-02	01:35	02:40	11-02	1587.00	1682.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Survey	46	11-02	02:40	02:45	11-02	1682.00	1682.00	Inclination (°): 1.980, Azimuth (°): 247.910, TVD (ft): 1618.70, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 1619.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	11-02	02:45	04:30	11-02	1682.00	1776.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Survey	46	11-02	04:30	04:35	11-02	1776.00	1776.00	Inclination (°): 1.980, Azimuth (°): 254.060, TVD (ft): 1712.64, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 1713.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	11-02	04:35	05:50	11-02	1776.00	1870.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Survey	46	11-02	05:50	05:55	11-02	1870.00	1870.00	Inclination (°): 2.550, Azimuth (°): 274.540, TVD (ft): 1806.57, Dogleg (°/100 ft): 1.04, Sensor Depth (ft): 1807.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	11-02	05:55	06:00	11-02	1870.00	1875.00	Pressure On (psi): 2650.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 30.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 261.00
Circulating	3	11-02	06:00	07:00	11-02			Circulate BTU @ Casing Point (Surface)
Pooh	7	11-02	07:00	08:30	11-02			POOH to run surface casing
Change BHA	6	11-02	08:30	09:15	11-02			Rack back BHA #1
Standby	15	11-02	09:15	20:00	11-02			Standby while running surface casing & skid rig

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Thursday, Nov 07 23:00 - 22:59 (Day 3 of 25)

Billing: \$11,127.50 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1875.00	Downhole Hours	11.42	Rotating WOB (klbs)	25.00 - 40.00
Bit Depth (ft)	2794.00	Drilling Hours	5.50	Sliding WOB (klbs)	32.00 - 32.00
Bottom Hole Depth (ft)	2794.00	Hours Circulating	0.42	Rotating SPM	216.00 - 249.00
Total Distance (ft)	919.00	Hours Sliding	0.67	Sliding SPM	219.00 - 249.00
Distance Rotated (ft)	844.00	Hours Rotating	4.83	Motor RPM	73.00 - 136.00
Distance Slid (ft)	75.00			Surface RPM	60.00 - 60.00
Inclination In	4.40			Flow Rate (gpm)	615.00 - 800.00
Inclination Out	1.76			On Bottom Pressure (psi)	2700.00 - 4000.00
Azimuth In	311.98	% Hours Rotating	88%	Off Bottom Pressure (psi)	2150.00 - 3200.00
Azimuth Out	218.20	% Hours Sliding	12%		
AVG Total ROP (ft/h)	187.32	% Distance Sliding	8%		
AVG Rotating ROP (ft/h)	196.00	% Distance Rotating	92%		
AVG Sliding ROP (ft/h)	112.50				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #2 - BHA #2 Intermediate 1

Date In: Nov 8, 2019, 11:35 Date Out: Nov 10, 2019, 1:15

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Directional: Aim Motor: 8" 1.5 FBH 7/8 5.9 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 1330psi, Max Operating Torque: 22,000 ft/lbs, Protracted Angle 1.5, Bit; Baker Hughes D606TX, SN: 5294611, Jets 6x12's TFA: 0.663, Bit Runs: 2
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5294611	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	POOH Reason Total Depth/Casing Point: Motor performed well. drained well with minimal slack in bearings. motor was tight during draining. Bit was graded 2-2 with chipped and broken cutters on heel and gauge.
Drilling Hours for Day	5.50	Bit Distances		
Total Drilled for Day (ft)	919.00	Survey (Bit to Survey): 70.00 ft,		
Drilling Hours for BHA	24.00	Bend (Bit to Bend): 4.75 ft		
Total Drilled for BHA (ft)	3405.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D606TX, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5294611	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fixed W/12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800003AIM	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		36.49	37.74
Stabilizer Description: 12" NM Nortack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	46.51
UBHO Sub Description: Steel UBHO, Type: Steel	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.000		4.05	50.56
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	80.63
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	111.08
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	114.63
Drill Collar Description: (21 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		617.97	732.60
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	734.90
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1663.30

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	11-08	00:00	09:45	11-08			Standby while walking rig from 507H
Change BHA	6	11-08	09:45	11:35	11-08			P/U BHA # 2 / C/O Motor, bit, scribe, Insert MWD tool
Circulating	3	11-08	11:35	11:45	11-08			Test MWD tool & Motor (Test Good)
TIH	8	11-08	11:45	13:45	11-08			TIH W/ BHA #2
Other	16	11-08	13:45	14:15	11-08			Pressure test casing
Other	16	11-08	14:15	16:25	11-08			Drill out Plug, Cement, and shoe track
Rotary Drill	1	11-08	16:25	17:55	11-08	1875.00	2040.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2150.00, Weight On Bit (klbs): 25.00, Surface RPM: 60, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 615.00, Strokes Per Minute: 216.00
Circulating	3	11-08	17:55	18:10	11-08			Blow down flow line
Survey	46	11-08	18:10	18:15	11-08	2040.00	2040.00	Inclination (°): 4.400, Azimuth (°): 311.980, TVD (ft): 1969.28, Dogleg (°/100 ft): 1.74, Sensor Depth (ft): 1970.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	18:15	18:25	11-08	2040.00	2050.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2150.00, Weight On Bit (klbs): 25.00, Surface RPM: 60, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 615.00, Strokes Per Minute: 216.00
Slide Drill	2	11-08	18:25	18:40	11-08	2050.00	2075.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 32.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219, Toolface: 155, Toolface Type: magnetic
Rotary Drill	1	11-08	18:40	19:00	11-08	2075.00	2134.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2600.00, Weight On Bit (klbs): 25.00, Surface RPM: 60, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219.00
Survey	46	11-08	19:00	19:05	11-08	2134.00	2134.00	Inclination (°): 2.860, Azimuth (°): 303.280, TVD (ft): 2063.09, Dogleg (°/100 ft): 1.74, Sensor Depth (ft): 2064.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	19:05	19:35	11-08	2134.00	2228.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	19:35	19:40	11-08	2228.00	2228.00	Inclination (°): 2.240, Azimuth (°): 293.440, TVD (ft): 2157.00, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 2158.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	19:40	19:45	11-08	2228.00	2239.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Slide Drill	2	11-08	19:45	20:00	11-08	2239.00	2264.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 32.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 180, Toolface Type: magnetic
Rotary Drill	1	11-08	20:00	20:20	11-08	2264.00	2323.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	20:20	20:25	11-08	2323.00	2323.00	Inclination (°): 2.020, Azimuth (°): 279.020, TVD (ft): 2251.94, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 2253.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	20:25	20:50	11-08	2323.00	2417.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	20:50	20:55	11-08	2417.00	2417.00	Inclination (°): 1.980, Azimuth (°): 263.640, TVD (ft): 2345.88, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 2347.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	20:55	21:00	11-08	2417.00	2427.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Slide Drill	2	11-08	21:00	21:10	11-08	2427.00	2452.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 32.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 170, Toolface Type: magnetic
Rotary Drill	1	11-08	21:10	21:25	11-08	2452.00	2511.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	21:25	21:30	11-08	2511.00	2511.00	Inclination (°): 1.980, Azimuth (°): 239.650, TVD (ft): 2439.82, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 2441.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	21:30	21:55	11-08	2511.00	2606.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	21:55	22:00	11-08	2606.00	2606.00	Inclination (°): 2.370, Azimuth (°): 224.880, TVD (ft): 2534.76, Dogleg (°/100 ft): 0.72, Sensor Depth (ft): 2536.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	22:00	22:25	11-08	2606.00	2700.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	22:25	22:30	11-08	2700.00	2700.00	Inclination (°): 2.200, Azimuth (°): 222.070, TVD (ft): 2628.68, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 2630.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	22:30	22:50	11-08	2700.00	2794.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	22:50	22:55	11-08	2794.00	2794.00	Inclination (°): 1.760, Azimuth (°): 218.200, TVD (ft): 2722.63, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 2724.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	22:55	23:10	11-08	2794.00	2888.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	23:10	23:15	11-08	2888.00	2888.00	Inclination (°): 1.450, Azimuth (°): 216.800, TVD (ft): 2816.59, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 2818.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	23:15	23:35	11-08	2888.00	2983.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-08	23:35	23:40	11-08	2983.00	2983.00	Inclination (°): 0.970, Azimuth (°): 197.550, TVD (ft): 2911.57, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 2913.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-08	23:40	00:00	11-09	2983.00	3077.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Nov 08 23:00 - 22:59 (Day 4 of 25)

Billing: \$6,600.00 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	2794.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 50.00
Bit Depth (ft)	5280.00	Drilling Hours	18.50	Sliding WOB (klbs)	33.00 - 33.00
Bottom Hole Depth (ft)	5280.00	Hours Circulating	0.83	Rotating SPM	249.00 - 249.00
Total Distance (ft)	2486.00	Hours Sliding	0.50	Sliding SPM	249.00 - 249.00
Distance Rotated (ft)	2456.00	Hours Rotating	18.00	Motor RPM	73.00 - 136.00
Distance Slid (ft)	30.00			Surface RPM	60.00 - 70.00
Inclination In	1.45			Flow Rate (gpm)	800.00 - 805.00
Inclination Out	1.32			On Bottom Pressure (psi)	4000.00 - 4300.00
Azimuth In	216.80	% Hours Rotating	97%	Off Bottom Pressure (psi)	3200.00 - 3500.00
Azimuth Out	325.96	% Hours Sliding	3%		
AVG Total ROP (ft/h)	128.20	% Distance Sliding	1%		
AVG Rotating ROP (ft/h)	130.16	% Distance Rotating	99%		
AVG Sliding ROP (ft/h)	60.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #2 - BHA #2 Intermediate 1

Date In: Nov 8, 2019, 11:35 Date Out: Nov 10, 2019, 1:15

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Directional: Aim Motor: 8" 1.5 FBH 7/8 5.9 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 1330psi, Max Operating Torque: 22,000 ft/lbs, Protracted Angle 1.5, Bit; Baker Hughes D606TX, SN: 5294611, Jets 6x12's TFA: 0.663, Bit Runs: 2
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5294611	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	POOH Reason Total Depth/Casing Point: Motor performed well. drained well with minimal slack in bearings. motor was tight during draining. Bit was graded 2-2 with chipped and broken cutters on heel and gauge.
Drilling Hours for Day	18.50	Bit Distances		
Total Drilled for Day (ft)	2486.00	Survey (Bit to Survey): 70.00 ft,		
Drilling Hours for BHA	24.00	Bend (Bit to Bend): 4.75 ft		
Total Drilled for BHA (ft)	3405.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D606TX, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5294611	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fixed W/12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800003AIM	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		36.49	37.74
Stabilizer Description: 12" NM Nortack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	46.51
UBHO Sub Description: Steel UBHO, Type: Steel	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.000		4.05	50.56
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	80.63
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	111.08
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	114.63
Drill Collar Description: (21 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		617.97	732.60
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	734.90
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1663.30

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	11-08	23:40	00:00	11-09	2983.00	3077.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	00:00	00:05	11-09	3077.00	3077.00	Inclination (°): 0.700, Azimuth (°): 145.430, TVD (ft): 3005.56, Dogleg (°/100 ft): 0.82, Sensor Depth (ft): 3007.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	00:05	00:25	11-09	3077.00	3171.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	00:25	00:30	11-09	3171.00	3171.00	Inclination (°): 0.920, Azimuth (°): 124.070, TVD (ft): 3099.55, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 3101.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	00:30	00:50	11-09	3171.00	3265.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	00:50	00:55	11-09	3265.00	3265.00	Inclination (°): 1.100, Azimuth (°): 104.910, TVD (ft): 3193.54, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 3195.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	00:55	01:20	11-09	3265.00	3359.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	01:20	01:25	11-09	3359.00	3359.00	Inclination (°): 1.270, Azimuth (°): 94.450, TVD (ft): 3287.52, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 3289.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	01:25	01:55	11-09	3359.00	3453.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	01:55	02:00	11-09	3453.00	3453.00	Inclination (°): 1.630, Azimuth (°): 81.970, TVD (ft): 3381.49, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 3383.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	02:00	02:05	11-09	3453.00	3463.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Slide Drill	2	11-09	02:05	02:35	11-09	3463.00	3493.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 33.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249, Toolface: 250, Toolface Type: magnetic
Rotary Drill	1	11-09	02:35	03:05	11-09	3493.00	3548.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	03:05	03:10	11-09	3548.00	3548.00	Inclination (°): 0.660, Azimuth (°): 105.170, TVD (ft): 3476.47, Dogleg (°/100 ft): 1.11, Sensor Depth (ft): 3478.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	03:10	03:40	11-09	3548.00	3643.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	03:40	03:45	11-09	3643.00	3643.00	Inclination (°): 0.700, Azimuth (°): 191.920, TVD (ft): 3571.46, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 3573.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	03:45	04:25	11-09	3643.00	3737.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	04:25	04:30	11-09	3737.00	3737.00	Inclination (°): 0.660, Azimuth (°): 198.340, TVD (ft): 3665.45, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 3667.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	04:30	05:00	11-09	3737.00	3831.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	05:00	05:05	11-09	3831.00	3831.00	Inclination (°): 0.840, Azimuth (°): 208.010, TVD (ft): 3759.45, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 3761.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	05:05	05:40	11-09	3831.00	3926.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	05:40	05:45	11-09	3926.00	3926.00	Inclination (°): 0.750, Azimuth (°): 194.120, TVD (ft): 3854.44, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 3856.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	05:45	06:45	11-09	3926.00	4021.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	06:45	06:50	11-09	4021.00	4021.00	Inclination (°): 0.480, Azimuth (°): 196.580, TVD (ft): 3949.43, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 3951.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	06:50	07:15	11-09	4021.00	4115.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	07:15	07:20	11-09	4115.00	4115.00	Inclination (°): 0.570, Azimuth (°): 241.140, TVD (ft): 4043.43, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 4045.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	07:20	07:45	11-09	4115.00	4209.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	07:45	07:50	11-09	4209.00	4209.00	Inclination (°): 0.620, Azimuth (°): 280.780, TVD (ft): 4137.42, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 4139.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	07:50	08:15	11-09	4209.00	4304.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	08:15	08:20	11-09	4304.00	4304.00	Inclination (°): 0.700, Azimuth (°): 284.300, TVD (ft): 4232.42, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 4234.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	08:20	08:45	11-09	4304.00	4398.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	08:45	08:50	11-09	4398.00	4398.00	Inclination (°): 0.700, Azimuth (°): 291.330, TVD (ft): 4326.41, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 4328.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	08:50	09:20	11-09	4398.00	4492.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00

Survey	46	11-09	09:20	09:25	11-09	4492.00	4492.00	Inclination (°): 0.970, Azimuth (°): 297.220, TVD (ft): 4420.40, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 4422.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	09:25	09:45	11-09	4492.00	4587.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	09:45	09:50	11-09	4587.00	4587.00	Inclination (°): 1.140, Azimuth (°): 314.270, TVD (ft): 4515.38, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 4517.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	09:50	10:25	11-09	4587.00	4681.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	10:25	10:30	11-09	4681.00	4681.00	Inclination (°): 1.010, Azimuth (°): 315.150, TVD (ft): 4609.37, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 4611.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	10:30	11:25	11-09	4681.00	4776.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	11:25	11:30	11-09	4776.00	4776.00	Inclination (°): 1.140, Azimuth (°): 321.650, TVD (ft): 4704.35, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 4706.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	11:30	12:40	11-09	4776.00	4871.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	12:40	12:45	11-09	4871.00	4871.00	Inclination (°): 1.190, Azimuth (°): 319.280, TVD (ft): 4799.33, Dogleg (°/100 ft): 0.07, Sensor Depth (ft): 4801.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	12:45	14:10	11-09	4871.00	4965.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	14:10	14:15	11-09	4965.00	4965.00	Inclination (°): 1.320, Azimuth (°): 321.030, TVD (ft): 4893.31, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 4895.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	14:15	16:20	11-09	4965.00	5060.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	16:20	16:25	11-09	5060.00	5060.00	Inclination (°): 1.360, Azimuth (°): 320.680, TVD (ft): 4988.28, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 4990.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	16:25	17:50	11-09	5060.00	5154.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 60, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	17:50	17:55	11-09	5154.00	5154.00	Inclination (°): 1.540, Azimuth (°): 324.990, TVD (ft): 5082.25, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 5084.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	17:55	19:05	11-09	5154.00	5249.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 13000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	19:05	19:10	11-09	5249.00	5249.00	Inclination (°): 1.490, Azimuth (°): 329.560, TVD (ft): 5177.22, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 5179.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-09	19:10	19:35	11-09	5249.00	5280.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 50.00, Surface RPM: 70, Surface Torque (ft lbf): 13000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	11-09	19:35	19:40	11-09	5280.00	5280.00	Inclination (°): 1.320, Azimuth (°): 325.960, TVD (ft): 5208.21, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 5210.00, Bit To Sensor (ft): 70.00
Circulating Pooh	3	11-09	19:40	20:30	11-09			Circulate hole clean at 5,280. TD of intermediate 1
	7	11-09	20:30	00:00	11-10			POOH for Casing run and rig skid

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Nov 09 23:00 - 22:59 (Day 5 of 25)

Billing: \$7,663.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	2.25	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	73.00 - 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #2 - BHA #2 Intermediate 1

Date In: Nov 8, 2019, 11:35 Date Out: Nov 10, 2019, 1:15

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Directional: Aim Motor: 8" 1.5 FBH 7/8 5.9 Stg Mtr, Rev/Gal: 0.16, Flow: 400-900, Max Diff: 1330psi, Max Operating Torque: 22,000 ft/lbs, Protracted Angle 1.5, Bit; Baker Hughes D606TX, SN: 5294611, Jets 6x12's TFA: 0.663, Bit Runs: 2
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5294611	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	
Drilling Hours for Day	0.00	Bit Distances		POOH Reason
Total Drilled for Day (ft)		Survey (Bit to Survey): 70.00 ft,		
Drilling Hours for BHA	24.00	Bend (Bit to Bend): 4.75 ft		
Total Drilled for BHA (ft)	3405.00			Total Depth/Casing Point: Motor performed well. drained well with minimal slack in bearings. motor was tight during draining. Bit was graded 2-2 with chipped and broken cutters on heel and gauge.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D606TX, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5294611	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fixed W/12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800003AIM	6 5/8" Reg Box	6 5/8" Reg Pin		8.000		36.49	37.74
Stabilizer Description: 12" NM Nortack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	46.51
UBHO Sub Description: Steel UBHO, Type: Steel	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.000		4.05	50.56
Drill Collar Description: 8" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Aim	AIM80001012	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		30.07	80.63
Drill Collar Description: 8" NMDC (Spacer), Style: Slick Drill, Type: NM	Aim	AIM80001014	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	7.875		30.45	111.08
Crossover Sub Description: X-Over (6 5/8 Reg Pin x4 1/2 XH Box), Type: Steel	DTI	DR39818	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	114.63
Drill Collar Description: (21 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		617.97	732.60
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	DTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	734.90
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1663.30

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	11-09	20:30	00:00	11-10			POOH for Casing run and rig skid
Pooh	7	11-10	00:00	00:45	11-10			POOH for Casing run and rig skid
Change BHA	6	11-10	00:45	01:15	11-10			L/d BHA # 2 (Rack back top Monel, pull mwd tool, drain motor, break bit, rack back in derrick)
Standby	15	11-10	01:15	00:00	11-11			Standby while running casing and skidding rig

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Nov 10 23:00 - 22:59 (Day 6 of 25) Billing: N/A (\$338,034.18 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	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	11-10	01:15	00:00	11-11			Standby while running casing and skidding rig

MWD Activities
No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Nov 15 23:00 - 22:59 (Day 7 of 25)

Billing: \$12,435.00 (\$338,034.18 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	0.17	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	73.00 - 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #3 - BHA #3 8.5" Hole

Date In: Nov 16, 2019, 20:30 Date Out: Nov 19, 2019, 2:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	: Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft		
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5534.00			POOH Reason
				Total Depth/Casing Point: Motor was still tight on surface while draining. 1/8 slack in bearings. Bit was graded 3-5

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13271296	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 7" 7/8 8.5 @1.5 Fixed W/8.25" Stab, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.18
Stabilizer Description: 8 1/4" Steel Autotack Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.21
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		3.96	47.17
Drill Collar Description: 6.5" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730195	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		30.55	77.72
Drill Collar Description: 6.5" NMDC (Spacer), Style: Slick Drill, Type: NM	Gator	GT6730199	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.88	108.60
Crossover Sub Description: X-Over (4 1/2 IF Pin x 4 1/2 XH Box), Type: Steel	Gator	GT10412	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.500		4.18	112.78
Drill Collar Description: (18 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		529.69	642.47
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	Gator	GT10419	4 1/2" IF Box	4 1/2" XH Pin	2.875	6.750		4.30	646.77
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1575.17

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	11-16	00:00	20:05	11-16			Standby while running bridge plug on 507H and skidding to 553H
Change BHA	6	11-16	20:05	20:30	11-16			P/U BHA # 3
TIH	8	11-16	20:30	22:00	11-16			TIH W/ BHA # 3 T/2790
Other	16	11-16	22:00	22:35	11-16			Test casing
Circulating	3	11-16	22:35	22:45	11-16			Drill DV tool
Other	16	11-16	22:45	23:25	11-16			Test Casing
TIH	8	11-16	23:25	00:00	11-17			TIH W/ BHA #3

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Nov 16 23:00 - 22:59 (Day 8 of 25)

Billing: \$8,200.00 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5280.00	Downhole Hours	24.00	Rotating WOB (klbs)	34.00 - 42.00
Bit Depth (ft)	9040.00	Drilling Hours	15.83	Sliding WOB (klbs)	28.00 - 40.00
Bottom Hole Depth (ft)	9040.00	Hours Circulating	1.75	Rotating SPM	204.00 - 735.00
Total Distance (ft)	3760.00	Hours Sliding	1.67	Sliding SPM	230.00 - 231.00
Distance Rotated (ft)	3618.00	Hours Rotating	14.17	Motor RPM	73.00 - 136.00
Distance Slid (ft)	142.00			Surface RPM	30.00 - 40.00
Inclination In	1.36			Flow Rate (gpm)	650.00 - 750.00
Inclination Out	3.78			On Bottom Pressure (psi)	3000.00 - 3900.00
Azimuth In	317.87	% Hours Rotating	89%	Off Bottom Pressure (psi)	2400.00 - 3700.00
Azimuth Out	233.50	% Hours Sliding	11%		
AVG Total ROP (ft/h)	223.84	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	250.77	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	66.80				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #3 - BHA #3 8.5" Hole

Date In: Nov 16, 2019, 20:30 Date Out: Nov 19, 2019, 2:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	: Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	
Drilling Hours for Day	15.83	Bit Distances		
Total Drilled for Day (ft)	3760.00	Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft		POOH Reason
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5534.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>Security GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50</i>	Security	13271296	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: <i>7" 7/8 8.5 @1.5 Fixed W/8.25" Stab, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5</i>	Aim	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.18
Stabilizer Description: <i>8 1/4" Steel Autotack Stab</i>	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.21
UBHO Sub Description: <i>NM UBHO, Type: NM</i>	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		3.96	47.17
Drill Collar Description: <i>6.5" NMDC (MWD Tool), Style: Slick Drill, Type: NM</i>	Gator	GT6730195	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		30.55	77.72
Drill Collar Description: <i>6.5" NMDC (Spacer), Style: Slick Drill, Type: NM</i>	Gator	GT6730199	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.88	108.60
Crossover Sub Description: <i>X-Over (4 1/2 IF Pin x4 1/2 XH Box), Type: Steel</i>	Gator	GT10412	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.500		4.18	112.78
Drill Collar Description: <i>(18 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel</i>	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		529.69	642.47
Crossover Sub Description: <i>X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel</i>	Gator	GT10419	4 1/2" IF Box	4 1/2" XH Pin	2.875	6.750		4.30	646.77
HWDP Description: <i>(30 Jts) 5" HWDP, Style: Slick</i>			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1575.17

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	11-16	23:25	00:00	11-17			TIH W/ BHA #3
TIH	8	11-17	00:00	00:25	11-17			TIH W/ BHA #3
Other	16	11-17	00:25	01:40	11-17			Slip and cut drill line
Circulating	3	11-17	01:40	02:20	11-17			Drill shoe track
Rotary Drill	1	11-17	02:20	02:40	11-17	5280.00	5349.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 34.00, Surface RPM: 30, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 204.00
Connection	33	11-17	02:40	02:45	11-17			
Rotary Drill	1	11-17	02:45	03:00	11-17	5349.00	5444.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3050.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	03:00	03:05	11-17	5444.00	5444.00	Inclination (°): 1.360, Azimuth (°): 317.870, TVD (ft): 5372.17, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 5374.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	03:05	03:25	11-17	5444.00	5538.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3050.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	03:25	03:30	11-17	5538.00	5538.00	Inclination (°): 1.490, Azimuth (°): 319.010, TVD (ft): 5466.14, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 5468.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	03:30	03:35	11-17	5538.00	5548.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3050.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Slide Drill	2	11-17	03:35	03:45	11-17	5548.00	5573.00	Pressure On (psi): 3450.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 230, Toolface: 230, Toolface Type: magnetic
Rotary Drill	1	11-17	03:45	03:55	11-17	5573.00	5632.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	03:55	04:00	11-17	5632.00	5632.00	Inclination (°): 2.070, Azimuth (°): 260.740, TVD (ft): 5560.10, Dogleg (°/100 ft): 1.92, Sensor Depth (ft): 5562.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	04:00	04:15	11-17	5632.00	5727.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	04:15	04:20	11-17	5727.00	5727.00	Inclination (°): 2.950, Azimuth (°): 243.160, TVD (ft): 5655.01, Dogleg (°/100 ft): 1.22, Sensor Depth (ft): 5657.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	04:20	04:30	11-17	5727.00	5821.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 38.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	04:30	04:35	11-17	5821.00	5821.00	Inclination (°): 2.680, Azimuth (°): 242.720, TVD (ft): 5748.89, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 5751.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	04:35	04:50	11-17	5821.00	5916.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	04:50	04:55	11-17	5916.00	5916.00	Inclination (°): 2.730, Azimuth (°): 241.410, TVD (ft): 5843.79, Dogleg (°/100 ft): 0.08, Sensor Depth (ft): 5846.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	04:55	05:05	11-17	5916.00	6010.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	05:05	05:10	11-17	6010.00	6010.00	Inclination (°): 2.860, Azimuth (°): 246.770, TVD (ft): 5937.68, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 5940.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	05:10	05:15	11-17	6010.00	6020.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Slide Drill	2	11-17	05:15	05:20	11-17	6020.00	6040.00	Pressure On (psi): 3450.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 230, Toolface: 160, Toolface Type: magnetic
Rotary Drill	1	11-17	05:20	05:30	11-17	6040.00	6104.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	05:30	05:35	11-17	6104.00	6104.00	Inclination (°): 3.160, Azimuth (°): 247.210, TVD (ft): 6031.55, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 6034.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	05:35	05:50	11-17	6104.00	6199.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	05:50	05:55	11-17	6199.00	6199.00	Inclination (°): 3.340, Azimuth (°): 246.680, TVD (ft): 6126.39, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 6129.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	05:55	06:00	11-17	6199.00	6210.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Slide Drill	2	11-17	06:00	06:10	11-17	6210.00	6225.00	Pressure On (psi): 3450.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 230, Toolface: 230, Toolface Type: magnetic
Rotary Drill	1	11-17	06:10	06:25	11-17	6225.00	6293.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	06:25	06:30	11-17	6293.00	6293.00	Inclination (°): 4.130, Azimuth (°): 233.850, TVD (ft): 6220.19, Dogleg (°/100 ft): 1.22, Sensor Depth (ft): 6223.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	06:30	06:40	11-17	6293.00	6387.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	06:40	06:45	11-17	6387.00	6387.00	Inclination (°): 4.750, Azimuth (°): 233.410, TVD (ft): 6313.91, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 6317.00, Bit To Sensor (ft): 70.00

Rotary Drill	1	11-17	06:45	06:55	11-17	6387.00	6481.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	06:55	07:00	11-17	6481.00	6481.00	Inclination (°): 4.660, Azimuth (°): 234.900, TVD (ft): 6407.60, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 6411.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	07:00	07:10	11-17	6481.00	6576.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	07:10	07:15	11-17	6576.00	6576.00	Inclination (°): 4.310, Azimuth (°): 232.440, TVD (ft): 6502.30, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 6506.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	07:15	07:25	11-17	6576.00	6670.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	07:25	07:30	11-17	6670.00	6670.00	Inclination (°): 4.130, Azimuth (°): 234.640, TVD (ft): 6596.05, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 6600.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	07:30	07:55	11-17	6670.00	6765.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	07:55	08:00	11-17	6765.00	6765.00	Inclination (°): 5.140, Azimuth (°): 233.670, TVD (ft): 6690.74, Dogleg (°/100 ft): 1.07, Sensor Depth (ft): 6695.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	08:00	08:10	11-17	6765.00	6859.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	08:10	08:15	11-17	6859.00	6859.00	Inclination (°): 5.450, Azimuth (°): 233.850, TVD (ft): 6784.34, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 6789.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	08:15	08:25	11-17	6859.00	6953.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	08:25	08:30	11-17	6953.00	6953.00	Inclination (°): 5.320, Azimuth (°): 234.110, TVD (ft): 6877.92, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 6883.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	08:30	08:55	11-17	6953.00	7047.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	08:55	09:00	11-17	7047.00	7047.00	Inclination (°): 5.050, Azimuth (°): 233.670, TVD (ft): 6971.54, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 6977.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	09:00	09:10	11-17	7047.00	7142.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	09:10	09:15	11-17	7142.00	7142.00	Inclination (°): 4.920, Azimuth (°): 233.230, TVD (ft): 7066.18, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 7072.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	09:15	09:30	11-17	7142.00	7236.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	09:30	09:35	11-17	7236.00	7236.00	Inclination (°): 4.480, Azimuth (°): 232.790, TVD (ft): 7159.86, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 7166.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	09:35	09:45	11-17	7236.00	7331.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Survey	46	11-17	09:45	09:50	11-17	7331.00	7331.00	Inclination (°): 3.910, Azimuth (°): 238.860, TVD (ft): 7254.61, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 7261.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	09:50	10:00	11-17	7331.00	7344.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 735.00
Slide Drill	2	11-17	10:00	10:10	11-17	7344.00	7364.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3700.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 235, Toolface Type: magnetic
Rotary Drill	1	11-17	10:10	10:25	11-17	7364.00	7425.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	10:25	10:30	11-17	7425.00	7425.00	Inclination (°): 5.190, Azimuth (°): 226.290, TVD (ft): 7348.31, Dogleg (°/100 ft): 1.72, Sensor Depth (ft): 7355.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	10:30	10:45	11-17	7425.00	7519.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	10:45	10:50	11-17	7519.00	7519.00	Inclination (°): 5.980, Azimuth (°): 223.830, TVD (ft): 7441.86, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 7449.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	10:50	11:10	11-17	7519.00	7614.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	11:10	11:15	11-17	7614.00	7614.00	Inclination (°): 5.630, Azimuth (°): 223.300, TVD (ft): 7536.38, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 7544.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	11:15	11:30	11-17	7614.00	7708.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	11:30	11:35	11-17	7708.00	7708.00	Inclination (°): 5.270, Azimuth (°): 224.090, TVD (ft): 7629.95, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 7638.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	11:35	11:50	11-17	7708.00	7803.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	11:50	11:55	11-17	7803.00	7803.00	Inclination (°): 4.880, Azimuth (°): 221.280, TVD (ft): 7724.58, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 7733.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	11:55	12:20	11-17	7803.00	7897.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	12:20	12:25	11-17	7897.00	7897.00	Inclination (°): 4.260, Azimuth (°): 218.380, TVD (ft): 7818.28, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 7827.00, Bit To Sensor (ft): 70.00

Rotary Drill	1	11-17	12:25	12:30	11-17	7897.00	7912.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	11-17	12:30	12:45	11-17	7912.00	7932.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3700.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	11-17	12:45	13:05	11-17	7932.00	7992.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	13:05	13:10	11-17	7992.00	7992.00	Inclination (°): 5.010, Azimuth (°): 220.400, TVD (ft): 7912.97, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 7922.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	13:10	13:35	11-17	7992.00	8087.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	13:35	13:40	11-17	8087.00	8087.00	Inclination (°): 5.140, Azimuth (°): 219.260, TVD (ft): 8007.60, Dogleg (°/100 ft): 0.17, Sensor Depth (ft): 8017.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	13:40	13:45	11-17	8087.00	8093.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	11-17	13:45	14:05	11-17	8093.00	8115.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3700.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	11-17	14:05	14:20	11-17	8115.00	8182.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	14:20	14:35	11-17	8182.00	8182.00	Inclination (°): 4.620, Azimuth (°): 234.110, TVD (ft): 8102.26, Dogleg (°/100 ft): 1.43, Sensor Depth (ft): 8112.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	14:35	15:05	11-17	8182.00	8276.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	15:05	15:10	11-17	8276.00	8276.00	Inclination (°): 4.620, Azimuth (°): 237.450, TVD (ft): 8195.95, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 8206.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	15:10	15:30	11-17	8276.00	8370.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	15:30	15:35	11-17	8370.00	8370.00	Inclination (°): 4.350, Azimuth (°): 235.780, TVD (ft): 8289.66, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 8300.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	15:35	15:55	11-17	8370.00	8464.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	15:55	16:00	11-17	8464.00	8464.00	Inclination (°): 4.350, Azimuth (°): 234.550, TVD (ft): 8383.39, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 8394.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	16:00	16:35	11-17	8464.00	8558.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	16:35	16:40	11-17	8558.00	8558.00	Inclination (°): 4.130, Azimuth (°): 231.210, TVD (ft): 8477.13, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 8488.00, Bit To Sensor (ft): 70.00
Circulating Rotary Drill	3	11-17	16:40	17:45	11-17			Work On Pumps
	1	11-17	17:45	18:30	11-17	8558.00	8653.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	18:30	18:35	11-17	8653.00	8653.00	Inclination (°): 4.090, Azimuth (°): 228.310, TVD (ft): 8571.89, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 8583.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	18:35	18:50	11-17	8653.00	8667.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	11-17	18:50	19:20	11-17	8667.00	8687.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3700.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	11-17	19:20	19:45	11-17	8687.00	8747.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	19:45	19:50	11-17	8747.00	8747.00	Inclination (°): 4.400, Azimuth (°): 237.450, TVD (ft): 8665.63, Dogleg (°/100 ft): 0.79, Sensor Depth (ft): 8677.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	19:50	20:50	11-17	8747.00	8841.00	Pressure On (psi): 3900.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	11-17	20:50	20:55	11-17	8841.00	8841.00	Inclination (°): 4.180, Azimuth (°): 244.040, TVD (ft): 8759.37, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 8771.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	20:55	21:50	11-17	8841.00	8936.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-17	21:50	21:55	11-17	8936.00	8936.00	Inclination (°): 3.910, Azimuth (°): 238.590, TVD (ft): 8854.13, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 8866.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	21:55	22:35	11-17	8936.00	9030.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-17	22:35	22:40	11-17	9030.00	9030.00	Inclination (°): 3.780, Azimuth (°): 233.500, TVD (ft): 8947.92, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 8960.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-17	22:40	22:45	11-17	9030.00	9040.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Slide Drill	2	11-17	22:45	23:35	11-17	9040.00	9065.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206, Toolface: 290, Toolface Type: magnetic
Rotary Drill	1	11-17	23:35	00:00	11-18	9065.00	9104.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Nov 17 23:00 - 22:59 (Day 9 of 25)

Billing: \$12,349.95 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	9040.00	Downhole Hours	24.00	Rotating WOB (klbs)	42.00 - 42.00
Bit Depth (ft)	10814.00	Drilling Hours	19.75	Sliding WOB (klbs)	40.00 - 40.00
Bottom Hole Depth (ft)	10814.00	Hours Circulating	0.75	Rotating SPM	206.00 - 206.00
Total Distance (ft)	1774.00	Hours Sliding	1.58	Sliding SPM	206.00 - 206.00
Distance Rotated (ft)	1719.00	Hours Rotating	18.17	Motor RPM	73.00 - 136.00
Distance Slid (ft)	55.00			Surface RPM	35.00 - 40.00
Inclination In	4.22			Flow Rate (gpm)	700.00 - 700.00
Inclination Out	1.58			On Bottom Pressure (psi)	3300.00 - 3600.00
Azimuth In	238.68	% Hours Rotating	92%	Off Bottom Pressure (psi)	3100.00 - 3100.00
Azimuth Out	198.51	% Hours Sliding	8%		
AVG Total ROP (ft/h)	92.46	% Distance Sliding	3%		
AVG Rotating ROP (ft/h)	94.62	% Distance Rotating	97%		
AVG Sliding ROP (ft/h)	40.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #3 - BHA #3 8.5" Hole

Date In: Nov 16, 2019, 20:30 Date Out: Nov 19, 2019, 2:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	: Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	
Drilling Hours for Day	19.75	Bit Distances		
Total Drilled for Day (ft)	1774.00	Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft		
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5534.00			POOH Reason
				Total Depth/Casing Point: Motor was still tight on surface while draining. 1/8 slack in bearings. Bit was graded 3-5

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13271296	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 7" 7/8 8.5 @1.5 Fixed W/8.25" Stab, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.18
Stabilizer Description: 8 1/4" Steel Autotack Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.21
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		3.96	47.17
Drill Collar Description: 6.5" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730195	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		30.55	77.72
Drill Collar Description: 6.5" NMDC (Spacer), Style: Slick Drill, Type: NM	Gator	GT6730199	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.88	108.60
Crossover Sub Description: X-Over (4 1/2 IF Pin x4 1/2 XH Box), Type: Steel	Gator	GT10412	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.500		4.18	112.78
Drill Collar Description: (18 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		529.69	642.47
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	Gator	GT10419	4 1/2" IF Box	4 1/2" XH Pin	2.875	6.750		4.30	646.77
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1575.17

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	11-17	23:35	00:00	11-18	9065.00	9104.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Rotary Drill	1	11-18	00:00	00:15	11-18	9104.00	9124.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	00:15	00:20	11-18	9124.00	9124.00	Inclination (°): 4.220, Azimuth (°): 238.680, TVD (ft): 9041.69, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 9054.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	00:20	01:15	11-18	9124.00	9218.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	01:15	01:20	11-18	9218.00	9218.00	Inclination (°): 3.960, Azimuth (°): 245.620, TVD (ft): 9135.45, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 9148.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	01:20	02:10	11-18	9218.00	9313.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	02:10	02:15	11-18	9313.00	9313.00	Inclination (°): 3.690, Azimuth (°): 240.350, TVD (ft): 9230.24, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 9243.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	02:15	03:00	11-18	9313.00	9407.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	03:00	03:05	11-18	9407.00	9407.00	Inclination (°): 3.690, Azimuth (°): 240.970, TVD (ft): 9324.05, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 9337.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	03:05	03:50	11-18	9407.00	9502.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	03:50	03:55	11-18	9502.00	9502.00	Inclination (°): 2.990, Azimuth (°): 233.500, TVD (ft): 9418.89, Dogleg (°/100 ft): 0.87, Sensor Depth (ft): 9432.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	03:55	04:00	11-18	9502.00	9512.00	Pressure On (psi): 3500.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 11000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Slide Drill	2	11-18	04:00	04:45	11-18	9512.00	9542.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206, Toolface: 280, Toolface Type: magnetic
Rotary Drill	1	11-18	04:45	05:10	11-18	9542.00	9596.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	05:10	05:15	11-18	9596.00	9596.00	Inclination (°): 3.340, Azimuth (°): 248.260, TVD (ft): 9512.74, Dogleg (°/100 ft): 0.94, Sensor Depth (ft): 9526.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	05:15	06:00	11-18	9596.00	9690.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	06:00	06:15	11-18	9690.00	9690.00	Inclination (°): 3.560, Azimuth (°): 261.090, TVD (ft): 9606.58, Dogleg (°/100 ft): 0.85, Sensor Depth (ft): 9620.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	06:15	07:00	11-18	9690.00	9784.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	07:00	07:05	11-18	9784.00	9784.00	Inclination (°): 2.510, Azimuth (°): 257.490, TVD (ft): 9700.44, Dogleg (°/100 ft): 1.13, Sensor Depth (ft): 9714.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	07:05	08:00	11-18	9784.00	9879.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	08:00	08:05	11-18	9879.00	9879.00	Inclination (°): 1.630, Azimuth (°): 243.510, TVD (ft): 9795.38, Dogleg (°/100 ft): 1.06, Sensor Depth (ft): 9809.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	08:05	09:10	11-18	9879.00	9974.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Rig Service - In Hole	19	11-18	09:10	09:30	11-18			Rig Service
Survey	46	11-18	09:30	09:35	11-18	9974.00	9974.00	Inclination (°): 1.800, Azimuth (°): 241.140, TVD (ft): 9890.34, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 9904.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	09:35	10:50	11-18	9974.00	10068.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	10:50	10:55	11-18	10068.00	10068.00	Inclination (°): 1.630, Azimuth (°): 242.020, TVD (ft): 9984.30, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 9998.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	10:55	12:10	11-18	10068.00	10162.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	12:10	12:15	11-18	10162.00	10162.00	Inclination (°): 1.580, Azimuth (°): 236.400, TVD (ft): 10078.26, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 10092.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	12:15	13:35	11-18	10162.00	10257.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	11-18	13:35	13:40	11-18	10257.00	10257.00	Inclination (°): 1.320, Azimuth (°): 232.790, TVD (ft): 10173.23, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 10187.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-18	13:40	14:55	11-18	10257.00	10351.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00

Survey	46	11-18	14:55	15:00	11-18	10351.00	10351.00	Inclination (°): <i>1.490</i> , Azimuth (°): <i>229.800</i> , TVD (ft): <i>10267.20</i> , Dogleg (°/100 ft): <i>0.20</i> , Sensor Depth (ft): <i>10281.00</i> , Bit To Sensor (ft): <i>70.00</i>
Rotary Drill	1	11-18	15:00	16:10	11-18	10351.00	10445.00	Pressure On (psi): <i>3600.00</i> , Pressure Off (psi): <i>3100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>206.00</i>
Survey	46	11-18	16:10	16:15	11-18	10445.00	10445.00	Inclination (°): <i>1.670</i> , Azimuth (°): <i>213.810</i> , TVD (ft): <i>10361.16</i> , Dogleg (°/100 ft): <i>0.50</i> , Sensor Depth (ft): <i>10375.00</i> , Bit To Sensor (ft): <i>70.00</i>
Rotary Drill	1	11-18	16:15	17:30	11-18	10445.00	10539.00	Pressure On (psi): <i>3600.00</i> , Pressure Off (psi): <i>3100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>206.00</i>
Survey	46	11-18	17:30	17:35	11-18	10539.00	10539.00	Inclination (°): <i>1.670</i> , Azimuth (°): <i>204.580</i> , TVD (ft): <i>10455.13</i> , Dogleg (°/100 ft): <i>0.29</i> , Sensor Depth (ft): <i>10469.00</i> , Bit To Sensor (ft): <i>70.00</i>
Rotary Drill	1	11-18	17:35	18:25	11-18	10539.00	10634.00	Pressure On (psi): <i>3600.00</i> , Pressure Off (psi): <i>3100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>206.00</i>
Survey	46	11-18	18:25	18:30	11-18	10634.00	10634.00	Inclination (°): <i>1.710</i> , Azimuth (°): <i>203.610</i> , TVD (ft): <i>10550.08</i> , Dogleg (°/100 ft): <i>0.05</i> , Sensor Depth (ft): <i>10564.00</i> , Bit To Sensor (ft): <i>70.00</i>
Rotary Drill	1	11-18	18:30	19:35	11-18	10634.00	10728.00	Pressure On (psi): <i>3600.00</i> , Pressure Off (psi): <i>3100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>206.00</i>
Survey	46	11-18	19:35	19:40	11-18	10728.00	10728.00	Inclination (°): <i>1.670</i> , Azimuth (°): <i>202.470</i> , TVD (ft): <i>10644.04</i> , Dogleg (°/100 ft): <i>0.06</i> , Sensor Depth (ft): <i>10658.00</i> , Bit To Sensor (ft): <i>70.00</i>
Rotary Drill	1	11-18	19:40	20:30	11-18	10728.00	10814.00	Pressure On (psi): <i>3600.00</i> , Pressure Off (psi): <i>3100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>12000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>206.00</i>
Survey	46	11-18	20:30	20:35	11-18	10814.00	10814.00	Inclination (°): <i>1.580</i> , Azimuth (°): <i>198.510</i> , TVD (ft): <i>10730.01</i> , Dogleg (°/100 ft): <i>0.17</i> , Sensor Depth (ft): <i>10744.00</i> , Bit To Sensor (ft): <i>70.00</i>
Circulating	3	11-18	20:35	21:20	11-18			Circulate hole clean @ section TD of 10,814 to POOH and set bridge plug.
Pooh	7	11-18	21:20	00:00	11-19			POOH to set Bridge plug

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Nov 18 23:00 - 22:59 (Day 10 of 25)

Billing: N/A (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	3.75	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	73.00 - 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #3 - BHA #3 8.5" Hole

Date In: Nov 16, 2019, 20:30 Date Out: Nov 19, 2019, 2:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	: Aim Contender: 7/8 8.5 Stg 1.50 FBH 8.25" Stab Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.50 / Bit; Security 8.5" Type: GT65DRM , SN:13271296, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13271296	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	POOH Reason Total Depth/Casing Point: Motor was still tight on surface while draining. 1/8 slack in bearings. Bit was graded 3-5
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.36 ft, Gamma: 55.00 ft		
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5534.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13271296	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 7" 7/8 8.5 @1.5 Fixed W/8.25" Stab, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.18
Stabilizer Description: 8 1/4" Steel Autotack Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.21
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		3.96	47.17
Drill Collar Description: 6.5" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730195	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.625		30.55	77.72
Drill Collar Description: 6.5" NMDC (Spacer), Style: Slick Drill, Type: NM	Gator	GT6730199	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.88	108.60
Crossover Sub Description: X-Over (4 1/2 IF Pin x 4 1/2 XH Box), Type: Steel	Gator	GT10412	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.500		4.18	112.78
Drill Collar Description: (18 Jts) 6.5" DC, Style: Spiral Drill, Type: Steel	RIG	Rig	4 1/2" XH Box	4 1/2" XH Pin	3.000	6.500		529.69	642.47
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	Gator	GT10419	4 1/2" IF Box	4 1/2" XH Pin	2.875	6.750		4.30	646.77
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		928.40	1575.17

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	11-18	21:20	00:00	11-19			POOH to set Bridge plug
Pooh	7	11-19	00:00	01:50	11-19			POOH to set Bridge plug
Change BHA	6	11-19	01:50	02:45	11-19			L/D BHA # 3
Standby	15	11-19	02:45	06:00	11-19			Standby while TIH to set Bridge plug, nipple down, and skid rig to 509H

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Nov 29 23:00 - 22:59 (Day 11 of 25)

Billing: \$31,964.10 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	2.25	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	73.00 - 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer
Stephen Long	Directional Driller

BHA #4 - BHA #4 (Curve)

Date In: Nov 30, 2019, 20:45 Date Out: Dec 2, 2019, 14:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	6 3/4" 7/8 5.0 Stg 2.12 FBH Slick Sleeve Motor Flow Rate 300-600 Rev/Gal 0.28 Max Diff: 1130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit Security 8.5" Type: GTD64C, SN: 13235606 TFA: 2.227 , Jets 6X22'S Bit Runs: 3
Vendor	Security	Lobe/Stage	7/8, 5.0	
S/N	13235606	Bend Angle	2.12	
Nozzles	6x22's	Speed (rev/gal)	0.28	MWD Comments
Total Flow Area (in ²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend: 4.04 ft, Resistivity: 39.79 ft, NB Inc: 32.49 ft, Gamma: 32.89 ft, Survey: 72.00 ft		
Drilling Hours for BHA	16.75			POOH Reason
Total Drilled for BHA (ft)	921.00			Change Bottom Hole Assembly: P/U LATERAL BHA

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GTD64C, Style: PDC, Gauge Length (in): 2.75, Size (in): 8.50	Security	13235606	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 6 3/4" 7/8 5.0 @2.12 Fixed W/" SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	650-015	4 1/2" IF Box	4 1/2" Reg Box		6.750		25.82	26.77
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	29.38
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	49.19
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	63.50
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	92.62
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	96.58
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	128.01

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Standby	15	11-30	00:00	11:00	11-30		Standby while RIG DOWN AND SKID RIG
P/U BOP's	27	11-30	11:00	15:30	11-30		NIPPLE UP AND TEST BOP'S
TIH	8	11-30	15:30	16:00	11-30		TIH W/ LATCH TOOL FOR PLUG
Pooh	7	11-30	16:00	16:45	11-30		POOH AND LAY OUT PLUG
Other	16	11-30	16:45	19:00	11-30		Slip & Cut Drill Line
Other	16	11-30	19:00	19:30	11-30		Install Wear Bushing
Other	16	11-30	19:30	20:00	11-30		Gather Dir. Tools
Change BHA	6	11-30	20:00	20:45	11-30		P/U BHA # 4 , Motor, XO, Resistivity Tool
Other	16	11-30	20:45	21:00	11-30		L/D AWR Resistivity Tool do to Communication Pin Broken
Other	16	11-30	21:00	22:30	11-30		Program Second AWR Tool
Other	16	11-30	22:30	23:45	11-30		M/U AWR Resistivity Tool (2nd), Battery , NMDC (MWD), Scrap, Insert MWD Tool
Circulating	3	11-30	23:45	00:10	12-01		Shallow Test Tools

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Nov 30 23:00 - 22:59 (Day 12 of 25)

Billing: \$12,514.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10814.00	Downhole Hours	24.00	Rotating WOB (klbs)	35.00 - 42.00
Bit Depth (ft)	11358.00	Drilling Hours	10.67	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	11358.00	Hours Circulating	1.42	Rotating SPM	178.00 - 206.00
Total Distance (ft)	544.00	Hours Sliding	9.00	Sliding SPM	180.00 - 180.00
Distance Rotated (ft)	105.00	Hours Rotating	1.67	Motor RPM	73.00 - 136.00
Distance Slid (ft)	439.00			Surface RPM	20.00 - 35.00
Inclination In	1.60			Flow Rate (gpm)	575.00 - 700.00
Inclination Out	59.14			On Bottom Pressure (psi)	3275.00 - 3600.00
Azimuth In	192.19	% Hours Rotating	16%	Off Bottom Pressure (psi)	2700.00 - 3100.00
Azimuth Out	358.21	% Hours Sliding	84%		
AVG Total ROP (ft/h)	52.44	% Distance Sliding	81%		
AVG Rotating ROP (ft/h)	62.31	% Distance Rotating	19%		
AVG Sliding ROP (ft/h)	50.30				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer
Stephen Long	Directional Driller

BHA #4 - BHA #4 (Curve)

Date In: Nov 30, 2019, 20:45 Date Out: Dec 2, 2019, 14:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	6 3/4" 7/8 5.0 Stg 2.12 FBH Slick Sleeve Motor Flow Rate 300-600 Rev/Gal 0.28 Max Diff: 1130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit Security 8.5" Type: GTD64C, SN: 13235606 TFA: 2.227 , Jets 6X22'S Bit Runs: 3
Vendor	Security	Lobe/Stage	7/8, 5.0	
S/N	13235606	Bend Angle	2.12	
Nozzles	6x22's	Speed (rev/gal)	0.28	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	10.67	Bit Distances		
Total Drilled for Day (ft)	544.00	Bend: 4.04 ft, Resistivity: 39.79 ft, NB Inc: 32.49 ft, Gamma: 32.89 ft, Survey: 72.00 ft		POOH Reason Change Bottom Hole Assembly: P/U LATERAL BHA
Drilling Hours for BHA	16.75			
Total Drilled for BHA (ft)	921.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>Security GTD64C</i> , Style: <i>PDC</i> , Gauge Length (in): 2.75, Size (in): 8.50	Security	13235606	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: <i>6 3/4" 7/8 5.0 @2.12 Fixed W/" SS</i> , Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	650-015	4 1/2" IF Box	4 1/2" Reg Box		6.750		25.82	26.77
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	29.38
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	49.19
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	63.50
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	92.62
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	96.58
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	128.01

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Circulating	3	11-30	23:45	00:10	12-01			Shallow Test Tools
TIH	8	12-01	00:10	00:35	12-01			M/U Bit & NMDC
TIH	8	12-01	00:35	06:30	12-01			TIH W/ BHA #4 Curve
Circulating	3	12-01	06:30	07:30	12-01			RELOG 10725-10814
Slide Drill	2	12-01	07:30	09:20	12-01	10814.00	10885.00	Toolface: 0, Toolface Type: <i>magnetic</i>
Rig Repair	14	12-01	09:20	13:20	12-01			
Survey	46	12-01	13:20	13:25	12-01	10885.00	10885.00	Inclination (°): 1.600, Azimuth (°): 192.190, TVD (ft): 10798.98, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 10813.00, Bit To Sensor (ft): 72.00
Slide Drill	2	12-01	13:25	14:30	12-01	10885.00	10932.00	Toolface: 0, Toolface Type: <i>magnetic</i>
Survey	46	12-01	14:30	14:35	12-01	10932.00	10932.00	Inclination (°): 2.420, Azimuth (°): 0.150, TVD (ft): 10845.97, Dogleg (°/100 ft): 8.51, Sensor Depth (ft): 10860.00, Bit To Sensor (ft): 72.00
Slide Drill	2	12-01	14:35	15:30	12-01	10932.00	10979.00	Toolface: 0, Toolface Type: <i>magnetic</i>
Survey	46	12-01	15:30	15:35	12-01	10979.00	10979.00	Inclination (°): 9.340, Azimuth (°): 352.670, TVD (ft): 10892.70, Dogleg (°/100 ft): 14.78, Sensor Depth (ft): 10907.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	12-01	15:35	15:45	12-01	10979.00	10985.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Slide Drill	2	12-01	15:45	17:20	12-01	10985.00	11074.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 35, Toolface Type: <i>gravity</i>
Survey	46	12-01	17:20	17:25	12-01	11074.00	11074.00	Inclination (°): 20.590, Azimuth (°): 352.940, TVD (ft): 10984.33, Dogleg (°/100 ft): 11.84, Sensor Depth (ft): 11002.00, Bit To Sensor (ft): 72.00
Slide Drill	2	12-01	17:25	19:20	12-01	11074.00	11160.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 5, Toolface Type: <i>gravity</i>
Rotary Drill	1	12-01	19:20	19:30	12-01	11160.00	11169.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 42.00, Surface RPM: 35, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 206.00
Survey	46	12-01	19:30	19:35	12-01	11169.00	11169.00	Inclination (°): 33.620, Azimuth (°): 2.520, TVD (ft): 11068.75, Dogleg (°/100 ft): 14.42, Sensor Depth (ft): 11097.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	12-01	19:35	19:50	12-01	11169.00	11181.00	Pressure On (psi): 3275.00, Pressure Off (psi): 2750.00, Weight On Bit (klbs): 35.00, Surface RPM: 20, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-01	19:50	21:10	12-01	11181.00	11263.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 350, Toolface Type: <i>gravity</i>
Survey	46	12-01	21:10	21:15	12-01	11263.00	11263.00	Inclination (°): 42.680, Azimuth (°): 0.850, TVD (ft): 11142.60, Dogleg (°/100 ft): 9.70, Sensor Depth (ft): 11191.00, Bit To Sensor (ft): 72.00
Slide Drill	2	12-01	21:15	21:35	12-01	11263.00	11280.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: <i>gravity</i>
Rotary Drill	1	12-01	21:35	22:40	12-01	11280.00	11358.00	Pressure On (psi): 3275.00, Pressure Off (psi): 2750.00, Weight On Bit (klbs): 35.00, Surface RPM: 20, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Survey	46	12-01	22:40	22:45	12-01	11358.00	11358.00	Inclination (°): 59.140, Azimuth (°): 358.210, TVD (ft): 11202.30, Dogleg (°/100 ft): 17.46, Sensor Depth (ft): 11286.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	12-01	22:45	23:15	12-01	11358.00	11388.00	Pressure On (psi): 3275.00, Pressure Off (psi): 2750.00, Weight On Bit (klbs): 35.00, Surface RPM: 20, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-01	23:15	00:15	12-02	11388.00	11452.00	Pressure On (psi): 3300.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 5, Toolface Type: <i>gravity</i>

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Dec 01 23:00 - 22:59 (Day 13 of 25)

Billing: \$27,059.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11358.00	Downhole Hours	22.75	Rotating WOB (klbs)	35.00 - 35.00
Bit Depth (ft)	11735.00	Drilling Hours	6.08	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	11735.00	Hours Circulating	1.17	Rotating SPM	178.00 - 178.00
Total Distance (ft)	377.00	Hours Sliding	2.42	Sliding SPM	180.00 - 180.00
Distance Rotated (ft)	232.00	Hours Rotating	3.67	Motor RPM	73.00 - 195.00
Distance Slid (ft)	145.00			Surface RPM	20.00 - 20.00
Inclination In	58.63			Flow Rate (gpm)	575.00 - 575.00
Inclination Out	80.56			On Bottom Pressure (psi)	3275.00 - 3300.00
Azimuth In	355.14	% Hours Rotating	60%	Off Bottom Pressure (psi)	2700.00 - 2750.00
Azimuth Out	355.84	% Hours Sliding	40%		
AVG Total ROP (ft/h)	55.73	% Distance Sliding	38%		
AVG Rotating ROP (ft/h)	56.00	% Distance Rotating	62%		
AVG Sliding ROP (ft/h)	55.26				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #4 - BHA #4 (Curve)

Date In: Nov 30, 2019, 20:45 Date Out: Dec 2, 2019, 14:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	6 3/4" 7/8 5.0 Stg 2.12 FBH Slick Sleeve Motor Flow Rate 300-600 Rev/Gal 0.28 Max Diff: 1130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit Security 8.5" Type: GTD64C, SN: 13235606 TFA: 2.227 , Jets 6X22'S Bit Runs: 3
Vendor	Security	Lobe/Stage	7/8, 5.0	
S/N	13235606	Bend Angle	2.12	
Nozzles	6x22's	Speed (rev/gal)	0.28	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	6.08	Bit Distances		
Total Drilled for Day (ft)	377.00	Bend: 4.04 ft, Resistivity: 39.79 ft, NB Inc: 32.49 ft, Gamma: 32.89 ft, Survey: 72.00 ft		
Drilling Hours for BHA	16.75			POOH Reason
Total Drilled for BHA (ft)	921.00			Change Bottom Hole Assembly: P/U LATERAL BHA

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GTD64C, Style: PDC, Gauge Length (in): 2.75, Size (in): 8.50	Security	13235606	4 1/2" Reg Pin			8.500		0.95	0.95
Mud Motor Description: 6 3/4" 7/8 5.0 @2.12 Fixed W/" SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	650-015	4 1/2" IF Box	4 1/2" Reg Box		6.750		25.82	26.77
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	29.38
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	49.19
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	63.50
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	92.62
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	96.58
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	128.01

MWD Items

No Items

BHA #5 - BHA #5

Date In: Dec 2, 2019, 15:15 Date Out: Dec 5, 2019, 3:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5293009	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	43.17	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	2208.00			
MWD Comments				
POOH Reason				
Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>HUGHES DD506TWX</i> , Style: <i>PDC</i> , Gauge Length (in): <i>3.75</i> , Size (in): <i>8.50</i>	BAKER	5293009	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" SS</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	700-40-029	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

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	12-01	23:15	00:15	12-02	11388.00	11452.00	Pressure On (psi): <i>3300.00</i> , Pressure Off (psi): <i>2700.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>180</i> , Toolface: <i>5</i> , Toolface Type: <i>gravity</i>
Survey	46	12-02	00:15	00:20	12-02	11452.00	11452.00	Inclination (°): <i>58.630</i> , Azimuth (°): <i>355.140</i> , TVD (ft): <i>11250.88</i> , Dogleg (°/100 ft): <i>2.85</i> , Sensor Depth (ft): <i>11380.00</i> , Bit To Sensor (ft): <i>72.00</i>
Rotary Drill	1	12-02	00:20	01:50	12-02	11452.00	11546.00	Pressure On (psi): <i>3275.00</i> , Pressure Off (psi): <i>2750.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>20</i> , Surface Torque (ft lbf): <i>15000.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>178.00</i>
Survey	46	12-02	01:50	01:55	12-02	11546.00	11546.00	Inclination (°): <i>70.430</i> , Azimuth (°): <i>357.510</i> , TVD (ft): <i>11291.24</i> , Dogleg (°/100 ft): <i>12.76</i> , Sensor Depth (ft): <i>11474.00</i> , Bit To Sensor (ft): <i>72.00</i>
Rotary Drill	1	12-02	01:55	02:20	12-02	11546.00	11578.00	Pressure On (psi): <i>3275.00</i> , Pressure Off (psi): <i>2750.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>20</i> , Surface Torque (ft lbf): <i>15000.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>178.00</i>
Slide Drill	2	12-02	02:20	03:05	12-02	11578.00	11621.00	Pressure On (psi): <i>3300.00</i> , Pressure Off (psi): <i>2700.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>180</i> , Toolface: <i>20</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-02	03:05	03:30	12-02	11621.00	11641.00	Pressure On (psi): <i>3275.00</i> , Pressure Off (psi): <i>2750.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>20</i> , Surface Torque (ft lbf): <i>15000.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>178.00</i>
Survey	46	12-02	03:30	03:35	12-02	11641.00	11641.00	Inclination (°): <i>72.080</i> , Azimuth (°): <i>354.260</i> , TVD (ft): <i>11321.77</i> , Dogleg (°/100 ft): <i>3.68</i> , Sensor Depth (ft): <i>11569.00</i> , Bit To Sensor (ft): <i>72.00</i>
Rotary Drill	1	12-02	03:35	04:00	12-02	11641.00	11674.00	Pressure On (psi): <i>3275.00</i> , Pressure Off (psi): <i>2750.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>20</i> , Surface Torque (ft lbf): <i>15000.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>178.00</i>
Slide Drill	2	12-02	04:00	04:40	12-02	11674.00	11712.00	Pressure On (psi): <i>3300.00</i> , Pressure Off (psi): <i>2700.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>180</i> , Toolface: <i>30</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-02	04:40	05:05	12-02	11712.00	11735.00	Pressure On (psi): <i>3275.00</i> , Pressure Off (psi): <i>2750.00</i> , Weight On Bit (klbs): <i>35.00</i> , Surface RPM: <i>20</i> , Surface Torque (ft lbf): <i>15000.00</i> , Flow Rate (gpm): <i>575.00</i> , Strokes Per Minute: <i>178.00</i>

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Monday, Dec 02 23:00 - 22:59 (Day 14 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11735.00	Downhole Hours	24.00	Rotating WOB (klbs)	30.00 - 40.00
Bit Depth (ft)	13083.00	Drilling Hours	21.00	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	13083.00	Hours Circulating	0.75	Rotating SPM	130.00 - 231.00
Total Distance (ft)	1348.00	Hours Sliding	4.42	Sliding SPM	231.00 - 231.00
Distance Rotated (ft)	1199.00	Hours Rotating	16.58	Motor RPM	190.00 - 195.00
Distance Slid (ft)	149.00			Surface RPM	50.00 - 65.00
Inclination In	88.78			Flow Rate (gpm)	730.00 - 750.00
Inclination Out	90.98			On Bottom Pressure (psi)	3850.00 - 4600.00
Azimuth In	356.54	% Hours Rotating	79%	Off Bottom Pressure (psi)	3200.00 - 4100.00
Azimuth Out	358.30	% Hours Sliding	21%		
AVG Total ROP (ft/h)	63.09	% Distance Sliding	11%		
AVG Rotating ROP (ft/h)	76.70	% Distance Rotating	89%		
AVG Sliding ROP (ft/h)	29.83				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #5 - BHA #5

Date In: Dec 2, 2019, 15:15 Date Out: Dec 5, 2019, 3:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.74 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5293009 TFA: 2.227 , Jets 6X22'S Bit Runs: 1
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5293009	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	21.00	Bit Distances		POOH Reason Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP
Total Drilled for Day (ft)	1348.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	43.17	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	2208.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>HUGHES DD506TWX</i> , Style: <i>PDC</i> , Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5293009	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" SS</i> , Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-029	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Slide Drill	2	12-02	23:45	00:30	12-03	11841.00	11871.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	12-03	00:30	01:25	12-03	11871.00	11934.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-03	01:25	01:30	12-03	11934.00	11934.00	Inclination (°): 88.580, Azimuth (°): 355.930, TVD (ft): 11354.90, Dogleg (°/100 ft): 0.68, Sensor Depth (ft): 11852.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	01:30	02:30	12-03	11934.00	12008.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-03	02:30	03:00	12-03	12008.00	12028.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 45, Toolface Type: gravity
Survey	46	12-03	03:00	03:05	12-03	12028.00	12028.00	Inclination (°): 88.540, Azimuth (°): 358.040, TVD (ft): 11357.26, Dogleg (°/100 ft): 2.24, Sensor Depth (ft): 11946.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	03:05	04:05	12-03	12028.00	12122.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-03	04:05	04:10	12-03	12122.00	12122.00	Inclination (°): 89.570, Azimuth (°): 358.480, TVD (ft): 11358.81, Dogleg (°/100 ft): 1.19, Sensor Depth (ft): 12040.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	04:10	04:20	12-03	12122.00	12129.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	12-03	04:20	04:55	12-03	12129.00	12159.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	12-03	04:55	05:35	12-03	12159.00	12216.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-03	05:35	05:40	12-03	12216.00	12216.00	Inclination (°): 89.920, Azimuth (°): 0.850, TVD (ft): 11359.23, Dogleg (°/100 ft): 2.55, Sensor Depth (ft): 12134.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	05:40	06:40	12-03	12216.00	12311.00	Pressure On (psi): 3850.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 30.00, Surface RPM: 50, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	12-03	06:40	06:45	12-03	12311.00	12311.00	Inclination (°): 90.890, Azimuth (°): 2.340, TVD (ft): 11358.56, Dogleg (°/100 ft): 1.87, Sensor Depth (ft): 12229.00, Bit To Sensor (ft): 82.00, Temperature (°F): 162.00
Rotary Drill	1	12-03	06:45	07:30	12-03	12311.00	12405.00	
Survey	46	12-03	07:30	07:35	12-03	12405.00	12405.00	Inclination (°): 90.230, Azimuth (°): 4.540, TVD (ft): 11357.64, Dogleg (°/100 ft): 2.44, Sensor Depth (ft): 12323.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	07:35	07:45	12-03	12405.00	12411.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-03	07:45	08:30	12-03	12411.00	12443.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 250, Toolface Type: gravity
Rotary Drill	1	12-03	08:30	09:05	12-03	12443.00	12499.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-03	09:05	09:10	12-03	12499.00	12499.00	Inclination (°): 90.780, Azimuth (°): 3.220, TVD (ft): 11356.81, Dogleg (°/100 ft): 1.52, Sensor Depth (ft): 12417.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	09:10	10:15	12-03	12499.00	12594.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-03	10:15	10:20	12-03	12594.00	12594.00	Inclination (°): 90.760, Azimuth (°): 358.480, TVD (ft): 11355.53, Dogleg (°/100 ft): 4.99, Sensor Depth (ft): 12512.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	10:20	10:25	12-03	12594.00	12600.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-03	10:25	11:40	12-03	12600.00	12625.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 145, Toolface Type: gravity
Rotary Drill	1	12-03	11:40	12:35	12-03	12625.00	12689.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-03	12:35	12:40	12-03	12689.00	12689.00	Inclination (°): 89.810, Azimuth (°): 359.090, TVD (ft): 11355.06, Dogleg (°/100 ft): 1.19, Sensor Depth (ft): 12607.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	12:40	13:40	12-03	12689.00	12765.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-03	13:40	14:15	12-03	12765.00	12777.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-03	14:15	14:20	12-03	12777.00	12783.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-03	14:20	14:25	12-03	12783.00	12783.00	Inclination (°): 87.790, Azimuth (°): 0.500, TVD (ft): 11357.03, Dogleg (°/100 ft): 2.62, Sensor Depth (ft): 12701.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-03	14:25	15:40	12-03	12783.00	12877.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00

Survey	46	12-03	15:40	15:45	12-03	12877.00	12877.00	Inclination (°): <i>89.880</i> , Azimuth (°): <i>0.850</i> , TVD (ft): <i>11358.94</i> , Dogleg (°/100 ft): <i>2.25</i> , Sensor Depth (ft): <i>12795.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-03	15:45	16:00	12-03	12877.00	12901.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>65</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Circulating	3	12-03	16:00	16:45	12-03			Circ. / W/O Rig Gen.
Other	16	12-03	16:45	19:30	12-03			W/O Rig Gen.
Rotary Drill	1	12-03	19:30	21:00	12-03	12901.00	12972.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>65</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Survey	46	12-03	21:00	21:05	12-03	12972.00	12972.00	Inclination (°): <i>90.100</i> , Azimuth (°): <i>359.530</i> , TVD (ft): <i>11358.96</i> , Dogleg (°/100 ft): <i>1.41</i> , Sensor Depth (ft): <i>12890.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-03	21:05	22:35	12-03	12972.00	13066.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>65</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Survey	46	12-03	22:35	22:40	12-03	13066.00	13066.00	Inclination (°): <i>90.980</i> , Azimuth (°): <i>358.300</i> , TVD (ft): <i>11358.07</i> , Dogleg (°/100 ft): <i>1.61</i> , Sensor Depth (ft): <i>12984.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-03	22:40	23:00	12-03	13066.00	13083.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>65</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Slide Drill	2	12-03	23:00	00:25	12-04	13083.00	13108.00	Pressure On (psi): <i>4600.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>750.00</i> , Strokes Per Minute: <i>231</i> , Toolface: <i>140</i> , Toolface Type: <i>gravity</i>

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Tuesday, Dec 03 23:00 - 22:59 (Day 15 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	13083.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	13943.00	Drilling Hours	22.17	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	13943.00	Hours Circulating	0.75	Rotating SPM	130.00 - 130.00
Total Distance (ft)	860.00	Hours Sliding	6.58	Sliding SPM	231.00 - 231.00
Distance Rotated (ft)	748.00	Hours Rotating	15.58	Motor RPM	190.00 - 195.00
Distance Slid (ft)	112.00			Surface RPM	50.00 - 65.00
Inclination In	91.90			Flow Rate (gpm)	730.00 - 750.00
Inclination Out	90.82			On Bottom Pressure (psi)	4550.00 - 4600.00
Azimuth In	359.09	% Hours Rotating	70%	Off Bottom Pressure (psi)	4000.00 - 4100.00
Azimuth Out	355.75	% Hours Sliding	30%		
AVG Total ROP (ft/h)	38.80	% Distance Sliding	13%		
AVG Rotating ROP (ft/h)	48.00	% Distance Rotating	87%		
AVG Sliding ROP (ft/h)	17.01				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #5 - BHA #5

Date In: Dec 2, 2019, 15:15 Date Out: Dec 5, 2019, 3:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.74 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5293009 TFA: 2.227 , Jets 6X22'S Bit Runs: 1
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5293009	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP
Drilling Hours for Day	22.17	Bit Distances		
Total Drilled for Day (ft)	860.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	43.17	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	2208.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: HUGHES DD506TWX, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5293009	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-029	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Slide Drill	2	12-03	23:00	00:25	12-04	13083.00	13108.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 140, Toolface Type: gravity
Rotary Drill	1	12-04	00:25	01:20	12-04	13108.00	13160.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	01:20	01:25	12-04	13160.00	13160.00	Inclination (°): 91.900, Azimuth (°): 359.090, TVD (ft): 11355.71, Dogleg (°/100 ft): 1.29, Sensor Depth (ft): 13078.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	01:25	03:15	12-04	13160.00	13254.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	03:15	03:30	12-04	13254.00	13254.00	Inclination (°): 89.590, Azimuth (°): 359.970, TVD (ft): 11354.49, Dogleg (°/100 ft): 2.63, Sensor Depth (ft): 13172.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	03:30	04:20	12-04	13254.00	13309.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-04	04:20	05:00	12-04	13309.00	13321.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-04	05:00	05:45	12-04	13321.00	13349.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	05:45	05:50	12-04	13349.00	13349.00	Inclination (°): 88.980, Azimuth (°): 357.860, TVD (ft): 11355.67, Dogleg (°/100 ft): 2.31, Sensor Depth (ft): 13267.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	05:50	07:20	12-04	13349.00	13443.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	07:20	07:35	12-04	13443.00	13443.00	Inclination (°): 91.090, Azimuth (°): 359.090, TVD (ft): 11355.61, Dogleg (°/100 ft): 2.60, Sensor Depth (ft): 13361.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	07:35	09:15	12-04	13443.00	13537.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	09:15	09:20	12-04	13537.00	13537.00	Inclination (°): 92.100, Azimuth (°): 359.180, TVD (ft): 11353.00, Dogleg (°/100 ft): 1.08, Sensor Depth (ft): 13455.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	09:20	11:05	12-04	13537.00	13631.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	11:05	11:10	12-04	13631.00	13631.00	Inclination (°): 92.300, Azimuth (°): 357.240, TVD (ft): 11349.39, Dogleg (°/100 ft): 2.07, Sensor Depth (ft): 13549.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	11:10	11:30	12-04	13631.00	13642.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-04	11:30	12:40	12-04	13642.00	13667.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-04	12:40	14:05	12-04	13667.00	13725.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	14:05	14:10	12-04	13725.00	13725.00	Inclination (°): 92.100, Azimuth (°): 358.040, TVD (ft): 11345.78, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 13643.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	14:10	14:30	12-04	13725.00	13738.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-04	14:30	16:00	12-04	13738.00	13758.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 160, Toolface Type: gravity
Rotary Drill	1	12-04	16:00	17:45	12-04	13758.00	13820.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	17:45	17:50	12-04	13820.00	13820.00	Inclination (°): 91.040, Azimuth (°): 357.250, TVD (ft): 11343.18, Dogleg (°/100 ft): 1.39, Sensor Depth (ft): 13738.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	17:50	19:10	12-04	13820.00	13873.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Slide Drill	2	12-04	19:10	21:00	12-04	13873.00	13903.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231, Toolface: 140, Toolface Type: gravity
Rotary Drill	1	12-04	21:00	21:35	12-04	13903.00	13914.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 65, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Survey	46	12-04	21:35	21:40	12-04	13914.00	13914.00	Inclination (°): 90.820, Azimuth (°): 355.750, TVD (ft): 11341.65, Dogleg (°/100 ft): 1.61, Sensor Depth (ft): 13832.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-04	21:40	22:15	12-04	13914.00	13943.00	Pressure On (psi): 4550.00, Pressure Off (psi): 4000.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 130.00
Circulating Pooh	3	12-04	22:15	23:00	12-04			Circ. BTU
	7	12-04	23:00	03:30	12-05			POOH do to Drop in Differential & ROP

MWD Activities



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Wednesday, Dec 04 23:00 - 22:59 (Day 16 of 25)

Billing: \$27,059.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	13943.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 42.00
Bit Depth (ft)	14668.00	Drilling Hours	10.83	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	14668.00	Hours Circulating	0.25	Rotating SPM	130.00 - 216.00
Total Distance (ft)	725.00	Hours Sliding	3.08	Sliding SPM	231.00 - 231.00
Distance Rotated (ft)	641.00	Hours Rotating	7.75	Motor RPM	73.00 - 195.00
Distance Slid (ft)	84.00			Surface RPM	45.00 - 50.00
Inclination In	88.14			Flow Rate (gpm)	700.00 - 750.00
Inclination Out	88.78			On Bottom Pressure (psi)	4550.00 - 4800.00
Azimuth In	358.92	% Hours Rotating	72%	Off Bottom Pressure (psi)	4000.00 - 4100.00
Azimuth Out	358.21	% Hours Sliding	28%		
AVG Total ROP (ft/h)	57.14	% Distance Sliding	12%		
AVG Rotating ROP (ft/h)	73.97	% Distance Rotating	88%		
AVG Sliding ROP (ft/h)	22.29				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #5 - BHA #5

Date In: Dec 2, 2019, 15:15 Date Out: Dec 5, 2019, 3:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.74 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5293009 TFA: 2.227 , Jets 6X22'S Bit Runs: 1
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5293009	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Downhole Tool Incident: POOH to inspect BHA after sudden drop differential & ROP
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	43.17	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	2208.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: HUGHES DD506TWX, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5293009	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-029	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items

No Items

BHA #6 - BHA #6(Lateral)				Date In: Dec 5, 2019, 3:30 Date Out: Dec 6, 2019, 8:30	
Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5289707 TFA: 2.227 , Jets 6X22'S Bit Runs: 3	
Vendor	BAKER	Lobe/Stage	7/8, 8.5		
S/N	5289707	Bend Angle	1.75		
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Penetration Rate: POOH due to reduced ROP	
Drilling Hours for Day	10.83	Bit Distances			
Total Drilled for Day (ft)	725.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,			
Drilling Hours for BHA	14.83	Resistivity: 50.10 ft, Survey: 80.27 ft			
Total Drilled for BHA (ft)	857.00				

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>HUGHES DD506TWX</i> , Style: <i>PDC</i> , Gauge Length (in): <i>3.75</i> , Size (in): <i>8.50</i>	BAKER	5289707	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" TS</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	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

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	23:00	03:30	12-05			POOH do to Drop in Differential & ROP	
Change BHA	6	12-05	03:30	04:45	12-05			C/O BHA / Bit & Motor	
Circulating	3	12-05	04:45	05:00	12-05			Shallow Test Tools	
TIH	8	12-05	05:00	06:00	12-05			TIH W/ BHA #6	
TIH	8	12-05	06:00	10:50	12-05			TIH W/ BHA 6	
Rotary Drill	1	12-05	10:50	11:30	12-05	13943.00	14008.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>	
Survey	46	12-05	11:30	11:35	12-05	14008.00	14008.00	Inclination (°): <i>88.140</i> , Azimuth (°): <i>358.920</i> , TVD (ft): <i>11342.51</i> , Dogleg (°/100 ft): <i>4.42</i> , Sensor Depth (ft): <i>13926.00</i> , Bit To Sensor (ft): <i>82.00</i>	
Rotary Drill	1	12-05	11:35	12:15	12-05	14008.00	14073.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>	
Slide Drill	2	12-05	12:15	13:15	12-05	14073.00	14103.00	Pressure On (psi): <i>4600.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>750.00</i> , Strokes Per Minute: <i>231</i> , Toolface: <i>30</i> , Toolface Type: <i>gravity</i>	
Survey	46	12-05	13:15	13:20	12-05	14103.00	14103.00	Inclination (°): <i>87.440</i> , Azimuth (°): <i>357.250</i> , TVD (ft): <i>11346.17</i> , Dogleg (°/100 ft): <i>1.90</i> , Sensor Depth (ft): <i>14021.00</i> , Bit To Sensor (ft): <i>82.00</i>	
Rotary Drill	1	12-05	13:20	14:40	12-05	14103.00	14197.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>	
Survey	46	12-05	14:40	14:45	12-05	14197.00	14197.00	Inclination (°): <i>91.860</i> , Azimuth (°): <i>358.920</i> , TVD (ft): <i>11346.74</i> , Dogleg (°/100 ft): <i>5.03</i> , Sensor Depth (ft): <i>14115.00</i> , Bit To Sensor (ft): <i>82.00</i>	
Rotary Drill	1	12-05	14:45	15:55	12-05	14197.00	14291.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>	
Survey	46	12-05	15:55	16:00	12-05	14291.00	14291.00	Inclination (°): <i>92.250</i> , Azimuth (°): <i>356.370</i> , TVD (ft): <i>11343.37</i> , Dogleg (°/100 ft): <i>2.74</i> , Sensor Depth (ft): <i>14209.00</i> , Bit To Sensor (ft): <i>82.00</i>	

Rotary Drill	1	12-05	16:00	16:10	12-05	14291.00	14300.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Slide Drill	2	12-05	16:10	17:30	12-05	14300.00	14334.00	Pressure On (psi): <i>4600.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>750.00</i> , Strokes Per Minute: <i>231</i> , Toolface: <i>120</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-05	17:30	18:20	12-05	14334.00	14385.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Survey	46	12-05	18:20	18:25	12-05	14385.00	14385.00	Inclination (°): <i>92.080</i> , Azimuth (°): <i>359.530</i> , TVD (ft): <i>11339.82</i> , Dogleg (°/100 ft): <i>3.36</i> , Sensor Depth (ft): <i>14303.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-05	18:25	18:55	12-05	14385.00	14431.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Slide Drill	2	12-05	18:55	19:40	12-05	14431.00	14451.00	Pressure On (psi): <i>4600.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>50.00</i> , Flow Rate (gpm): <i>750.00</i> , Strokes Per Minute: <i>231</i> , Toolface: <i>180</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-05	19:40	20:05	12-05	14451.00	14479.00	Pressure On (psi): <i>4550.00</i> , Pressure Off (psi): <i>4000.00</i> , Weight On Bit (klbs): <i>40.00</i> , Surface RPM: <i>50</i> , Surface Torque (ft lbf): <i>17.00</i> , Flow Rate (gpm): <i>730.00</i> , Strokes Per Minute: <i>130.00</i>
Survey	46	12-05	20:05	20:10	12-05	14479.00	14479.00	Inclination (°): <i>91.200</i> , Azimuth (°): <i>358.920</i> , TVD (ft): <i>11337.13</i> , Dogleg (°/100 ft): <i>1.14</i> , Sensor Depth (ft): <i>14397.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-05	20:10	20:25	12-05	14479.00	14573.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-05	20:25	20:30	12-05	14573.00	14573.00	Inclination (°): <i>88.210</i> , Azimuth (°): <i>359.710</i> , TVD (ft): <i>11337.61</i> , Dogleg (°/100 ft): <i>3.29</i> , Sensor Depth (ft): <i>14491.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-05	20:30	22:15	12-05	14573.00	14668.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-05	22:15	22:20	12-05	14668.00	14668.00	Inclination (°): <i>88.780</i> , Azimuth (°): <i>358.210</i> , TVD (ft): <i>11340.11</i> , Dogleg (°/100 ft): <i>1.69</i> , Sensor Depth (ft): <i>14586.00</i> , Bit To Sensor (ft): <i>82.00</i>
Slide Drill	2	12-05	22:20	23:55	12-05	14668.00	14688.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216</i> , Toolface: <i>60</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-05	23:55	01:50	12-06	14688.00	14762.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Dec 05 23:00 - 22:59 (Day 17 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	14668.00	Downhole Hours	24.00	Rotating WOB (klbs)	42.00 - 42.00
Bit Depth (ft)	15234.00	Drilling Hours	9.33	Sliding WOB (klbs)	70.00 - 70.00
Bottom Hole Depth (ft)	15234.00	Hours Circulating	1.17	Rotating SPM	216.00 - 216.00
Total Distance (ft)	566.00	Hours Sliding	2.83	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	509.00	Hours Rotating	6.50	Motor RPM	73.00 - 136.00
Distance Slid (ft)	57.00			Surface RPM	45.00 - 45.00
Inclination In	88.23			Flow Rate (gpm)	700.00 - 700.00
Inclination Out	92.58			On Bottom Pressure (psi)	4250.00 - 4800.00
Azimuth In	0.67	% Hours Rotating	70%	Off Bottom Pressure (psi)	4100.00 - 4100.00
Azimuth Out	358.42	% Hours Sliding	30%		
AVG Total ROP (ft/h)	70.45	% Distance Sliding	10%		
AVG Rotating ROP (ft/h)	78.31	% Distance Rotating	90%		
AVG Sliding ROP (ft/h)	29.60				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #6 - BHA #6(Lateral)

Date In: Dec 5, 2019, 3:30 Date Out: Dec 6, 2019, 8:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit HUGHES 8.5" Type: DD506TWX, SN: 5289707 TFA: 2.227 , Jets 6X22'S Bit Runs: 3
Vendor	BAKER	Lobe/Stage	7/8, 8.5	
S/N	5289707	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	4.00	Bit Distances		
Total Drilled for Day (ft)	132.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		POOH Reason
Drilling Hours for BHA	14.83	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	857.00			
				Penetration Rate: POOH due to reduced ROP

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: HUGHES DD506TWX, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	BAKER	5289707	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items

No Items

BHA #7 - BHA #7 (Lateral)				Date In: Dec 6, 2019, 8:30 Date Out: Dec 7, 2019, 13:00	
Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: TKC66, SN: 5293516 TFA: 2.227 , Jets 6X22'S Bit Runs: 0	
Vendor	NOV	Lobe/Stage	7/8, 8.5		
S/N	A268858	Bend Angle	1.75		
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH due to L-Tool sending up inconsistent azimuth	
Drilling Hours for Day	5.33	Bit Distances		POOH Reason	
Total Drilled for Day (ft)	434.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,			
Drilling Hours for BHA	10.08	Resistivity: 50.10 ft, Survey: 80.27 ft			
Total Drilled for BHA (ft)	655.00			MWD Incident: BAD SURVEYS	

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>REED TKC66</i> , Style: <i>PDC</i> , Gauge Length (in): <i>3.75</i> , Size (in): <i>8.50</i>	NOV	A268858	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" TS</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	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Other Description: <i>L-Tool</i>	Schlumberger	JTDAS 3110							0.00

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-05	23:55	01:50	12-06	14688.00	14762.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	01:50	01:55	12-06	14762.00	14762.00	Inclination (°): <i>88.230</i> , Azimuth (°): <i>0.670</i> , TVD (ft): <i>11342.56</i> , Dogleg (°/100 ft): <i>2.68</i> , Sensor Depth (ft): <i>14680.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-06	01:55	02:25	12-06	14762.00	14800.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Circulating	3	12-06	02:25	03:00	12-06			Circulate / Build Slug
Pooh	7	12-06	03:00	04:00	12-06			POOH to inspect BHA do to low ROP
Pooh	7	12-06	04:00	08:00	12-06			POOH for [BIT]
Change BHA	6	12-06	08:00	08:30	12-06			P/U BHA #7
TIH	8	12-06	08:30	15:00	12-06			TIH W/ BHA #7
Slide Drill	2	12-06	15:00	15:15	12-06	14800.00	14820.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216</i> , Toolface: <i>359</i> , Toolface Type: <i>magnetic</i>
Rotary Drill	1	12-06	15:15	16:30	12-06	14820.00	14856.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	16:30	16:35	12-06	14856.00	14856.00	Inclination (°): <i>88.490</i> , Azimuth (°): <i>0.340</i> , TVD (ft): <i>11345.25</i> , Dogleg (°/100 ft): <i>0.45</i> , Sensor Depth (ft): <i>14774.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-06	16:35	17:00	12-06	14856.00	14951.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	17:00	17:10	12-06	14951.00	14951.00	Inclination (°): <i>91.740</i> , Azimuth (°): <i>359.260</i> , TVD (ft): <i>11345.06</i> , Dogleg (°/100 ft): <i>3.60</i> , Sensor Depth (ft): <i>14869.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-06	17:10	17:30	12-06	14951.00	15045.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	17:30	17:40	12-06	15045.00	15045.00	Inclination (°): <i>91.790</i> , Azimuth (°): <i>357.440</i> , TVD (ft): <i>11342.17</i> , Dogleg (°/100 ft): <i>1.94</i> , Sensor Depth (ft): <i>14963.00</i> , Bit To Sensor (ft): <i>82.00</i>

Rotary Drill	1	12-06	17:40	18:20	12-06	15045.00	15099.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Slide Drill	2	12-06	18:20	19:20	12-06	15099.00	15116.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216</i> , Toolface: <i>45</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-06	19:20	19:40	12-06	15116.00	15140.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	19:40	19:45	12-06	15140.00	15140.00	Inclination (°): <i>90.560</i> , Azimuth (°): <i>357.040</i> , TVD (ft): <i>11340.22</i> , Dogleg (°/100 ft): <i>1.36</i> , Sensor Depth (ft): <i>15058.00</i> , Bit To Sensor (ft): <i>82.00</i>
Rotary Drill	1	12-06	19:45	20:50	12-06	15140.00	15234.00	Pressure On (psi): <i>4800.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>42.00</i> , Surface RPM: <i>45</i> , Surface Torque (ft lbf): <i>24000.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216.00</i>
Survey	46	12-06	20:50	20:55	12-06	15234.00	15234.00	Inclination (°): <i>92.580</i> , Azimuth (°): <i>358.420</i> , TVD (ft): <i>11337.64</i> , Dogleg (°/100 ft): <i>2.60</i> , Sensor Depth (ft): <i>15152.00</i> , Bit To Sensor (ft): <i>82.00</i>
Circulating	3	12-06	20:55	21:30	12-06			C/O MWD Data Box
Other	16	12-06	21:30	21:45	12-06			Rack stand back in derrick to reshoot survey at 15,058' do to C/O MWD data box
Circulating	3	12-06	21:45	23:20	12-06			Attempt Survey @ 14,869' , TMF out of tolerance
Circulating	3	12-06	23:20	23:55	12-06			Reprogram MWD from short survey to Raw surveys

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Dec 06 23:00 - 22:59 (Day 18 of 25)

Billing: \$22,764.10 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15234.00	Downhole Hours	24.00	Rotating WOB (klbs)	42.00 - 42.00
Bit Depth (ft)	15455.00	Drilling Hours	4.75	Sliding WOB (klbs)	70.00 - 70.00
Bottom Hole Depth (ft)	15455.00	Hours Circulating	4.67	Rotating SPM	216.00 - 216.00
Total Distance (ft)	221.00	Hours Sliding	1.58	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	191.00	Hours Rotating	3.17	Motor RPM	73.00 - 136.00
Distance Slid (ft)	30.00			Surface RPM	45.00 - 45.00
Inclination In	92.89			Flow Rate (gpm)	700.00 - 700.00
Inclination Out	93.26			On Bottom Pressure (psi)	4250.00 - 4800.00
Azimuth In	359.36	% Hours Rotating	67%	Off Bottom Pressure (psi)	4100.00 - 4100.00
Azimuth Out	359.25	% Hours Sliding	33%		
AVG Total ROP (ft/h)	46.53	% Distance Sliding	14%		
AVG Rotating ROP (ft/h)	60.32	% Distance Rotating	86%		
AVG Sliding ROP (ft/h)	18.95				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #7 - BHA #7 (Lateral)

Date In: Dec 6, 2019, 8:30 Date Out: Dec 7, 2019, 13:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: TKC66, SN: 5293516 TFA: 2.227 , Jets 6X22'S Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A268858	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	4.75	Bit Distances		POOH due to L-Tool sending up inconsistent azimuth
Total Drilled for Day (ft)	221.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	10.08	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	655.00			
				POOH Reason
				MWD Incident: BAD SURVEYS

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: REED TKC66, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A268858	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.31	73.85
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.12	102.97
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.93
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.36

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Other Description: L-Tool	Schlumberger	JTDAS 3110							0.00

BHA #8 - BHA #8

Date In: Dec 7, 2019, 13:00 Date Out: Dec 8, 2019, 11:45

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0	
Vendor	NOV	Lobe/Stage	7/8, 8.5		
S/N	A256219	Bend Angle	1.75		
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	AWR sending resistivity counts every 10-15ft, geologist wanted more data.	
Drilling Hours for Day	0.00	Bit Distances		POOH Reason Change Bottom Hole Assembly: POOH Due to Tool only giving resistivity counts every 10-15 Ft	
Total Drilled for Day (ft)		Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,			
Drilling Hours for BHA	1.75	Resistivity: 50.10 ft, Survey: 80.27 ft			
Total Drilled for BHA (ft)	204.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>REED SKC616M</i> , Style: <i>PDC</i> , Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" TS</i> , Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.24	58.97
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.27
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.34
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.30
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	137.73

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Other Description: <i>AWR - Resistivity Tool</i>	Schlumberger	R67M513D							0.00

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Circulating	3	12-07	00:00	01:30	12-07			Re shoot Surveys @ 14,774', 14,869', 14,963', 15,058', 15,1352' with Raw Surveys
Slide Drill	2	12-07	01:30	02:30	12-07	15234.00	15254.00	Pressure On (psi): 4250.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 70.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	12-07	02:30	03:45	12-07	15254.00	15328.00	Pressure On (psi): 4800.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 42.00, Surface RPM: 45, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-07	03:45	03:50	12-07	15328.00	15328.00	Inclination (°): 92.890, Azimuth (°): 359.360, TVD (ft): 11333.16, Dogleg (°/100 ft): 1.05, Sensor Depth (ft): 15246.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-07	03:50	04:45	12-07	15328.00	15391.00	Pressure On (psi): 4800.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 42.00, Surface RPM: 45, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	12-07	04:45	05:20	12-07	15391.00	15401.00	Pressure On (psi): 4250.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 70.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 65, Toolface Type: gravity
Rotary Drill	1	12-07	05:20	05:50	12-07	15401.00	15422.00	Pressure On (psi): 4800.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 42.00, Surface RPM: 45, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	12-07	05:50	06:00	12-07	15422.00	15422.00	Inclination (°): 93.260, Azimuth (°): 359.250, TVD (ft): 11328.11, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 15340.00, Bit To Sensor (ft): 82.00
Rotary Drill	1	12-07	06:00	06:30	12-07	15422.00	15455.00	Pressure On (psi): 4800.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 42.00, Surface RPM: 45, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Circulating	3	12-07	06:30	07:30	12-07			
Pooh	7	12-07	07:30	12:00	12-07			POOH for [BHA #8]
Change BHA	6	12-07	12:00	13:00	12-07			P/U BHA # 8
Test BOP's	30	12-07	13:00	16:00	12-07			
TIH	8	12-07	16:00	00:00	12-08			TIH W/ BHA #8

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Dec 07 23:00 - 22:59 (Day 19 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15455.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 48.00
Bit Depth (ft)	15825.00	Drilling Hours	6.17	Sliding WOB (klbs)	70.00 - 70.00
Bottom Hole Depth (ft)	15825.00	Hours Circulating	1.00	Rotating SPM	201.00 - 201.00
Total Distance (ft)	370.00	Hours Sliding	3.33	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	330.00	Hours Rotating	2.83	Motor RPM	73.00 - 136.00
Distance Slid (ft)	40.00			Surface RPM	35.00 - 40.00
Inclination In	94.71			Flow Rate (gpm)	650.00 - 700.00
Inclination Out	94.71			On Bottom Pressure (psi)	4250.00 - 4500.00
Azimuth In	358.92	% Hours Rotating	46%	Off Bottom Pressure (psi)	3900.00 - 4100.00
Azimuth Out	357.24	% Hours Sliding	54%		
AVG Total ROP (ft/h)	58.40	% Distance Sliding	11%		
AVG Rotating ROP (ft/h)	95.52	% Distance Rotating	89%		
AVG Sliding ROP (ft/h)	12.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #8 - BHA #8

Date In: Dec 7, 2019, 13:00 Date Out: Dec 8, 2019, 11:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A256219	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments AWR sending resistivity counts every 10-15ft, geologist wanted more data.
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	1.75	Bit Distances		POOH Reason Change Bottom Hole Assembly: POOH Due to Tool only giving resistivity counts every 10-15 Ft
Total Drilled for Day (ft)	204.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	1.75	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	204.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: REED SKC616M, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.24	58.97
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.27
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.34
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.30
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	137.73

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Other Description: AWR - Resistivity Tool	Schlumberger	R67M513D							0.00

BHA #9 - BHA #9			Date In: Dec 8, 2019, 11:45 Date Out: Dec 10, 2019, 2:30		
Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0	
Vendor	NOV	Lobe/Stage	7/8, 8.5		
S/N	A256219	Bend Angle	1.75		
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	L-Tool was sending up inconsistent azimuths	
Drilling Hours for Day	4.42	Bit Distances			
Total Drilled for Day (ft)	166.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		POOH Reason	
Drilling Hours for BHA	24.50	Resistivity: 50.10 ft, Survey: 80.27 ft			
Total Drilled for BHA (ft)	911.00				
				Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while rocking pipe. Decision was made to pooh to change bit, motor and also pick up agitator. Motor Drained well with .25" slack in bearings. bit had 1 chipped cutter on inner row and the heel row was wiped out.	

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>REED SKC616M</i> , Style: <i>PDC</i> , Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" TS</i> , Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.84
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.91
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.87
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.30

MWD Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Other Description: <i>Electronics</i>	Schlumberger	JTDAS 2291							0.00

Directional Activities									
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details	
TIH	8	12-07	16:00	00:00	12-08			TIH W/ BHA #8	
TIH	8	12-08	00:00	00:35	12-08			TIH W/ BHA #8	
Circulating	3	12-08	00:35	01:35	12-08			Re-Shoot Svy's @ 15152, 15246, 15340	
Rotary Drill	1	12-08	01:35	02:00	12-08	15455.00	15516.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00	
Survey	46	12-08	02:00	02:05	12-08	15516.00	15516.00	Inclination (°): 94.710, Azimuth (°): 358.920, TVD (ft): 11321.58, Dogleg (°/100 ft): 1.58, Sensor Depth (ft): 15434.00, Bit To Sensor (ft): 82.00	
Rotary Drill	1	12-08	02:05	02:55	12-08	15516.00	15610.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00	
Survey	46	12-08	02:55	03:00	12-08	15610.00	15610.00	Inclination (°): 94.690, Azimuth (°): 359.530, TVD (ft): 11313.88, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 15528.00, Bit To Sensor (ft): 82.00	
Rotary Drill	1	12-08	03:00	03:30	12-08	15610.00	15659.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00	
Pooh	7	12-08	03:30	10:30	12-08			POOH for [bha9]	
Change BHA	6	12-08	10:30	11:45	12-08			P/U BHA # bha9	
TIH	8	12-08	11:45	17:30	12-08			TIH W/ BHA#9	
Rotary Drill	1	12-08	17:30	17:45	12-08	15659.00	15704.00	Pressure On (psi): 4400.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 48.00, Surface RPM: 35, Surface Torque (ft lbf): 29.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00	
Survey	46	12-08	17:45	17:50	12-08	15704.00	15704.00	Inclination (°): 94.450, Azimuth (°): 357.770, TVD (ft): 11306.39, Dogleg (°/100 ft): 1.88, Sensor Depth (ft): 15622.00, Bit To Sensor (ft): 82.00	

Slide Drill	2	12-08	17:50	19:05	12-08	15704.00	15717.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216</i> , Toolface: <i>90</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-08	19:05	19:55	12-08	15717.00	15798.00	Pressure On (psi): <i>4400.00</i> , Pressure Off (psi): <i>3900.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>29.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>
Survey	46	12-08	19:55	20:25	12-08	15798.00	15798.00	Inclination (°): <i>94.710</i> , Azimuth (°): <i>357.240</i> , TVD (ft): <i>11298.88</i> , Dogleg (°/100 ft): <i>0.63</i> , Sensor Depth (ft): <i>15716.00</i> , Bit To Sensor (ft): <i>82.00</i>
Slide Drill	2	12-08	20:25	22:30	12-08	15798.00	15825.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>700.00</i> , Strokes Per Minute: <i>216</i> , Toolface: <i>120</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-08	22:30	23:50	12-08	15825.00	15893.00	Pressure On (psi): <i>4400.00</i> , Pressure Off (psi): <i>3900.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>29.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>
Survey	46	12-08	23:50	00:00	12-09	15893.00	15893.00	Inclination (°): <i>93.350</i> , Azimuth (°): <i>358.390</i> , TVD (ft): <i>11292.21</i> , Dogleg (°/100 ft): <i>1.87</i> , Sensor Depth (ft): <i>15811.00</i> , Bit To Sensor (ft): <i>82.00</i>

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Dec 08 23:00 - 22:59 (Day 20 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15825.00	Downhole Hours	24.00	Rotating WOB (klbs)	48.00 - 67.00
Bit Depth (ft)	16570.00	Drilling Hours	20.08	Sliding WOB (klbs)	70.00 - 70.00
Bottom Hole Depth (ft)	16570.00	Hours Circulating	0.83	Rotating SPM	201.00 - 210.00
Total Distance (ft)	745.00	Hours Sliding	6.67	Sliding SPM	210.00 - 216.00
Distance Rotated (ft)	665.00	Hours Rotating	13.42	Motor RPM	73.00 - 136.00
Distance Slid (ft)	80.00			Surface RPM	35.00 - 40.00
Inclination In	93.35			Flow Rate (gpm)	650.00 - 700.00
Inclination Out	94.52			On Bottom Pressure (psi)	4250.00 - 4400.00
Azimuth In	358.39	% Hours Rotating	67%	Off Bottom Pressure (psi)	3800.00 - 4100.00
Azimuth Out	358.12	% Hours Sliding	33%		
AVG Total ROP (ft/h)	36.11	% Distance Sliding	11%		
AVG Rotating ROP (ft/h)	49.41	% Distance Rotating	89%		
AVG Sliding ROP (ft/h)	12.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #9 - BHA #9

Date In: Dec 8, 2019, 11:45 Date Out: Dec 10, 2019, 2:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A256219	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments L-Tool was sending up inconsistent azimuths
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	20.08	Bit Distances		POOH Reason Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while
Total Drilled for Day (ft)	745.00	Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	24.50	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	911.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: REED SKC616M, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.84
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.91
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.87
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.30

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
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Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Monday, Dec 09 23:00 - 22:59 (Day 21 of 25)

Billing: \$30,998.50 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	16570.00	Downhole Hours	24.00	Rotating WOB (klbs)	47.00 - 67.00
Bit Depth (ft)	17238.00	Drilling Hours	9.67	Sliding WOB (klbs)	43.00 - 70.00
Bottom Hole Depth (ft)	17238.00	Hours Circulating	1.00	Rotating SPM	201.00 - 201.00
Total Distance (ft)	668.00	Hours Sliding	2.75	Sliding SPM	210.00 - 210.00
Distance Rotated (ft)	614.00	Hours Rotating	6.92	Motor RPM	73.00 - 136.00
Distance Slid (ft)	54.00			Surface RPM	35.00 - 40.00
Inclination In	93.24			Flow Rate (gpm)	650.00 - 675.00
Inclination Out	95.15			On Bottom Pressure (psi)	4250.00 - 5000.00
Azimuth In	359.36	% Hours Rotating	72%	Off Bottom Pressure (psi)	3800.00 - 4350.00
Azimuth Out	1.02	% Hours Sliding	28%		
AVG Total ROP (ft/h)	69.29	% Distance Sliding	8%		
AVG Rotating ROP (ft/h)	87.59	% Distance Rotating	92%		
AVG Sliding ROP (ft/h)	20.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #9 - BHA #9

Date In: Dec 8, 2019, 11:45 Date Out: Dec 10, 2019, 2:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit REED 8.5" Type: SKC616M, SN: A256219 TFA: 2.227 , Jets 6X22'S Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A256219	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments L-Tool was sending up inconsistent azimuths
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		POOH Reason Change Bottom Hole Assembly: Rop was down to 50 FPH and sliding was taking 25k in and 21k out while rocking pipe. Decision was made to pooh to change bit, motor and also pick up agitator. Motor Drained well with .25" slack in bearings. bit had 1 chipped cutter on inner row and the heel row was wiped out.
Total Drilled for Day (ft)		Bend: 5.28 ft, NB Inc: 42.80 ft, Gamma: 43.20 ft,		
Drilling Hours for BHA	24.50	Resistivity: 50.10 ft, Survey: 80.27 ft		
Total Drilled for BHA (ft)	911.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: REED SKC616M, Style: PDC, Gauge Length (in): 3.75, Size (in): 8.50	NOV	A256219	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-024	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.12	37.12
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.73
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.54
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.84
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	102.91
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	106.87
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.30

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
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Other Description: <i>Electronics</i>	Schlumberger	JTDAS 2291							0.00
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BHA #10 - BHA # 10 Lateral

Date In: Dec 10, 2019, 2:30 Date Out: Dec 12, 2019, 15:20

Bit Details			Motor Details			Directional Comments			
OD (in)	8.500		Size (in)	7.0		7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit Security 8.5" Type: GTD74D, SN: 13083534 TFA: 2.148 , Jets 7X20'S Bit Runs: 1			
Vendor	Security		Lobe/Stage	7/8, 8.5					
S/N	13083534		Bend Angle	1.75					
Nozzles	7x20's		Speed (rev/gal)	0.26		MWD Comments			
Total Flow Area (in²)	2.148		Wear Pad OD (in)	7.000		AWR stopped sending up any resistivity / continuous inc counts all together			
Drilling Hours for Day	9.67		Bit Distances						
Total Drilled for Day (ft)	668.00		Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft			POOH Reason			
Drilling Hours for BHA	38.17					Total Depth/Casing Point: WELL TD			
Total Drilled for BHA (ft)	2259.00								

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>Security GTD74D</i> , Style: <i>PDC</i> , Gauge Length (in): <i>3.00</i> , Size (in): <i>8.50</i>	Security	13083534	4 1/2" Reg Pin			8.500		1.02	1.02
Mud Motor Description: <i>7" 7/8 8.5 @1.75 Fixed W/" TS</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	700-40-004	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.26
Crossover Sub Description: <i>X-O 4 1/2 IF P x 5 1/2 FH B</i> , Type: <i>NM</i>	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.87
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.68
Drill Collar Description: <i>6.75" NMDC (BATTERY)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.98
Drill Collar Description: <i>6.75" NMDC (MWD)</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	103.05
Crossover Sub Description: <i>X-O 5 1/2 FH P x 4 1/2 IF B</i> , Type: <i>NM</i>	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	107.01
Drill Collar Description: <i>6.75" NMDC</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.44
Drill Pipe Description: <i>36 Stands 5" Drill pipe</i> , Style: <i>Slick</i>			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		3396.78	3535.22
Agitator Description: <i>6 3/4 Agitator</i> , Size (in): <i>6.75</i>	NOV	AGHF0675-0037	4 1/2" IF Box	4 1/2" IF Pin		6.750		25.14	3560.36

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	19.81

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Pooh	7	12-09	21:05	00:00	12-10			POOH to change bha and pick up agitator
Pooh	7	12-10	00:00	02:30	12-10			POOH to change bha and pick up agitator
Change BHA	6	12-10	02:30	05:15	12-10			L/d BHA #9 P/u BHA # 10
TIH	8	12-10	05:15	06:00	12-10			TIH W/ BHA #10
TIH	8	12-10	06:00	06:30	12-10			TIH W/ BHA #10
Circulating	3	12-10	06:30	06:45	12-10			p/u agitator
TIH	8	12-10	06:45	11:30	12-10			TIH W/ BHA #10
Rotary Drill	1	12-10	11:30	12:40	12-10	16570.00	16673.00	Pressure On (psi): <i>4350.00</i> , Pressure Off (psi): <i>3800.00</i> , Weight On Bit (klbs): <i>67.00</i> , Surface RPM: <i>40</i> , Surface Torque (ft lbf): <i>31000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>
Survey	46	12-10	12:40	12:45	12-10	16673.00	16673.00	Inclination (°): <i>93.240</i> , Azimuth (°): <i>359.360</i> , TVD (ft): <i>11248.11</i> , Dogleg (°/100 ft): <i>1.55</i> , Sensor Depth (ft): <i>16587.00</i> , Bit To Sensor (ft): <i>86.00</i>
Rotary Drill	1	12-10	12:45	13:30	12-10	16673.00	16751.00	Pressure On (psi): <i>4350.00</i> , Pressure Off (psi): <i>3800.00</i> , Weight On Bit (klbs): <i>67.00</i> , Surface RPM: <i>40</i> , Surface Torque (ft lbf): <i>31000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>
Slide Drill	2	12-10	13:30	14:15	12-10	16751.00	16763.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>70.00</i> , Flow Rate (gpm): <i>675.00</i> , Strokes Per Minute: <i>210</i> , Toolface: <i>40</i> , Toolface Type: <i>gravity</i>
Rotary Drill	1	12-10	14:15	14:30	12-10	16763.00	16768.00	Pressure On (psi): <i>4350.00</i> , Pressure Off (psi): <i>3800.00</i> , Weight On Bit (klbs): <i>67.00</i> , Surface RPM: <i>40</i> , Surface Torque (ft lbf): <i>31000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>

Survey	46	12-10	14:30	14:35	12-10	16768.00	16768.00	Inclination (°): 93.440, Azimuth (°): 358.480, TVD (ft): 11242.57, Dogleg (°/100 ft): 0.95, Sensor Depth (ft): 16682.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-10	14:35	15:45	12-10	16768.00	16840.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 67.00, Surface RPM: 40, Surface Torque (ft lbf): 31000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Slide Drill	2	12-10	15:45	16:55	12-10	16840.00	16862.00	Pressure On (psi): 4250.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 70.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 100, Toolface Type: gravity
Survey	46	12-10	16:55	17:00	12-10	16862.00	16862.00	Inclination (°): 94.190, Azimuth (°): 358.120, TVD (ft): 11236.32, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 16776.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-10	17:00	17:40	12-10	16862.00	16915.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 67.00, Surface RPM: 40, Surface Torque (ft lbf): 31000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Circulating	3	12-10	17:40	18:25	12-10			recycle and down link to MWD tool
Rotary Drill	1	12-10	18:25	18:50	12-10	16915.00	16956.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4350.00, Weight On Bit (klbs): 47.00, Surface RPM: 35, Surface Torque (ft lbf): 33000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-10	18:50	18:55	12-10	16956.00	16956.00	Inclination (°): 94.030, Azimuth (°): 359.440, TVD (ft): 11229.58, Dogleg (°/100 ft): 1.41, Sensor Depth (ft): 16870.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-10	18:55	20:00	12-10	16956.00	17050.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4350.00, Weight On Bit (klbs): 47.00, Surface RPM: 35, Surface Torque (ft lbf): 33000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-10	20:00	20:05	12-10	17050.00	17050.00	Inclination (°): 94.300, Azimuth (°): 358.920, TVD (ft): 11222.75, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 16964.00, Bit To Sensor (ft): 86.00
Slide Drill	2	12-10	20:05	20:55	12-10	17050.00	17070.00	Pressure On (psi): 4250.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 43.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	12-10	20:55	21:35	12-10	17070.00	17144.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4350.00, Weight On Bit (klbs): 47.00, Surface RPM: 35, Surface Torque (ft lbf): 33000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-10	21:35	21:40	12-10	17144.00	17144.00	Inclination (°): 95.720, Azimuth (°): 359.620, TVD (ft): 11214.54, Dogleg (°/100 ft): 1.68, Sensor Depth (ft): 17058.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-10	21:40	22:25	12-10	17144.00	17238.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4350.00, Weight On Bit (klbs): 52.00, Surface RPM: 35, Surface Torque (ft lbf): 33000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-10	22:25	22:30	12-10	17238.00	17238.00	Inclination (°): 95.150, Azimuth (°): 1.020, TVD (ft): 11205.64, Dogleg (°/100 ft): 1.60, Sensor Depth (ft): 17152.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-10	22:30	23:40	12-10	17238.00	17332.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4350.00, Weight On Bit (klbs): 52.00, Surface RPM: 35, Surface Torque (ft lbf): 33000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-10	23:40	23:45	12-10	17332.00	17332.00	Inclination (°): 94.080, Azimuth (°): 359.000, TVD (ft): 11198.08, Dogleg (°/100 ft): 2.43, Sensor Depth (ft): 17246.00, Bit To Sensor (ft): 86.00
Slide Drill	2	12-10	23:45	00:00	12-11	17332.00	17338.00	Pressure On (psi): 4250.00, Pressure Off (psi): 4100.00, Weight On Bit (klbs): 43.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 70, Toolface Type: gravity

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Dec 10 23:00 - 22:59 (Day 22 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	17238.00	Downhole Hours	24.00	Rotating WOB (klbs)	48.00 - 52.00
Bit Depth (ft)	18464.00	Drilling Hours	22.08	Sliding WOB (klbs)	43.00 - 48.00
Bottom Hole Depth (ft)	18464.00	Hours Circulating	0.00	Rotating SPM	201.00 - 201.00
Total Distance (ft)	1226.00	Hours Sliding	4.83	Sliding SPM	210.00 - 210.00
Distance Rotated (ft)	1120.00	Hours Rotating	17.25	Motor RPM	73.00 - 136.00
Distance Slid (ft)	106.00			Surface RPM	35.00 - 35.00
Inclination In	94.08			Flow Rate (gpm)	650.00 - 675.00
Inclination Out	93.68			On Bottom Pressure (psi)	4250.00 - 5000.00
Azimuth In	359.00	% Hours Rotating	78%	Off Bottom Pressure (psi)	4100.00 - 4550.00
Azimuth Out	1.38	% Hours Sliding	22%		
AVG Total ROP (ft/h)	54.43	% Distance Sliding	9%		
AVG Rotating ROP (ft/h)	63.08	% Distance Rotating	91%		
AVG Sliding ROP (ft/h)	21.93				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #10 - BHA # 10 Lateral

Date In: Dec 10, 2019, 2:30 Date Out: Dec 12, 2019, 15:20

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit Security 8.5" Type: GTD74D, SN: 13083534 TFA: 2.148 , Jets 7X20'S Bit Runs: 1
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13083534	Bend Angle	1.75	
Nozzles	7x20's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.148	Wear Pad OD (in)	7.000	AWR stopped sending up any resistivity / continuous inc counts all together
Drilling Hours for Day	22.08	Bit Distances		
Total Drilled for Day (ft)	1226.00	Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft		POOH Reason
Drilling Hours for BHA	38.17			
Total Drilled for BHA (ft)	2259.00			Total Depth/Casing Point: WELL TD

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GTD74D, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13083534	4 1/2" Reg Pin			8.500		1.02	1.02
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-004	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.26
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.87
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.68
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.98
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	103.05
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	107.01
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.44
Drill Pipe Description: 36 Stands 5" Drill pipe, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		3396.78	3535.22
Agitator Description: 6 3/4 Agitator, Size (in): 6.75	NOV	AGHF0675-0037	4 1/2" IF Box	4 1/2" IF Pin		6.750		25.14	3560.36

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
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Drill Collar Description: <i>AWR Resistivity Tool</i> , Style: <i>Slick Drill</i> , Type: <i>NM</i>				EXTREME		R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	19.81
Directional Activities													
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details					
Slide Drill	2	12-10	23:45	00:00	12-11	17332.00	17338.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>43.00</i> , Flow Rate (gpm): <i>675.00</i> , Strokes Per Minute: <i>210</i> , Toolface: <i>70</i> , Toolface Type: <i>gravity</i>					
Slide Drill	2	12-11	00:00	00:40	12-11	17338.00	17358.00	Pressure On (psi): <i>4250.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>43.00</i> , Flow Rate (gpm): <i>675.00</i> , Strokes Per Minute: <i>210</i> , Toolface: <i>100</i> , Toolface Type: <i>gravity</i>					
Rotary Drill	1	12-11	00:40	01:20	12-11	17358.00	17426.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>52.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>33000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	01:20	01:25	12-11	17426.00	17426.00	Inclination (°): <i>93.440</i> , Azimuth (°): <i>358.040</i> , TVD (ft): <i>11191.91</i> , Dogleg (°/100 ft): <i>1.23</i> , Sensor Depth (ft): <i>17340.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Rotary Drill	1	12-11	01:25	02:40	12-11	17426.00	17520.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>52.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>33000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	02:40	02:45	12-11	17520.00	17520.00	Inclination (°): <i>91.310</i> , Azimuth (°): <i>358.210</i> , TVD (ft): <i>11188.02</i> , Dogleg (°/100 ft): <i>2.27</i> , Sensor Depth (ft): <i>17434.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Slide Drill	2	12-11	02:45	04:15	12-11	17520.00	17555.00	Pressure On (psi): <i>4350.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>48.00</i> , Flow Rate (gpm): <i>675.00</i> , Strokes Per Minute: <i>210</i> , Toolface: <i>70</i> , Toolface Type: <i>gravity</i>					
Rotary Drill	1	12-11	04:15	05:05	12-11	17555.00	17615.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	05:05	05:10	12-11	17615.00	17615.00	Inclination (°): <i>91.700</i> , Azimuth (°): <i>357.600</i> , TVD (ft): <i>11185.52</i> , Dogleg (°/100 ft): <i>0.76</i> , Sensor Depth (ft): <i>17529.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Rotary Drill	1	12-11	05:10	06:00	12-11	17615.00	17649.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Slide Drill	2	12-11	06:00	07:00	12-11	17649.00	17674.00	Pressure On (psi): <i>4350.00</i> , Pressure Off (psi): <i>4100.00</i> , Weight On Bit (klbs): <i>48.00</i> , Flow Rate (gpm): <i>675.00</i> , Strokes Per Minute: <i>210</i> , Toolface: <i>90</i> , Toolface Type: <i>gravity</i>					
Rotary Drill	1	12-11	07:00	07:40	12-11	17674.00	17709.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	07:40	07:45	12-11	17709.00	17709.00	Inclination (°): <i>92.650</i> , Azimuth (°): <i>359.970</i> , TVD (ft): <i>11181.95</i> , Dogleg (°/100 ft): <i>2.71</i> , Sensor Depth (ft): <i>17623.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Rotary Drill	1	12-11	07:45	09:50	12-11	17709.00	17803.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	09:50	10:00	12-11	17803.00	17803.00	Inclination (°): <i>93.070</i> , Azimuth (°): <i>3.220</i> , TVD (ft): <i>11177.26</i> , Dogleg (°/100 ft): <i>3.48</i> , Sensor Depth (ft): <i>17717.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Rotary Drill	1	12-11	10:00	11:20	12-11	17803.00	17898.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	11:20	11:30	12-11	17898.00	17898.00	Inclination (°): <i>93.420</i> , Azimuth (°): <i>2.690</i> , TVD (ft): <i>11171.88</i> , Dogleg (°/100 ft): <i>0.67</i> , Sensor Depth (ft): <i>17812.00</i> , Bit To Sensor (ft): <i>86.00</i>					
Rotary Drill	1	12-11	11:30	13:00	12-11	17898.00	17992.00	Pressure On (psi): <i>5000.00</i> , Pressure Off (psi): <i>4350.00</i> , Weight On Bit (klbs): <i>48.00</i> , Surface RPM: <i>35</i> , Surface Torque (ft lbf): <i>32000.00</i> , Flow Rate (gpm): <i>650.00</i> , Strokes Per Minute: <i>201.00</i>					
Survey	46	12-11	13:00	13:05	12-11	17992.00	17992.00	Inclination (°): <i>91.990</i> , Azimuth (°): <i>1.820</i> , TVD (ft): <i>11167.45</i> , Dogleg (°/100 ft): <i>1.78</i> , Sensor Depth					

Survey	46	12-11	21:45	21:50	12-11	18464.00	18464.00	Inclination (°): 93.680, Azimuth (°): 1.380, TVD (ft): 11141.00, Dogleg (°/100 ft): 0.96, Sensor Depth (ft): 18378.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-11	21:50	23:30	12-11	18464.00	18558.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4550.00, Weight On Bit (klbs): 48.00, Surface RPM: 35, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 650.00, Strokes Per Minute: 201.00
Survey	46	12-11	23:30	23:35	12-11	18558.00	18558.00	Inclination (°): 93.400, Azimuth (°): 0.850, TVD (ft): 11135.19, Dogleg (°/100 ft): 0.64, Sensor Depth (ft): 18472.00, Bit To Sensor (ft): 86.00
Rotary Drill	1	12-11	23:35	00:00	12-12	18558.00	18584.00	

MWD Activities

No Activities



Job Number WT-19-167	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H	Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Dec 11 23:00 - 22:59 (Day 23 of 25)

Billing: \$13,014.75 (\$338,034.18 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	18464.00	Downhole Hours	16.33	Rotating WOB (klbs)	42.00 - 48.00
Bit Depth (ft)	18829.00	Drilling Hours	6.42	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	18829.00	Hours Circulating	3.33	Rotating SPM	201.00 - 201.00
Total Distance (ft)	365.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	365.00	Hours Rotating	6.42	Motor RPM	73.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	35.00 - 45.00
Inclination In	93.40			Flow Rate (gpm)	650.00 - 650.00
Inclination Out	93.46			On Bottom Pressure (psi)	5000.00 - 5000.00
Azimuth In	0.85	% Hours Rotating	100%	Off Bottom Pressure (psi)	4550.00 - 4600.00
Azimuth Out	359.44	% Hours Sliding	0%		
AVG Total ROP (ft/h)	57.05	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	57.05	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Kyle Kusak	MWD Engineer

BHA #10 - BHA # 10 Lateral

Date In: Dec 10, 2019, 2:30 Date Out: Dec 12, 2019, 15:20

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	7" 7/8 8.5 Stg 1.75 FBH Slick Sleeve Motor Flow Rate 500-700 Rev/Gal 0.26 Max Diff: 1910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.78 / Bit Security 8.5" Type: GTD74D, SN: 13083534 TFA: 2.148 , Jets 7X20'S Bit Runs: 1
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13083534	Bend Angle	1.75	
Nozzles	7x20's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.148	Wear Pad OD (in)	7.000	AWR stopped sending up any resistivity / continuous inc counts all together
Drilling Hours for Day	6.42	Bit Distances		
Total Drilled for Day (ft)	365.00	Bend: 5.24 ft, NB Inc: 42.00 ft, Gamma: 43.00 ft, Resistivity: 50.00 ft, Survey: 86.00 ft		POOH Reason
Drilling Hours for BHA	38.17			Total Depth/Casing Point: WELL TD
Total Drilled for BHA (ft)	2259.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Security GTD74D, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	Security	13083534	4 1/2" Reg Pin			8.500		1.02	1.02
Mud Motor Description: 7" 7/8 8.5 @1.75 Fixed W/" TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-004	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.26
Crossover Sub Description: X-O 4 1/2 IF P x 5 1/2 FH B, Type: NM	DR	DR33481	5 1/2" FH Box	4 1/2" IF Pin	3.500	6.875		2.61	39.87
Drill Collar Description: AWR Resistivity Tool, Style: Slick Drill, Type: NM	EXTREME	R67M7699	5 1/2" FH Box	5" FH Pin	3.625	6.750		19.81	59.68
Drill Collar Description: 6.75" NMDC (BATTERY), Style: Slick Drill, Type: NM	EXTREME	670670	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		14.30	73.98
Drill Collar Description: 6.75" NMDC (MWD), Style: Slick Drill, Type: NM	EXTREME	D67C848	5 1/2" FH Box	5 1/2" FH Pin	3.625	6.750		29.07	103.05
Crossover Sub Description: X-O 5 1/2 FH P x 4 1/2 IF B, Type: NM	DR	DR35135	4 1/2" IF Pin	5 1/2" FH Pin	2.875	7.063		3.96	107.01
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DR	DR44641	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		31.43	138.44
Drill Pipe Description: 36 Stands 5" Drill pipe, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	3.000	5.000		3396.78	3535.22
Agitator Description: 6 3/4 Agitator, Size (in): 6.75	NOV	AGHF0675-0037	4 1/2" IF Box	4 1/2" IF Pin		6.750		25.14	3560.36

MWD Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Lgth (ft)	Aggr. Lgth (ft)
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Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Dec 12 23:00 - 22:59 (Day 24 of 25)

Billing: \$16,021.97 (\$338,034.18 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	2.00	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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller

No BHAs

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-12	18:00	00:00	12-13			Standby while RUN CASING
Standby	15	12-13	00:00	06:00	12-13			Standby while RUNNING CASING
Standby	15	12-13	06:00	10:30	12-13			Standby while RUNNING CASING
Circulating	3	12-13	10:30	12:30	12-13			
Other	16	12-13	12:30	17:45	12-13			CEMENTING
Standby	15	12-13	17:45	00:00	12-14			Standby while rigging down and skidding to 507H

MWD Activities

No Activities

	Job Number WT-19-167	Operator Advance Energy Partners		Rig Name H&P #620
	Start Date 2019-11-01	Well Name Wool Head 20 State Com 553H		Legal Well Name AFE Wool Head 20 State Com 553H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Dec 13 23:00 - 22:59 (Day 25 of 25)
 Billing: N/A (\$338,034.18 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
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-13	17:45	00:00	12-14			Standby while rigging down and skidding to 507H

MWD Activities
No Activities



Surface Plat

Wool Head 20 State Com 553H (WT-19-167)

2019-11-01 to 2019-12-14

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	553H
OGRID No.	Operator Name	Elevation
	ADVANCE ENERGY PARTNERS HAT MESA	3721'

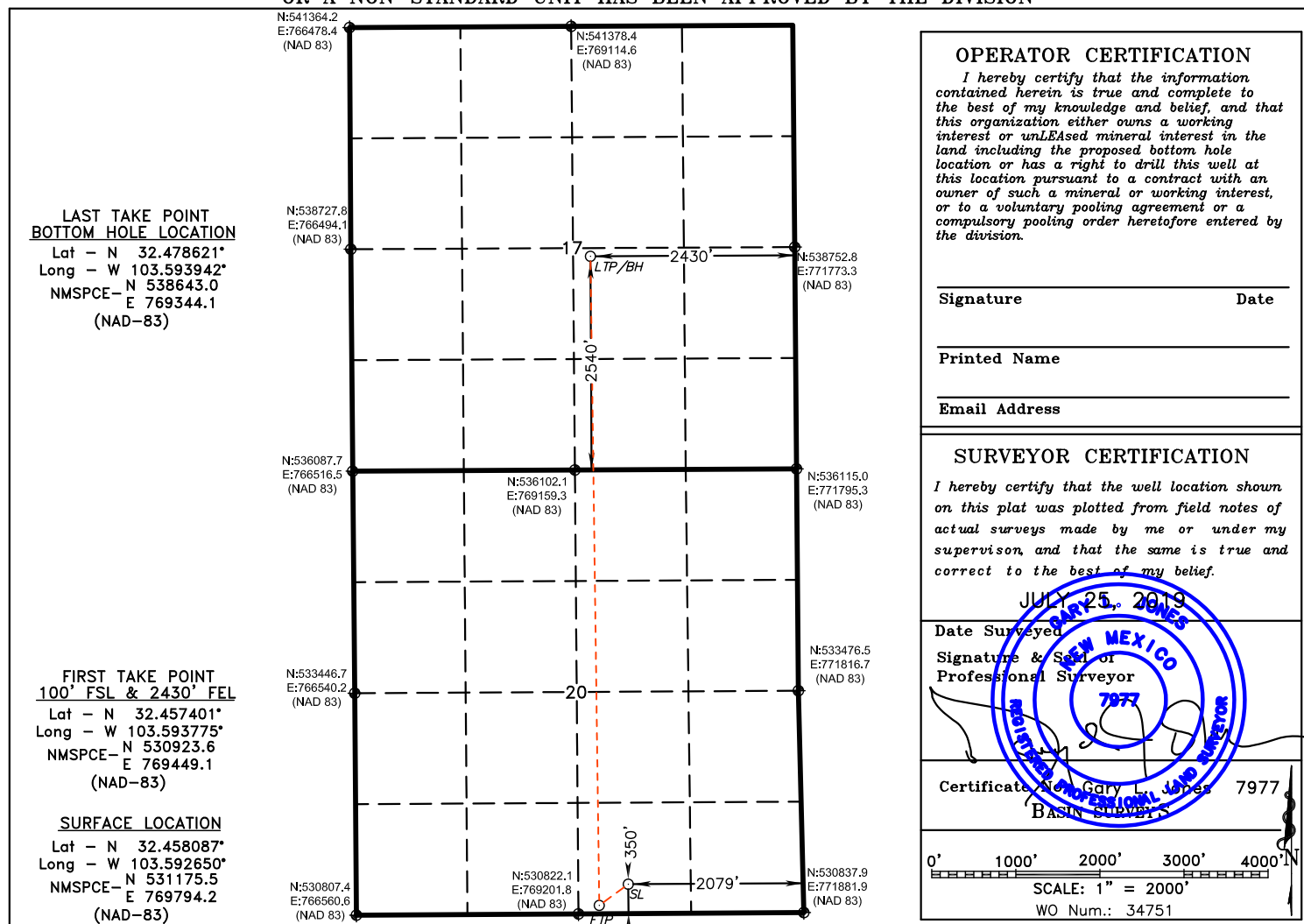
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
O	20	21 S	33 E		350	SOUTH	2079	EAST	LEA

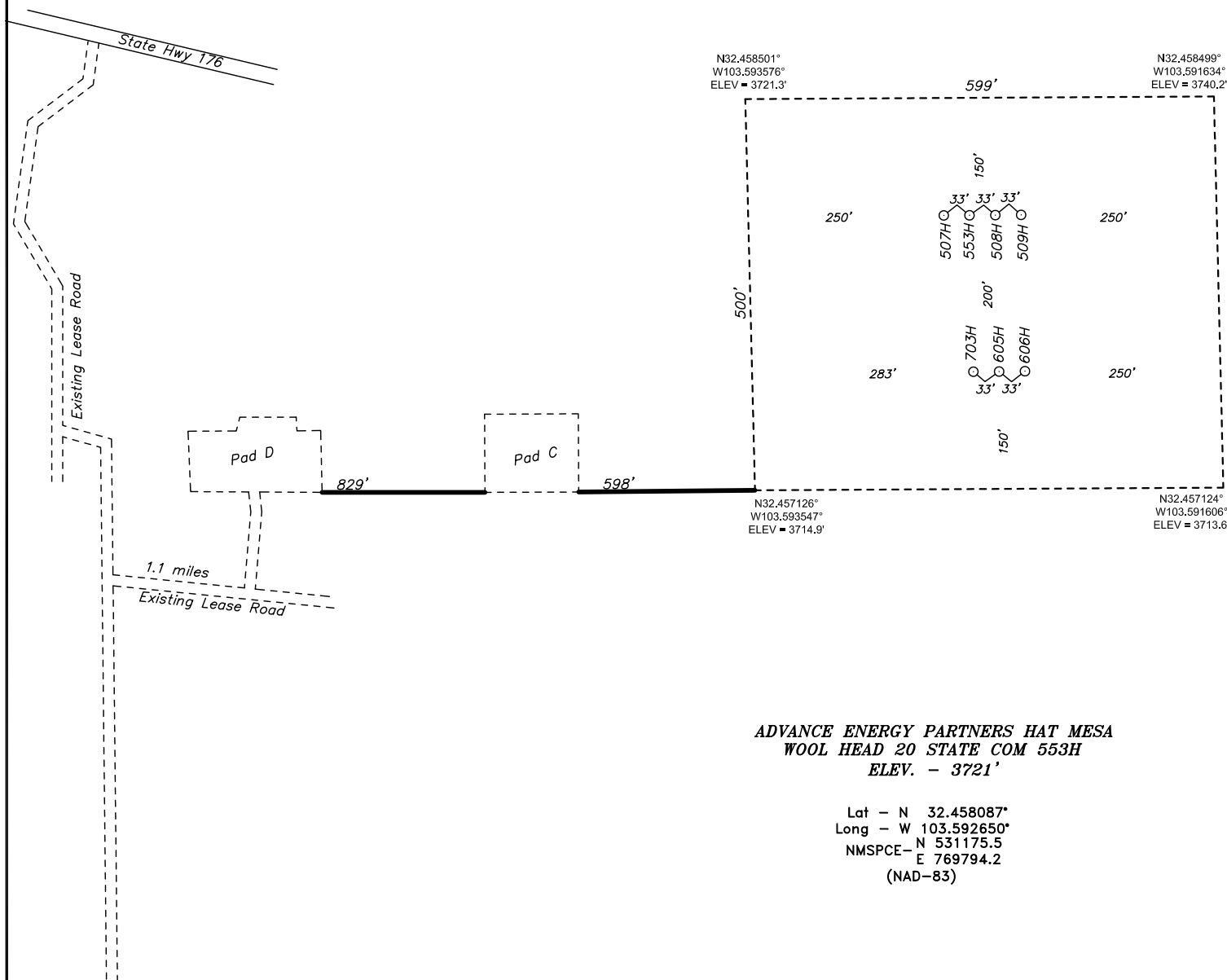
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
J	17	21 S	33 E		2540	SOUTH	2430	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

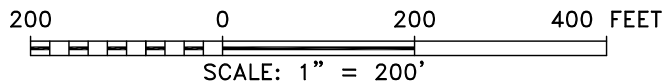


**SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



**ADVANCE ENERGY PARTNERS HAT MESA
WOOL HEAD 20 STATE COM 553H
ELEV. - 3721'**

Lat - N 32.458087°
Long - W 103.592650°
NMSPCE - N 531175.5
E 769794.2
(NAD-83)



DIRECTIONS TO LOCATION:
FROM THE JUNCTION OF STATE 176 AND US
HWY 62/180, EAST FOR ±7 MILES TO LEASE
ROAD. THEN SOUTH ON LEASE ROAD FOR ±4.5
MILES. THEN EASTERLY ON LEASE ROAD FOR 1.5
MILES TO PROPOSED LEASE ROAD.



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ADVANCE ENERGY PARTNERS HAT MESA

REF: WOOL HEAD 20 STATE COM 553H / WELL PAD TOPO

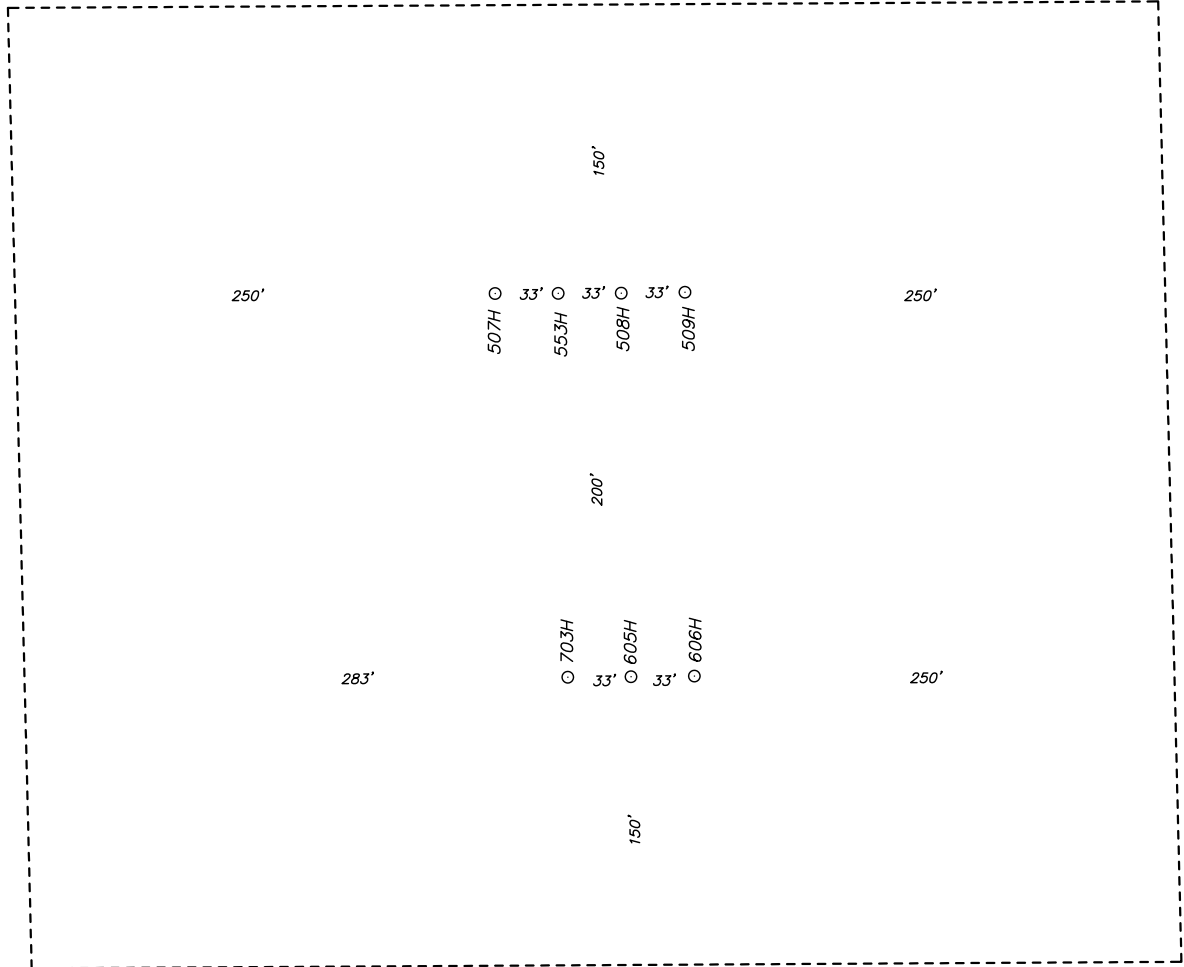
THE WOOL HEAD 20 STATE COM 553H LOCATED 350' FROM
THE SOUTH LINE AND 2079' FROM THE EAST LINE OF
SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

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

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

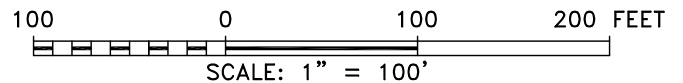
N32.458501°
W103.593576°
ELEV = 3721.3'

N32.458499°
W103.591634°
ELEV = 3740.2'



N32.457126°
W103.593547°
ELEV = 3714.9'

N32.457124°
W103.591606°
ELEV = 3713.6'



ADVANCE ENERGY PARTNERS HAT MESA

REF: WOOL HEAD 20 STATE COM 553H / WELL PAD TOPO

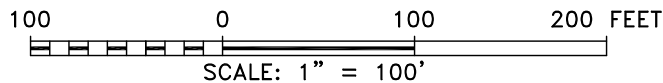
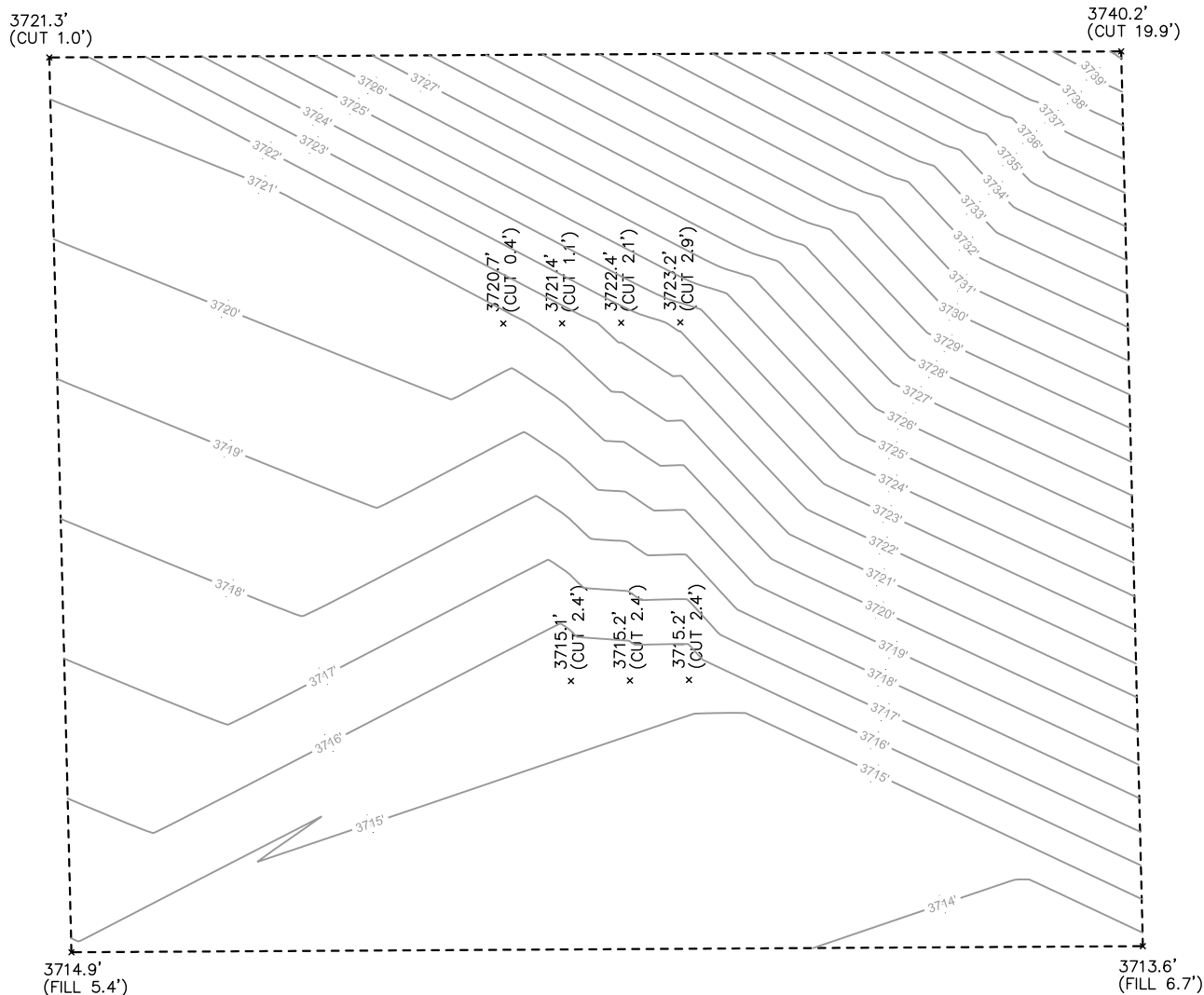
THE WOOL HEAD 20 STATE COM 553H LOCATED 350' FROM
THE SOUTH LINE AND 2079' FROM THE EAST LINE OF
SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

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

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



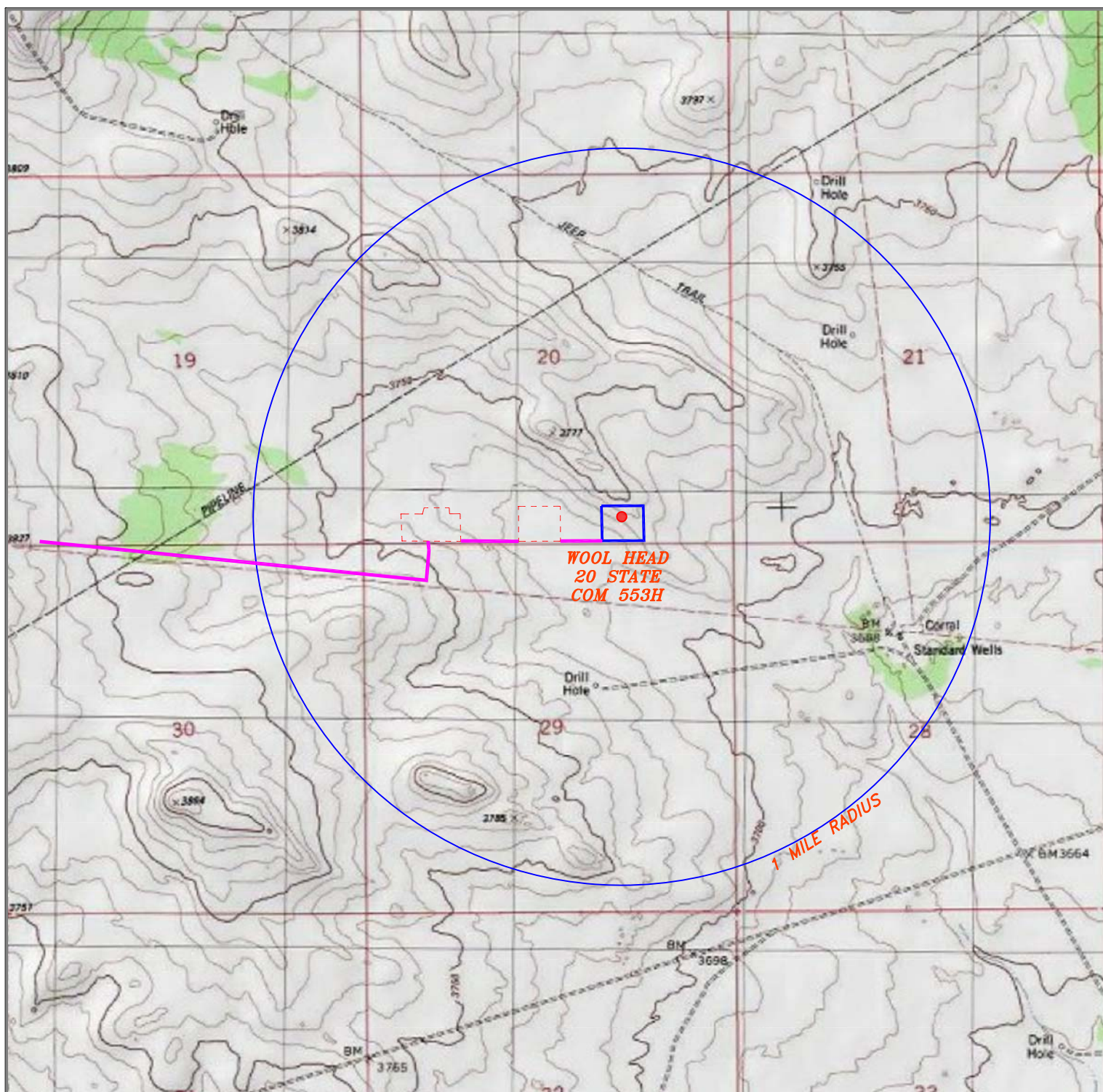
ADVANCE ENERGY PARTNERS HAT MESA

REF: WOOL HEAD 20 STATE COM WELL PAD B / CUT & FILL

THE WOOL HEAD 20 STATE COM WELL PAD
SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST.
N.M.P.M., LEA COUNTY, NEW MEXICO.



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WOOL HEAD 20 STATE COM 553H

Located 350' FSL and 2079' FEL
 Section 20, Township 21 South, Range 33 East,
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0' 1000' 2000' 3000' 4000'
 SCALE: 1" = 2000'

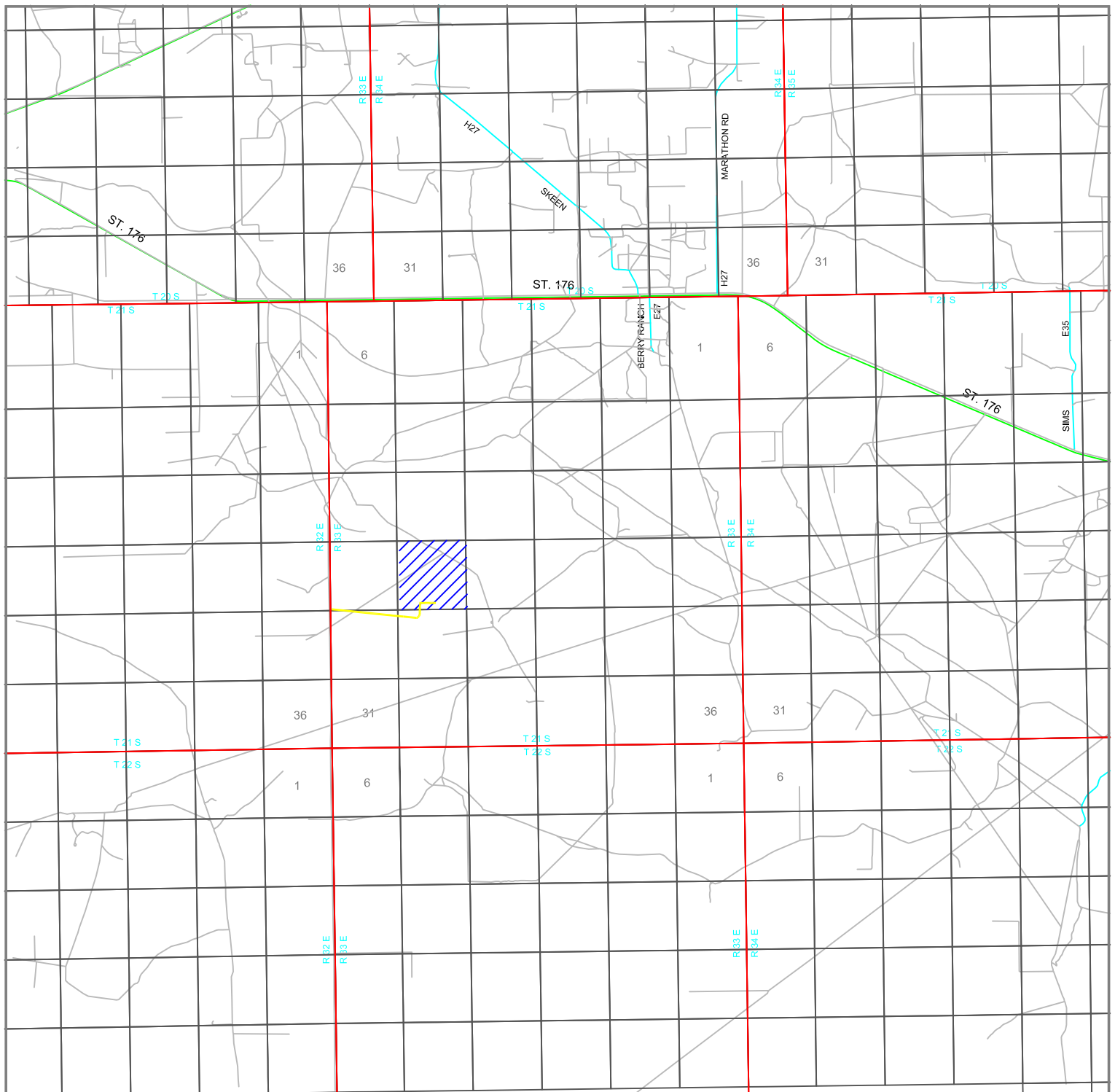
W.O. Number: KJG - 34751

Survey Date: 07-26-2019

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



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WOOL HEAD 20 STATE COM 553H

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0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

W.O. Number: KJG - 34751

Survey Date: 07-26-2019

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



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WOOL HEAD 20 STATE COM 553H

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0' 1000' 2000' 3000' 4000'
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