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District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-104
Revised August 1, 2011
Submit one copy to appropriate District Office
☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Advance Energy Partners Hat Mesa, LLC 11490 Westheimer RD, Suite 950 Houston, TX		² OGRID Number 372417
		³ Reason for Filing Code/ Effective Date NW
⁴ API Number 30-025-46468	⁵ Pool Name WC-025 G-08 S213304D;BONE SPRING	⁶ Pool Code 97895
⁷ Property Code 325948	⁸ Property Name Wool Head 20 State Com	⁹ Well Number 507H

II. ¹⁰ Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
0	20	21S	33E		350	SOUTH	2112	EAST	Lea

¹¹ Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	17	21S	33E		2540	SOUTH	2310	EAST	Lea
¹² Lse Code	¹³ Producing Method Code	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date				

III. Oil and Gas Transporters

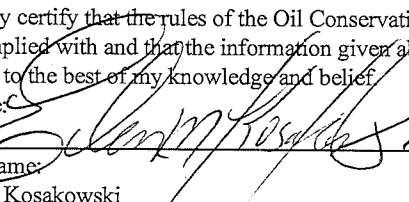
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
214984	Plains Marketing, L.P. 10 Desta Drive, Suite 200E Midland, TX 79705	O
330291	3 Bear Energy, LLC 1512 Larimer St. Suite 540 Denver, CO. 80202	G

IV. Well Completion Data

²¹ Spud Date 10/30/2019	²² Ready Date 06/08/20	²³ TD 17,981'	²⁴ PBTD 17,894'	²⁵ Perforations 10,891-17,864'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17.5"	13.375"	1,860'	870 890		
12.25"	9.625"	5,240'	1330		
8.5"	5.5"	17,966'	2390 2417		

V. Well Test Data

³¹ Date New Oil 06/12/20	³² Gas Delivery Date 06/12/20	³³ Test Date 06/30/20	³⁴ Test Length 24 Hrs	³⁵ Tbg. Pressure 510 psi	³⁶ Csg. Pressure 550 psi
³⁷ Choke Size 32/64	³⁸ Oil 1084	³⁹ Water 4932	⁴⁰ Gas 1295		⁴¹ Test Method F

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief
Signature: 
Printed name: Eileen M Kosakowski
Title: Sr. Eng. Tech
E-mail Address: ekosakowski@advanceenergypartners.com
Date: 3/7/22 Phone: 832-672-4604

OIL CONSERVATION DIVISION	
Approved by: 	
Title: Petroleum Engineer	
Approval Date: 09/28/22	

Received by OCD: 5/26/2022 9:05:31 AM

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 (505) 748-1283 Fax: (505) 748-0720

DISTRICT III

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

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462State 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
As Drilled

API Number 30-025-46468	Pool Code 97895	Pool Name WC-025 G-08 S213304D;BONE SPRING
Property Code 325948	Property Name WOOL HEAD 20 STATE COM	Well Number 507H
OGRID No. 372417	Operator Name ADVANCE ENERGY PARTNERS HAT MESA	Elevation 3721'

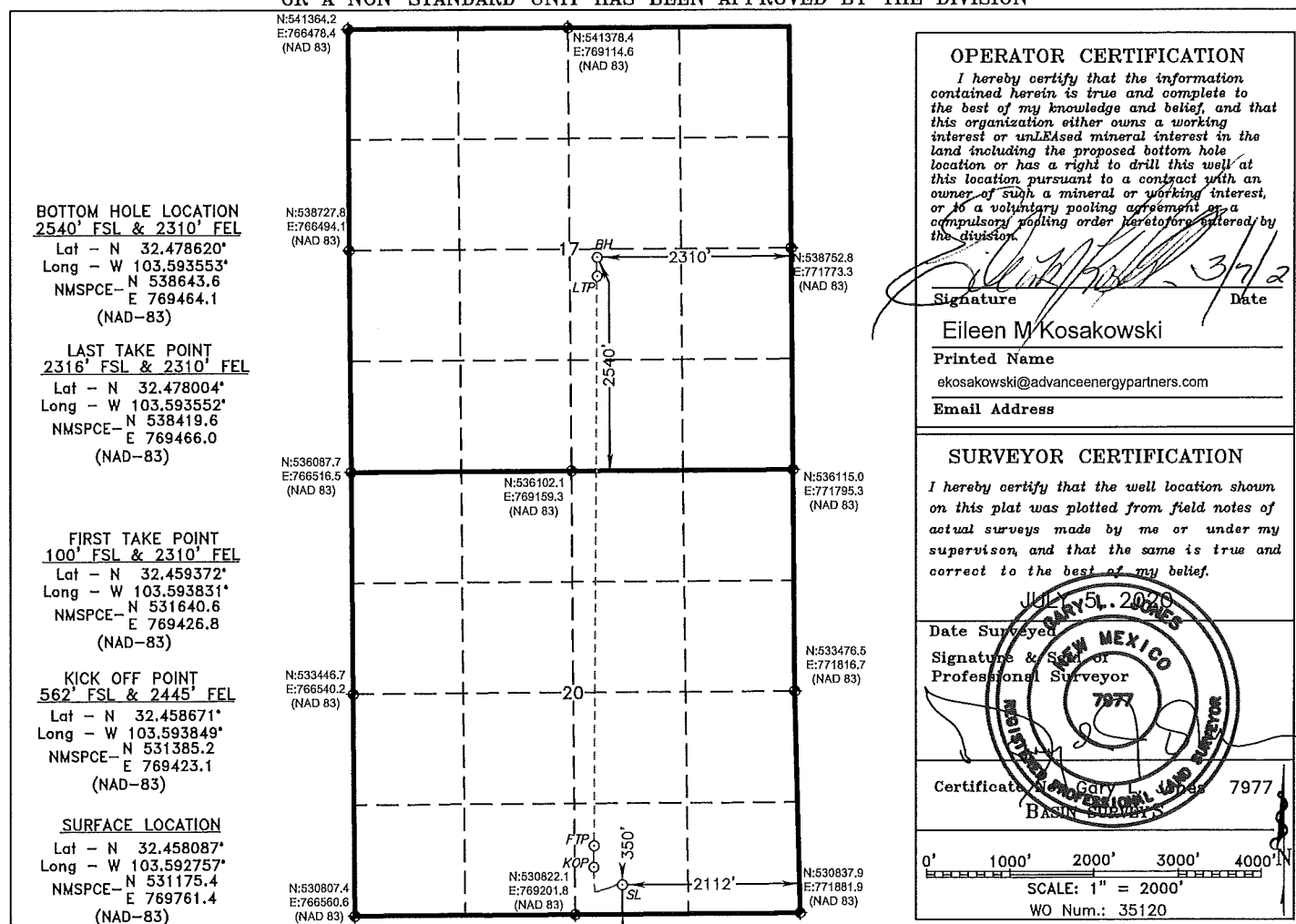
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
0	20	21 S	33 E		350	SOUTH	2112	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	2310	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
240			

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



End of Well Report

Advance Energy Partners, LLC Wool Head 20 State Com, Well No. 507H Lea County, New Mexico

Rig: H&P #620

Job No.: WT-19-165

Start Date: 10/29/2019

End Date: 12/24/2019

Directional Drillers:

Omar Alaniz, Stephen Long, Joel Johnson

Office Support:

Javier Alvarez

Directional Coordinator

E-mail: Javier.Alvarez@aimdir.com

Ivonne Gonzalez

Well Planner

E-mail: Ivonne.Gonzalez@aimdir.com

Allison Reinert

Executive VP

E-mail: Allison.Reinert@aimdir.com

Thomas Rinald

President

E-mail: Thomas.Rinald@aimdir.com

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

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

www.aimdir.com





Performance Overview

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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

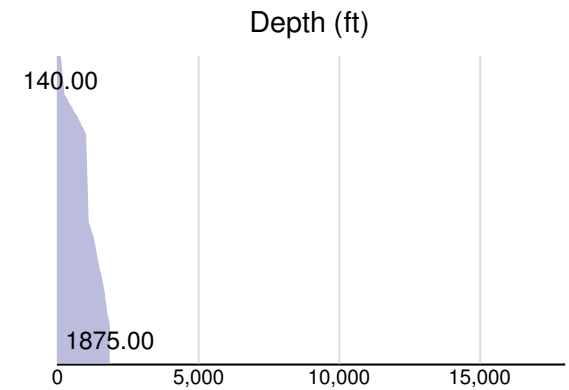
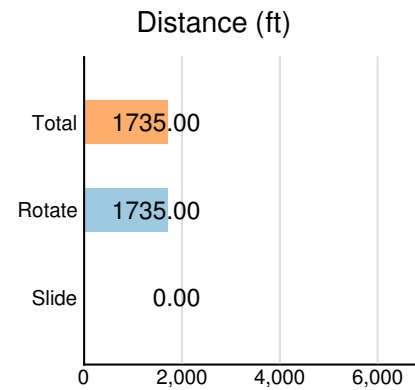
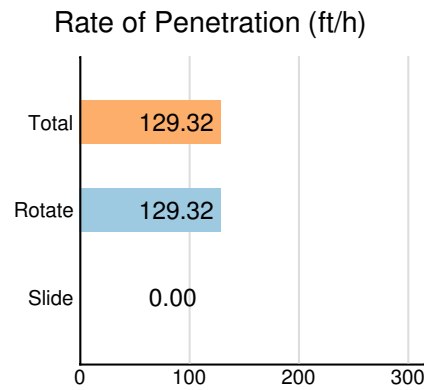
BHA Performance

BHA 1

BHA #1 Surface

In: 10/30/2019 19:30

Out: 10/31/2019 22:30

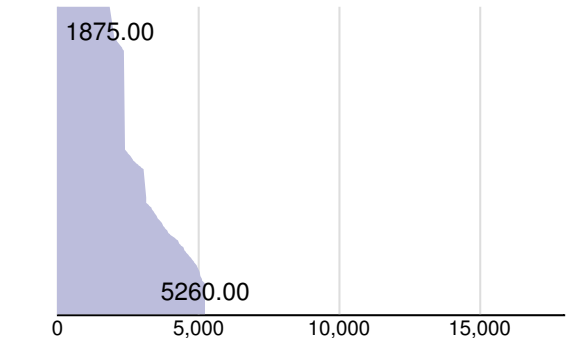
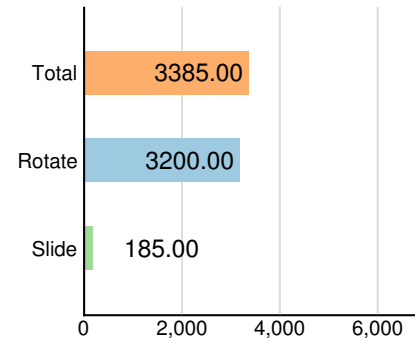
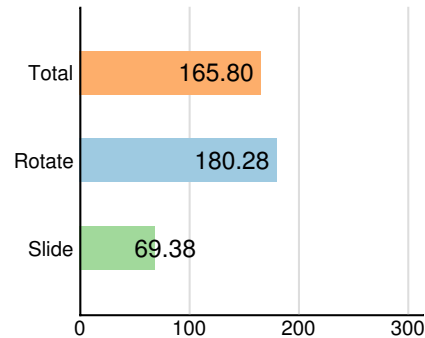


BHA 2

BHA #2
(Intermediate)

In: 11/05/2019 02:15

Out: 11/07/2019 12:00

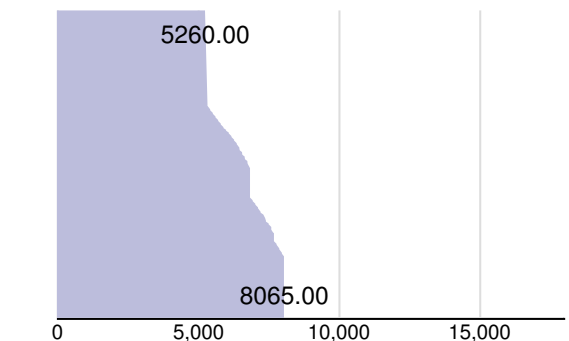
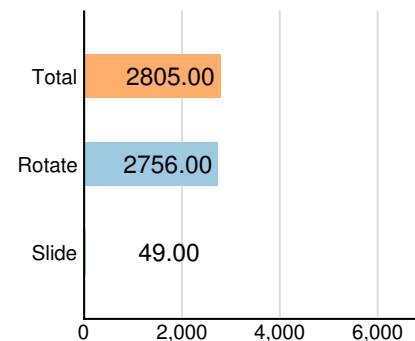
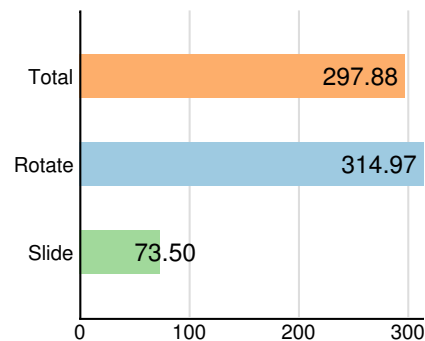


BHA 3

BHA #3
Intermediate II

In: 11/14/2019 03:15

Out: 11/15/2019 08:00

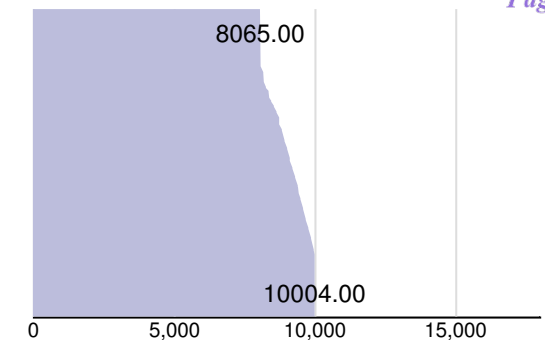
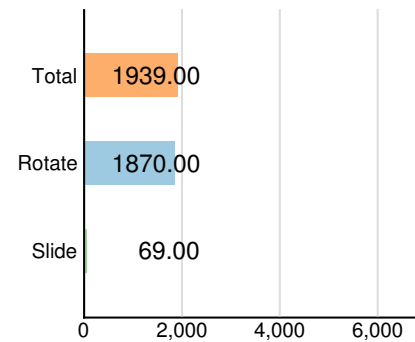
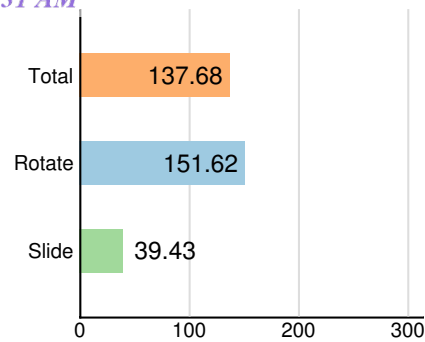


BHA 4

BHA #4 8.5" hole

In: 11/15/2019 08:00

Out: 11/16/2019 10:00

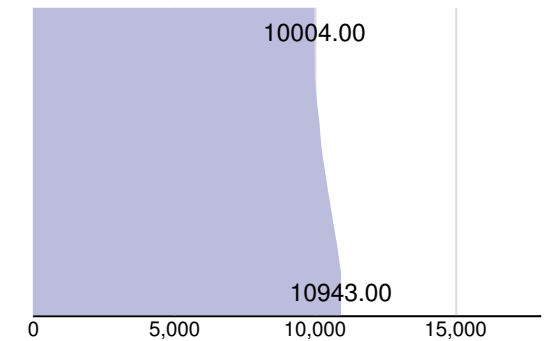
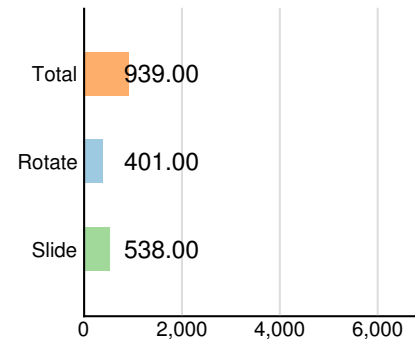
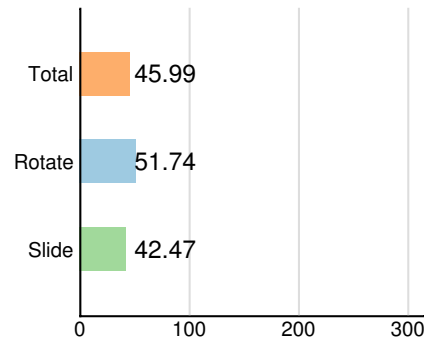


BHA 5

BHA #5 (Curve)

In: 12/14/2019 07:00

Out: 12/15/2019 17:20

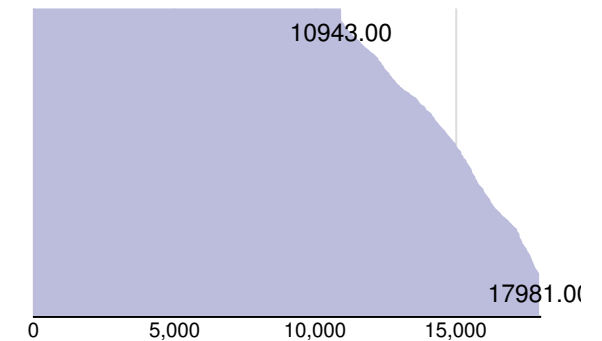
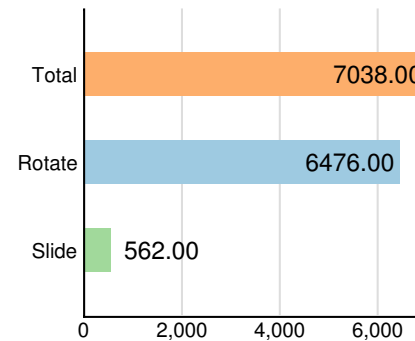
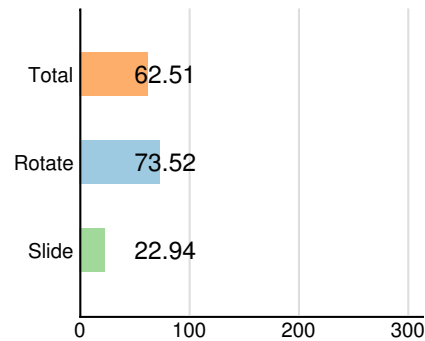


BHA 6

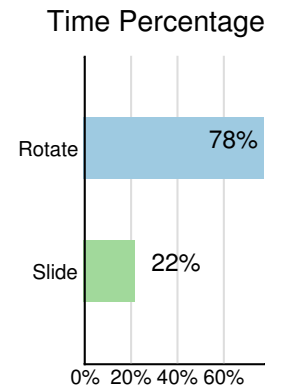
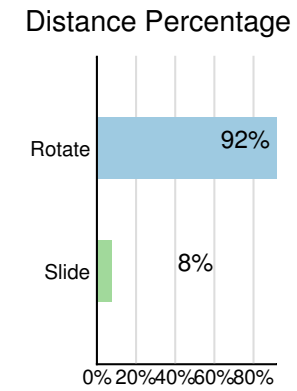
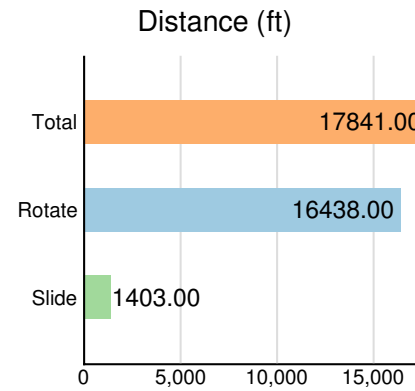
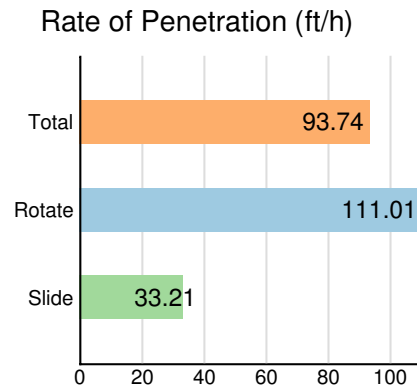
BHA #6 (Lateral)

In: 12/15/2019 17:20

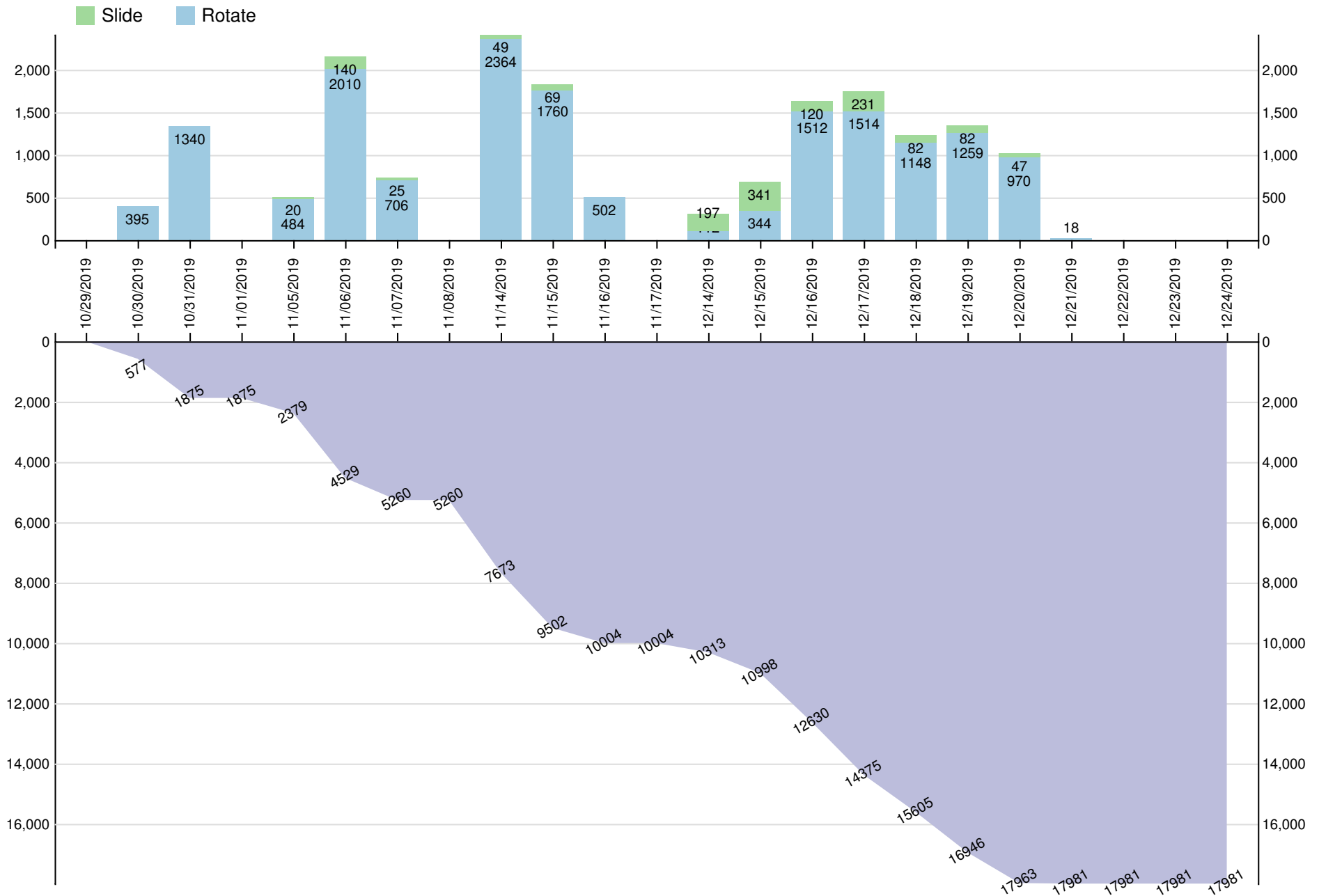
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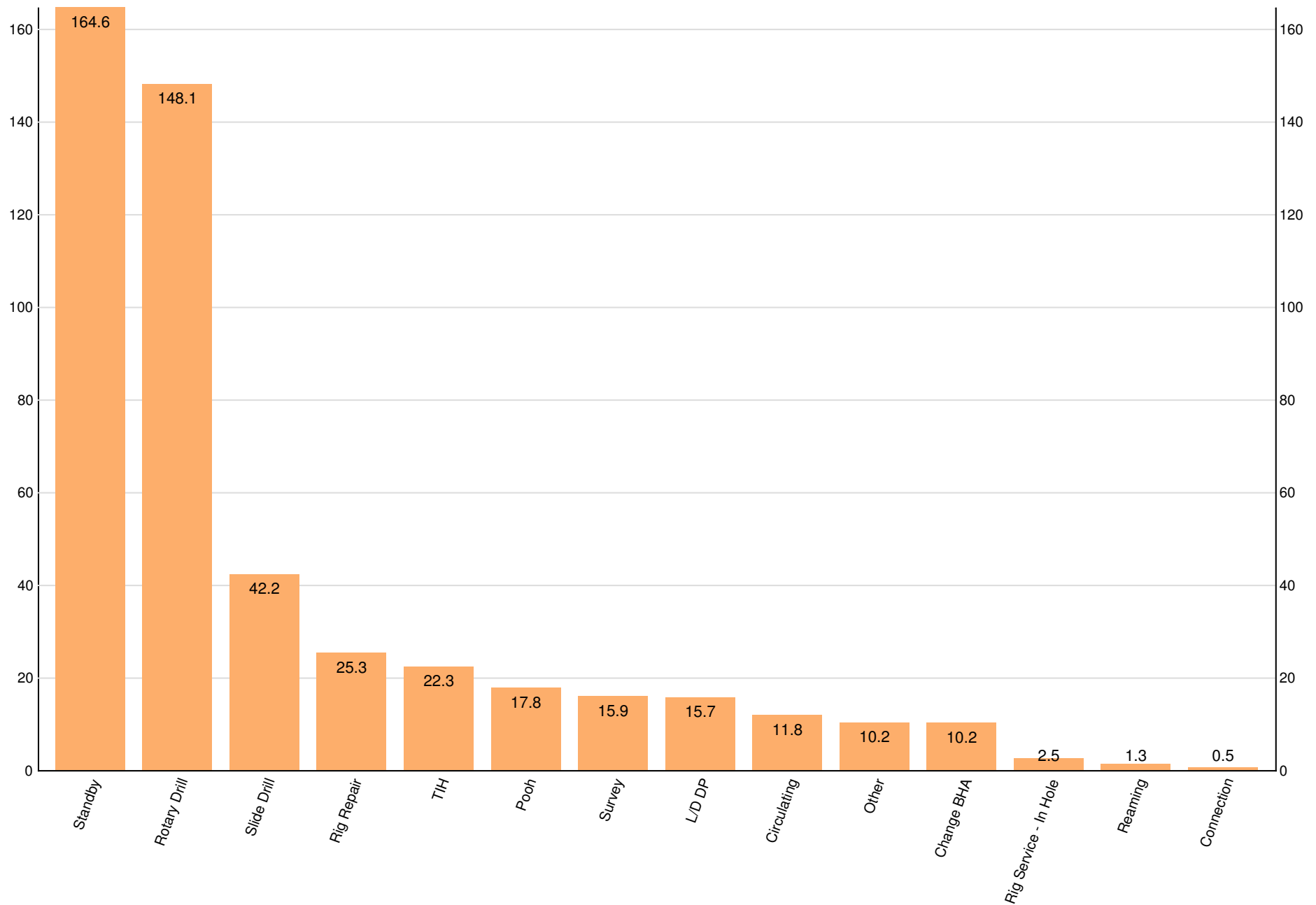
Total



Days vs. Depth



Directional Activity Hours





Proposed vs. As Drilled

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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

Advance Energy Partners, LLC

Wool Head 20 State Com 507H

Lea County, New Mexico

WT-19-165

H&P 620

Plan 2.0



Received by OGD: 5/26/2022 9:05:31 AM



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.20°

Magnetic Field
Strength: 48062.1nT
Dip Angle: 60.23°
Date: 12/12/2019
Model: MVHD

Magnetic North: 6.20° to Grid North

SITE DETAILS: Wool Head 20 State Com 507H

Site Centre Northing: 531175.40
Easting: 769761.40

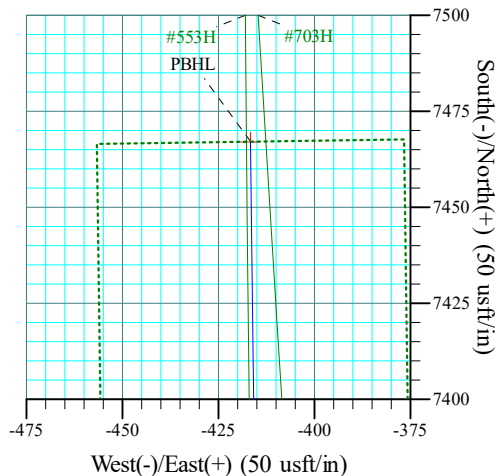
Positional Uncertainty: 0.00
Convergence: 0.40
Local North: Grid

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

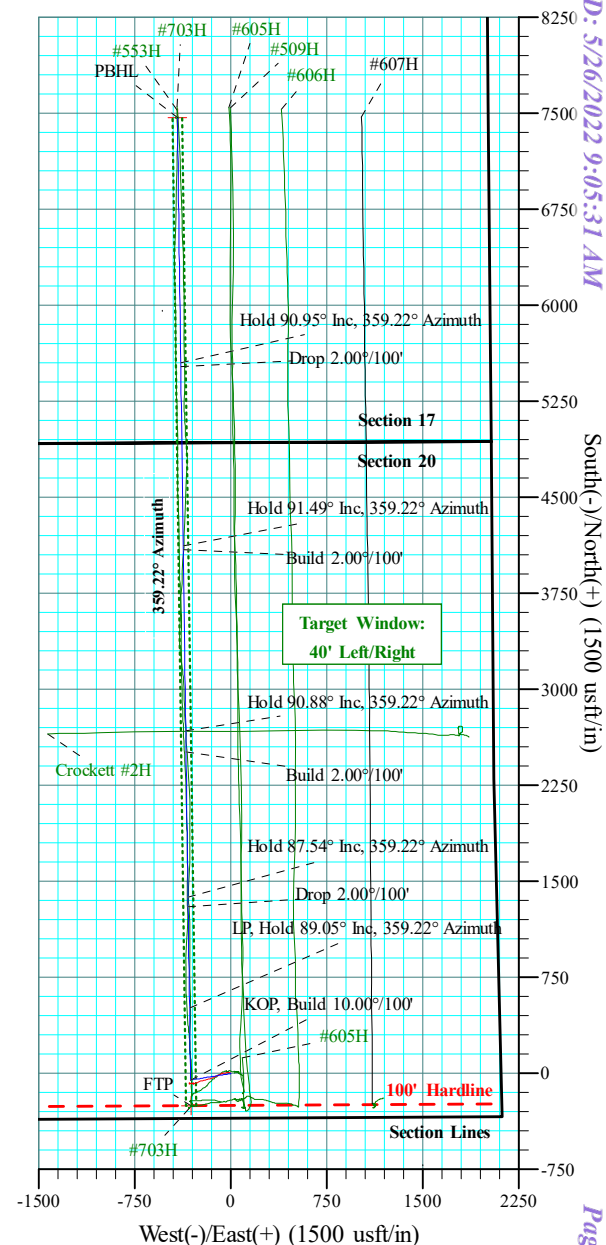
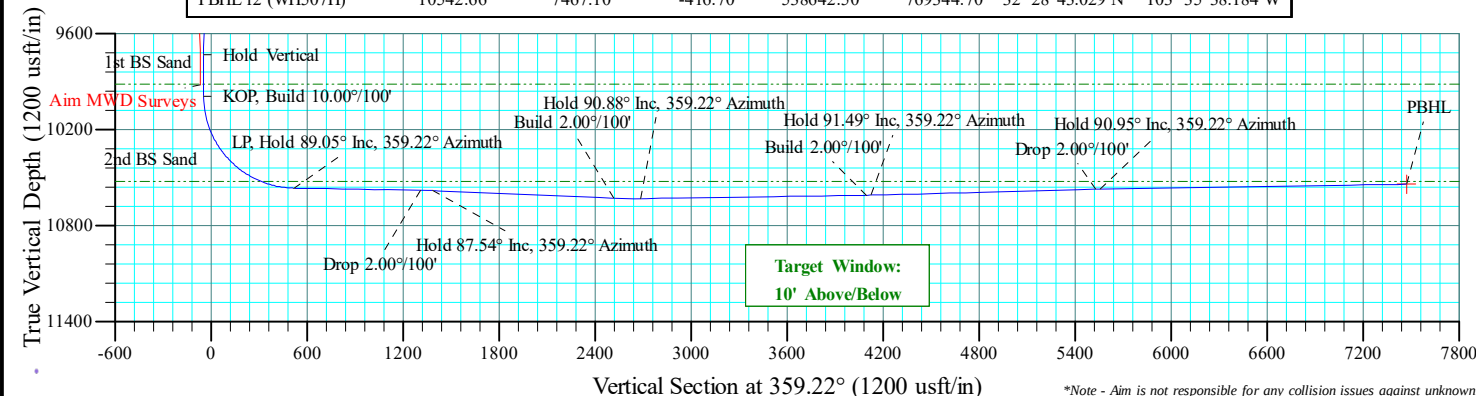
Depth Reference:
3721'GL+26.5'KB @ 3747.50usft (H&P 620)



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5600.00	0.00	0.00	5600.00	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	6100.00	5.00	260.95	6099.37	-3.43	-21.53	1.00	260.95	-3.14	Hold 5.0° Inc, 260.95° Azimuth
4	9247.82	5.00	260.95	9235.21	-46.57	-292.47	0.00	0.00	-42.59	Drop 1.00°/100'
5	9747.82	0.00	0.00	9734.57	-50.00	-314.00	1.00	180.00	-45.72	Hold Vertical
6	10007.73	0.00	0.00	9994.48	-50.00	-314.00	0.00	0.00	-45.72	KOP, Build 10.00°/100'
7	10898.23	89.05	359.22	10567.36	513.41	-321.70	10.00	359.22	517.74	LP, Hold 89.05° Inc, 359.22° Azimuth
8	11687.60	89.05	359.22	10580.45	1302.59	-332.48	0.00	0.00	1307.00	Drop 2.00°/100'
9	11763.10	87.54	359.22	10582.69	1378.05	-333.51	2.00	180.00	1382.46	Hold 87.54° Inc, 359.22° Azimuth
10	12899.68	87.54	359.22	10631.48	2513.48	-349.02	0.00	0.00	2518.00	Build 2.00°/100'
11	13066.68	90.88	359.22	10633.78	2680.43	-351.30	2.00	0.00	2684.96	Hold 90.88° Inc, 359.22° Azimuth
12	14477.89	90.88	359.22	10612.11	4091.33	-370.58	0.00	0.00	4096.00	Build 2.00°/100'
13	14508.64	91.49	359.22	10611.47	4122.07	-371.00	2.00	0.00	4126.74	Hold 91.49° Inc, 359.22° Azimuth
14	15910.37	91.49	359.22	10574.90	5523.20	-390.14	0.00	0.00	5528.00	Drop 2.00°/100'
15	15937.81	90.95	359.22	10574.31	5550.63	-390.52	2.00	180.00	5555.44	Hold 90.95° Inc, 359.22° Azimuth
16	17854.72	90.95	359.22	10542.66	7467.10	-416.70	0.00	0.00	7472.08	PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH507H)	0.00	-251.90	-311.40	530923.50	769450.00	32° 27' 26.643 N	103° 35' 37.579 W
PBHL r2 (WH507H)	10542.66	7467.10	-416.70	538642.50	769344.70	32° 28' 43.029 N	103° 35' 38.184 W



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

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

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

Site		Wool Head 20 State Com 507H					
Site Position:		Northing:	531,175.40	usft	Latitude:	32° 27' 29.114 N	
From:	Map	Easting:	769,761.40	usft	Longitude:	103° 35' 33.924 W	
Position Uncertainty:		0.00	usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#507H - Slot 507H					
Well Position	+N/-S	0.00 usft	Northing:	531,175.40 usft	Latitude:	32° 27' 29.114 N
	+E/-W	0.00 usft	Easting:	769,761.40 usft	Longitude:	103° 35' 33.924 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	12/12/2019	6.60	60.23	48,062.05664703

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

Survey Tool Program	Date	12/12/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,854.72	Plan 2.0 (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 (WH507H)									
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 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,799.00	0.00	0.00	1,799.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
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 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
Build 1.00°/100'									
5,700.00	1.00	260.95	5,700.00	-0.14	-0.86	-0.13	1.00	1.00	0.00
5,800.00	2.00	260.95	5,799.96	-0.55	-3.45	-0.50	1.00	1.00	0.00
5,900.00	3.00	260.95	5,899.86	-1.23	-7.75	-1.13	1.00	1.00	0.00
6,000.00	4.00	260.95	5,999.68	-2.19	-13.78	-2.01	1.00	1.00	0.00
6,100.00	5.00	260.95	6,099.37	-3.43	-21.53	-3.14	1.00	1.00	0.00
Hold 5.0° Inc, 260.95° Azimuth									
6,200.00	5.00	260.95	6,198.99	-4.80	-30.14	-4.39	0.00	0.00	0.00
6,300.00	5.00	260.95	6,298.60	-6.17	-38.75	-5.64	0.00	0.00	0.00
6,400.00	5.00	260.95	6,398.22	-7.54	-47.35	-6.89	0.00	0.00	0.00
6,500.00	5.00	260.95	6,497.84	-8.91	-55.96	-8.15	0.00	0.00	0.00
6,600.00	5.00	260.95	6,597.46	-10.28	-64.57	-9.40	0.00	0.00	0.00
6,700.00	5.00	260.95	6,697.08	-11.65	-73.17	-10.65	0.00	0.00	0.00
6,800.00	5.00	260.95	6,796.70	-13.02	-81.78	-11.91	0.00	0.00	0.00
6,900.00	5.00	260.95	6,896.32	-14.39	-90.39	-13.16	0.00	0.00	0.00
7,000.00	5.00	260.95	6,995.94	-15.76	-99.00	-14.41	0.00	0.00	0.00
7,100.00	5.00	260.95	7,095.56	-17.13	-107.60	-15.67	0.00	0.00	0.00
7,200.00	5.00	260.95	7,195.18	-18.50	-116.21	-16.92	0.00	0.00	0.00
7,300.00	5.00	260.95	7,294.80	-19.88	-124.82	-18.17	0.00	0.00	0.00
7,400.00	5.00	260.95	7,394.42	-21.25	-133.42	-19.43	0.00	0.00	0.00
7,500.00	5.00	260.95	7,494.04	-22.62	-142.03	-20.68	0.00	0.00	0.00
7,600.00	5.00	260.95	7,593.66	-23.99	-150.64	-21.93	0.00	0.00	0.00
7,700.00	5.00	260.95	7,693.28	-25.36	-159.25	-23.19	0.00	0.00	0.00
7,800.00	5.00	260.95	7,792.90	-26.73	-167.85	-24.44	0.00	0.00	0.00
7,900.00	5.00	260.95	7,892.52	-28.10	-176.46	-25.69	0.00	0.00	0.00
8,000.00	5.00	260.95	7,992.14	-29.47	-185.07	-26.95	0.00	0.00	0.00
8,100.00	5.00	260.95	8,091.76	-30.84	-193.67	-28.20	0.00	0.00	0.00
8,200.00	5.00	260.95	8,191.37	-32.21	-202.28	-29.45	0.00	0.00	0.00
8,300.00	5.00	260.95	8,290.99	-33.58	-210.89	-30.71	0.00	0.00	0.00
8,400.00	5.00	260.95	8,390.61	-34.95	-219.50	-31.96	0.00	0.00	0.00
8,434.52	5.00	260.95	8,425.00	-35.42	-222.47	-32.39	0.00	0.00	0.00
Lower Brushy									
8,500.00	5.00	260.95	8,490.23	-36.32	-228.10	-33.21	0.00	0.00	0.00
8,600.00	5.00	260.95	8,589.85	-37.69	-236.71	-34.47	0.00	0.00	0.00
8,700.00	5.00	260.95	8,689.47	-39.06	-245.32	-35.72	0.00	0.00	0.00
8,800.00	5.00	260.95	8,789.09	-40.43	-253.92	-36.97	0.00	0.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,900.00	5.00	260.95	8,888.71	-41.80	-262.53	-38.23	0.00	0.00	0.00
8,906.31	5.00	260.95	8,895.00	-41.89	-263.07	-38.31	0.00	0.00	0.00
Avalon									
9,000.00	5.00	260.95	8,988.33	-43.17	-271.14	-39.48	0.00	0.00	0.00
9,100.00	5.00	260.95	9,087.95	-44.55	-279.75	-40.73	0.00	0.00	0.00
9,200.00	5.00	260.95	9,187.57	-45.92	-288.35	-41.99	0.00	0.00	0.00
9,247.82	5.00	260.95	9,235.21	-46.57	-292.47	-42.59	0.00	0.00	0.00
Drop 1.00°/100'									
9,300.00	4.48	260.95	9,287.21	-47.25	-296.73	-43.21	1.00	-1.00	0.00
9,400.00	3.48	260.95	9,386.97	-48.34	-303.58	-44.20	1.00	-1.00	0.00
9,500.00	2.48	260.95	9,486.83	-49.16	-308.71	-44.95	1.00	-1.00	0.00
9,600.00	1.48	260.95	9,586.77	-49.70	-312.12	-45.45	1.00	-1.00	0.00
9,700.00	0.48	260.95	9,686.75	-49.97	-313.80	-45.69	1.00	-1.00	0.00
9,747.82	0.00	0.00	9,734.57	-50.00	-314.00	-45.72	1.00	-1.00	0.00
Hold Vertical									
9,800.00	0.00	0.00	9,786.75	-50.00	-314.00	-45.72	0.00	0.00	0.00
9,900.00	0.00	0.00	9,886.75	-50.00	-314.00	-45.72	0.00	0.00	0.00
9,931.25	0.00	0.00	9,918.00	-50.00	-314.00	-45.72	0.00	0.00	0.00
1st BS Sand									
10,007.73	0.00	0.00	9,994.48	-50.00	-314.00	-45.72	0.00	0.00	0.00
KOP, Build 10.00°/100'									
10,050.00	4.23	359.22	10,036.71	-48.44	-314.02	-44.16	10.00	10.00	0.00
10,100.00	9.23	359.22	10,086.35	-42.59	-314.10	-38.31	10.00	10.00	0.00
10,150.00	14.23	359.22	10,135.30	-32.43	-314.24	-28.15	10.00	10.00	0.00
10,200.00	19.23	359.22	10,183.16	-18.04	-314.44	-13.76	10.00	10.00	0.00
10,250.00	24.23	359.22	10,229.60	0.46	-314.69	4.74	10.00	10.00	0.00
10,300.00	29.23	359.22	10,274.24	22.94	-315.00	27.22	10.00	10.00	0.00
10,350.00	34.23	359.22	10,316.76	49.22	-315.36	53.51	10.00	10.00	0.00
10,400.00	39.23	359.22	10,356.82	79.11	-315.76	83.40	10.00	10.00	0.00
10,450.00	44.23	359.22	10,394.12	112.37	-316.22	116.67	10.00	10.00	0.00
10,500.00	49.23	359.22	10,428.38	148.76	-316.72	153.06	10.00	10.00	0.00
10,550.00	54.23	359.22	10,459.35	188.00	-317.25	192.30	10.00	10.00	0.00
10,600.00	59.23	359.22	10,486.77	229.79	-317.82	234.09	10.00	10.00	0.00
10,650.00	64.23	359.22	10,510.44	273.80	-318.42	278.11	10.00	10.00	0.00
10,683.19	67.55	359.22	10,524.00	304.09	-318.84	308.40	10.00	10.00	0.00
2nd BS Sand									
10,700.00	69.23	359.22	10,530.19	319.72	-319.05	324.03	10.00	10.00	0.00
10,750.00	74.23	359.22	10,545.86	367.18	-319.70	371.49	10.00	10.00	0.00
10,800.00	79.23	359.22	10,557.34	415.82	-320.36	420.14	10.00	10.00	0.00
10,850.00	84.23	359.22	10,564.53	465.28	-321.04	469.61	10.00	10.00	0.00
10,898.23	89.05	359.22	10,567.36	513.41	-321.70	517.74	10.00	10.00	0.00
LP, Hold 89.05° Inc, 359.22° Azimuth									
10,900.00	89.05	359.22	10,567.39	515.18	-321.72	519.51	0.00	0.00	0.00
11,000.00	89.05	359.22	10,569.05	615.16	-323.09	619.50	0.00	0.00	0.00
11,100.00	89.05	359.22	10,570.70	715.13	-324.45	719.48	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 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,200.00	89.05	359.22	10,572.36	815.11	-325.82	819.47	0.00	0.00	0.00
11,300.00	89.05	359.22	10,574.02	915.09	-327.19	919.46	0.00	0.00	0.00
11,400.00	89.05	359.22	10,575.68	1,015.06	-328.55	1,019.44	0.00	0.00	0.00
11,500.00	89.05	359.22	10,577.34	1,115.04	-329.92	1,119.43	0.00	0.00	0.00
11,600.00	89.05	359.22	10,578.99	1,215.02	-331.28	1,219.41	0.00	0.00	0.00
11,687.60	89.05	359.22	10,580.45	1,302.59	-332.48	1,307.00	0.00	0.00	0.00
Drop 2.00°/100'									
11,700.00	88.80	359.22	10,580.68	1,314.99	-332.65	1,319.40	2.00	-2.00	0.00
11,763.10	87.54	359.22	10,582.69	1,378.05	-333.51	1,382.46	2.00	-2.00	0.00
Hold 87.54° Inc, 359.22° Azimuth									
11,800.00	87.54	359.22	10,584.28	1,414.92	-334.01	1,419.33	0.00	0.00	0.00
11,900.00	87.54	359.22	10,588.57	1,514.81	-335.38	1,519.24	0.00	0.00	0.00
12,000.00	87.54	359.22	10,592.86	1,614.71	-336.74	1,619.15	0.00	0.00	0.00
12,100.00	87.54	359.22	10,597.15	1,714.61	-338.11	1,719.06	0.00	0.00	0.00
12,200.00	87.54	359.22	10,601.45	1,814.51	-339.47	1,818.96	0.00	0.00	0.00
12,300.00	87.54	359.22	10,605.74	1,914.41	-340.84	1,918.87	0.00	0.00	0.00
12,400.00	87.54	359.22	10,610.03	2,014.31	-342.20	2,018.78	0.00	0.00	0.00
12,500.00	87.54	359.22	10,614.32	2,114.21	-343.57	2,118.69	0.00	0.00	0.00
12,600.00	87.54	359.22	10,618.61	2,214.10	-344.93	2,218.59	0.00	0.00	0.00
12,700.00	87.54	359.22	10,622.91	2,314.00	-346.30	2,318.50	0.00	0.00	0.00
12,800.00	87.54	359.22	10,627.20	2,413.90	-347.66	2,418.41	0.00	0.00	0.00
12,899.68	87.54	359.22	10,631.48	2,513.48	-349.02	2,518.00	0.00	0.00	0.00
Build 2.00°/100'									
13,000.00	89.55	359.22	10,634.03	2,613.75	-350.39	2,618.28	2.00	2.00	0.00
13,066.68	90.88	359.22	10,633.78	2,680.43	-351.30	2,684.96	2.00	2.00	0.00
Hold 90.88° Inc, 359.22° Azimuth									
13,100.00	90.88	359.22	10,633.27	2,713.74	-351.76	2,718.28	0.00	0.00	0.00
13,200.00	90.88	359.22	10,631.73	2,813.72	-353.12	2,818.26	0.00	0.00	0.00
13,300.00	90.88	359.22	10,630.20	2,913.70	-354.49	2,918.25	0.00	0.00	0.00
13,400.00	90.88	359.22	10,628.66	3,013.67	-355.86	3,018.24	0.00	0.00	0.00
13,500.00	90.88	359.22	10,627.12	3,113.65	-357.22	3,118.23	0.00	0.00	0.00
13,600.00	90.88	359.22	10,625.59	3,213.63	-358.59	3,218.22	0.00	0.00	0.00
13,700.00	90.88	359.22	10,624.05	3,313.61	-359.95	3,318.20	0.00	0.00	0.00
13,800.00	90.88	359.22	10,622.52	3,413.59	-361.32	3,418.19	0.00	0.00	0.00
13,900.00	90.88	359.22	10,620.98	3,513.57	-362.69	3,518.18	0.00	0.00	0.00
14,000.00	90.88	359.22	10,619.45	3,613.55	-364.05	3,618.17	0.00	0.00	0.00
14,100.00	90.88	359.22	10,617.91	3,713.53	-365.42	3,718.16	0.00	0.00	0.00
14,200.00	90.88	359.22	10,616.37	3,813.51	-366.78	3,818.15	0.00	0.00	0.00
14,300.00	90.88	359.22	10,614.84	3,913.48	-368.15	3,918.13	0.00	0.00	0.00
14,400.00	90.88	359.22	10,613.30	4,013.46	-369.52	4,018.12	0.00	0.00	0.00
14,477.89	90.88	359.22	10,612.11	4,091.33	-370.58	4,096.00	0.00	0.00	0.00
Build 2.00°/100'									
14,508.64	91.50	359.22	10,611.47	4,122.07	-371.00	4,126.74	2.00	2.00	0.00
Hold 91.49° Inc, 359.22° Azimuth									

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,600.00	91.50	359.22	10,609.09	4,213.40	-372.25	4,218.07	0.00	0.00	0.00
14,700.00	91.50	359.22	10,606.48	4,313.35	-373.61	4,318.04	0.00	0.00	0.00
14,800.00	91.50	359.22	10,603.87	4,413.31	-374.98	4,418.01	0.00	0.00	0.00
14,900.00	91.50	359.22	10,601.26	4,513.27	-376.34	4,517.97	0.00	0.00	0.00
15,000.00	91.50	359.22	10,598.65	4,613.22	-377.71	4,617.94	0.00	0.00	0.00
15,100.00	91.50	359.22	10,596.04	4,713.18	-379.08	4,717.90	0.00	0.00	0.00
15,200.00	91.50	359.22	10,593.43	4,813.14	-380.44	4,817.87	0.00	0.00	0.00
15,300.00	91.50	359.22	10,590.82	4,913.09	-381.81	4,917.84	0.00	0.00	0.00
15,400.00	91.50	359.22	10,588.21	5,013.05	-383.17	5,017.80	0.00	0.00	0.00
15,500.00	91.50	359.22	10,585.60	5,113.01	-384.54	5,117.77	0.00	0.00	0.00
15,600.00	91.50	359.22	10,583.00	5,212.96	-385.90	5,217.73	0.00	0.00	0.00
15,700.00	91.50	359.22	10,580.39	5,312.92	-387.27	5,317.70	0.00	0.00	0.00
15,800.00	91.50	359.22	10,577.78	5,412.88	-388.63	5,417.67	0.00	0.00	0.00
15,900.00	91.50	359.22	10,575.17	5,512.83	-390.00	5,517.63	0.00	0.00	0.00
15,910.37	91.50	359.22	10,574.90	5,523.20	-390.14	5,528.00	0.00	0.00	0.00
Drop 2.00°/100'									
15,937.81	90.95	359.22	10,574.31	5,550.63	-390.52	5,555.44	2.00	-2.00	0.00
Hold 90.95° Inc, 359.22° Azimuth									
16,000.00	90.95	359.22	10,573.29	5,612.81	-391.37	5,617.61	0.00	0.00	0.00
16,100.00	90.95	359.22	10,571.64	5,712.78	-392.73	5,717.60	0.00	0.00	0.00
16,200.00	90.95	359.22	10,569.98	5,812.76	-394.10	5,817.59	0.00	0.00	0.00
16,300.00	90.95	359.22	10,568.33	5,912.74	-395.46	5,917.57	0.00	0.00	0.00
16,400.00	90.95	359.22	10,566.68	6,012.71	-396.83	6,017.56	0.00	0.00	0.00
16,500.00	90.95	359.22	10,565.03	6,112.69	-398.20	6,117.55	0.00	0.00	0.00
16,600.00	90.95	359.22	10,563.38	6,212.67	-399.56	6,217.53	0.00	0.00	0.00
16,700.00	90.95	359.22	10,561.73	6,312.65	-400.93	6,317.52	0.00	0.00	0.00
16,800.00	90.95	359.22	10,560.08	6,412.62	-402.29	6,417.51	0.00	0.00	0.00
16,900.00	90.95	359.22	10,558.43	6,512.60	-403.66	6,517.49	0.00	0.00	0.00
17,000.00	90.95	359.22	10,556.77	6,612.58	-405.03	6,617.48	0.00	0.00	0.00
17,100.00	90.95	359.22	10,555.12	6,712.55	-406.39	6,717.46	0.00	0.00	0.00
17,200.00	90.95	359.22	10,553.47	6,812.53	-407.76	6,817.45	0.00	0.00	0.00
17,300.00	90.95	359.22	10,551.82	6,912.51	-409.12	6,917.44	0.00	0.00	0.00
17,400.00	90.95	359.22	10,550.17	7,012.49	-410.49	7,017.42	0.00	0.00	0.00
17,500.00	90.95	359.22	10,548.52	7,112.46	-411.85	7,117.41	0.00	0.00	0.00
17,600.00	90.95	359.22	10,546.87	7,212.44	-413.22	7,217.40	0.00	0.00	0.00
17,700.00	90.95	359.22	10,545.22	7,312.42	-414.59	7,317.38	0.00	0.00	0.00
17,800.00	90.95	359.22	10,543.56	7,412.39	-415.95	7,417.37	0.00	0.00	0.00
17,854.72	90.95	359.22	10,542.66	7,467.10	-416.70	7,472.08	0.00	0.00	0.00
PBHL - PBHL r2 (WH507H)									

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	North Reference:	Grid
Wellbore:	Lateral 1r3	Survey Calculation Method:	Minimum Curvature
Design:	Plan 2.0	Database:	EDM 5000.1 Aim Database

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 (WH507H) - plan misses target center by 400.53usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-251.90	-311.40	530,923.50	769,450.00	32° 27' 26.643 N	103° 35' 37.579 W
PBHL r2 (WH507H) - plan hits target center - Point	0.00	0.00	10,542.66	7,467.10	-416.70	538,642.50	769,344.70	32° 28' 43.029 N	103° 35' 38.184 W

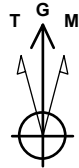
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,799.00	1,799.00	Rustler		0.00		
5,202.00	5,202.00	Base of Limestone		0.00		
8,434.52	8,425.00	Lower Brushy		0.00		
8,906.31	8,895.00	Avalon		0.00		
9,931.25	9,918.00	1st BS Sand		0.00		
10,683.19	10,524.00	2nd BS Sand		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5600	5600	0	0	Build 1.00°/100'	
6100	6099	-3	-22	Hold 5.0° Inc, 260.95° Azimuth	
9248	9235	-47	-292	Drop 1.00°/100'	
9748	9735	-50	-314	Hold Vertical	
10,008	9994	-50	-314	KOP, Build 10.00°/100'	
10,898	10,567	513	-322	LP, Hold 89.05° Inc, 359.22° Azimuth	
11,688	10,580	1303	-332	Drop 2.00°/100'	
11,763	10,583	1378	-334	Hold 87.54° Inc, 359.22° Azimuth	
12,900	10,631	2513	-349	Build 2.00°/100'	
13,067	10,634	2680	-351	Hold 90.88° Inc, 359.22° Azimuth	
14,478	10,612	4091	-371	Build 2.00°/100'	
14,509	10,611	4122	-371	Hold 91.49° Inc, 359.22° Azimuth	
15,910	10,575	5523	-390	Drop 2.00°/100'	
15,938	10,574	5551	-391	Hold 90.95° Inc, 359.22° Azimuth	
17,855	10,543	7467	-417	PBHL	



Advance Energy Partners, LLC

Wool Head 20 State Com 507H
Lea County, New Mexico
WT-19-165
H&P 620
Plan 2.0 Final PVA



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.20°

Magnetic Field
Strength: 48062.1nT
Dip Angle: 60.23°
Date: 12/12/2019
Model: MVHD

Magnetic North: 6.20° to Grid North

SITE DETAILS: Wool Head 20 State Com 507H

Site Centre Northing: 531175.40
Easting: 769761.40

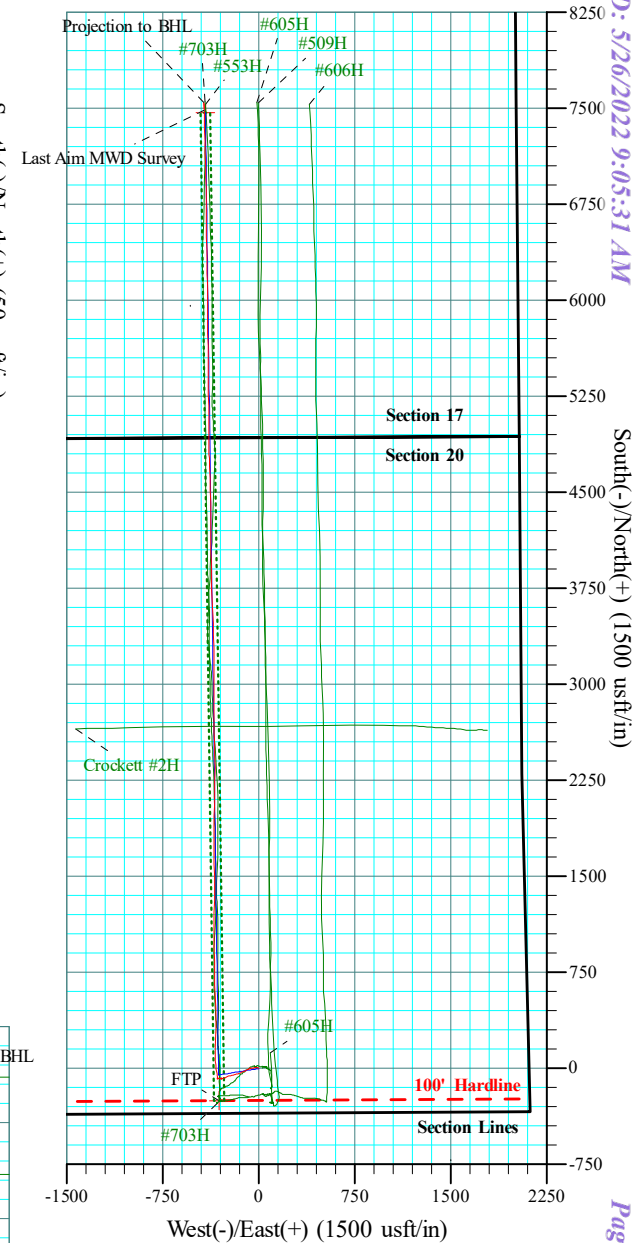
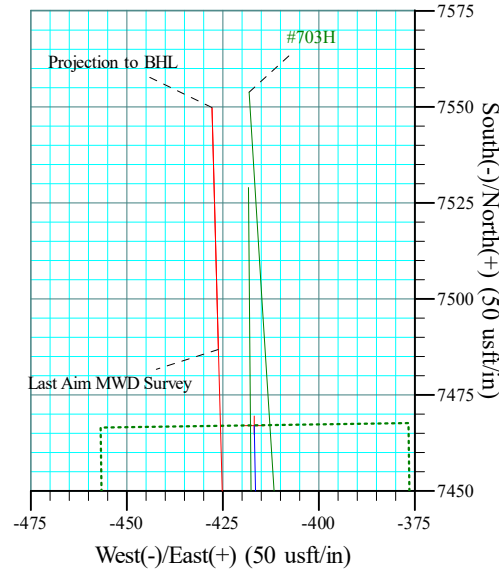
Positional Uncertainty: 0.00
Convergence: 0.40
Local North: Grid

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)

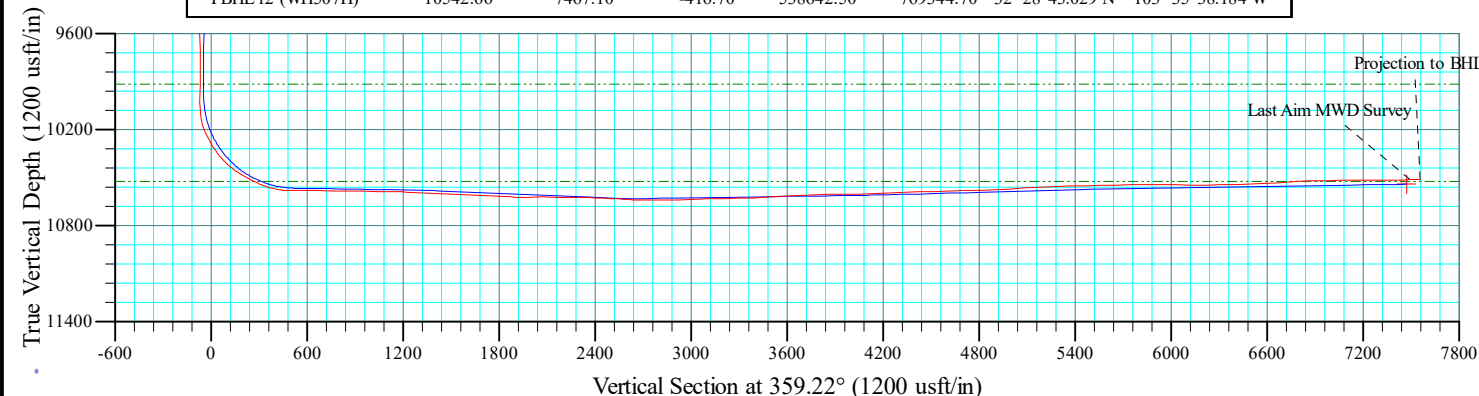


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	17918.00	91.12	358.47	10514.78	7486.94	-426.03	0.00	0.00	7492.05	Last Aim MWD Survey
2	17981.00	91.12	358.47	10513.55	7549.91	-427.71	0.00	0.00	7555.03	Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (WH507H)	0.00	-251.90	-311.40	530923.50	769450.00	32° 27' 26.643 N	103° 35' 37.579 W
PBHL r2 (WH507H)	10542.66	7467.10	-416.70	538642.50	769344.70	32° 28' 43.029 N	103° 35' 38.184 W





Survey Reports

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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 507H		
Site Position:		Northing:	531,175.40 usft
From:	Map	Easting:	769,761.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 27' 29.114 N
		Longitude:	103° 35' 33.924 W
		Grid Convergence:	0.40 °

Well	#507H - Slot 507H		
Well Position	+N/-S	0.00 usft	Northing: 531,175.40 usft
	+E/-W	0.00 usft	Easting: 769,761.40 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 27' 29.114 N
		Longitude:	103° 35' 33.924 W
		Ground Level:	3,721.00 usft

Wellbore	Aim MWD Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	10/31/2019	6.61	60.24	48,074.62931347

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	12/21/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
200.00	17,981.00	Aim MWD Surveys (Aim MWD Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.97	336.85	199.99	1.56	-0.67	1.57	0.49	0.49	0.00
First Aim MWD Survey									
327.00	1.14	319.10	326.97	3.50	-1.92	3.53	0.29	0.13	-13.98
514.00	1.10	307.32	513.93	5.99	-4.56	6.06	0.12	-0.02	-6.30
699.00	1.49	283.94	698.89	7.65	-8.31	7.76	0.35	0.21	-12.64
790.00	1.36	286.14	789.86	8.24	-10.49	8.38	0.15	-0.14	2.42
881.00	1.23	278.41	880.84	8.68	-12.50	8.85	0.24	-0.14	-8.49
973.00	1.14	284.21	972.82	9.05	-14.36	9.24	0.16	-0.10	6.30
1,067.00	1.14	283.77	1,066.80	9.50	-16.18	9.72	0.01	0.00	-0.47
1,161.00	1.19	267.86	1,160.78	9.69	-18.06	9.93	0.35	0.05	-16.93

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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)
1,256.00	1.49	260.39	1,255.75	9.44	-20.26	9.72	0.36	0.32	-7.86
1,350.00	1.93	261.53	1,349.71	9.01	-23.03	9.32	0.47	0.47	1.21
1,444.00	2.33	256.08	1,443.65	8.31	-26.45	8.67	0.48	0.43	-5.80
1,539.00	2.20	256.87	1,538.57	7.43	-30.10	7.84	0.14	-0.14	0.83
1,633.00	2.33	257.05	1,632.50	6.60	-33.72	7.05	0.14	0.14	0.19
1,727.00	2.59	258.81	1,726.41	5.76	-37.67	6.27	0.29	0.28	1.87
1,812.00	3.08	265.49	1,811.31	5.20	-41.83	5.77	0.69	0.58	7.86
1,970.00	3.74	270.59	1,969.03	4.92	-51.21	5.62	0.46	0.42	3.23
2,065.00	2.29	265.84	2,063.89	4.82	-56.20	5.58	1.55	-1.53	-5.00
2,253.00	1.58	258.19	2,251.78	4.01	-62.49	4.86	0.40	-0.38	-4.07
2,348.00	1.36	255.56	2,346.75	3.46	-64.86	4.35	0.24	-0.23	-2.77
2,442.00	1.10	252.74	2,440.73	2.92	-66.80	3.83	0.28	-0.28	-3.00
2,630.00	0.57	243.69	2,628.71	1.97	-69.37	2.91	0.29	-0.28	-4.81
2,724.00	0.44	252.48	2,722.71	1.65	-70.13	2.61	0.16	-0.14	9.35
2,819.00	0.31	227.43	2,817.71	1.37	-70.67	2.33	0.22	-0.14	-26.37
2,913.00	0.22	96.74	2,911.71	1.18	-70.67	2.14	0.51	-0.10	-139.03
3,101.00	0.92	81.27	3,099.69	1.36	-68.82	2.30	0.38	0.37	-8.23
3,195.00	1.32	80.74	3,193.68	1.65	-67.01	2.56	0.43	0.43	-0.56
3,290.00	1.19	69.32	3,288.65	2.18	-65.01	3.06	0.30	-0.14	-12.02
3,384.00	0.57	109.13	3,382.64	2.37	-63.65	3.23	0.89	-0.66	42.35
3,478.00	0.35	180.85	3,476.64	1.93	-63.21	2.79	0.60	-0.23	76.30
3,667.00	1.85	242.11	3,665.60	-0.08	-65.92	0.82	0.90	0.79	32.41
3,762.00	1.98	245.18	3,760.55	-1.48	-68.76	-0.55	0.17	0.14	3.23
3,857.00	2.64	254.94	3,855.47	-2.74	-72.37	-1.76	0.81	0.69	10.27
3,951.00	2.90	251.25	3,949.36	-4.07	-76.71	-3.02	0.34	0.28	-3.93
4,140.00	4.13	244.83	4,138.00	-8.50	-87.40	-7.31	0.68	0.65	-3.40
4,234.00	3.52	243.87	4,231.80	-11.21	-93.05	-9.94	0.65	-0.65	-1.02
4,328.00	3.56	245.10	4,325.62	-13.71	-98.29	-12.37	0.09	0.04	1.31
4,423.00	4.31	245.27	4,420.39	-16.44	-104.21	-15.02	0.79	0.79	0.18
4,517.00	4.53	244.39	4,514.11	-19.53	-110.76	-18.02	0.24	0.23	-0.94
4,612.00	4.97	245.71	4,608.79	-22.84	-117.90	-21.23	0.48	0.46	1.39
4,707.00	4.88	245.89	4,703.43	-26.18	-125.33	-24.48	0.10	-0.09	0.19
4,801.00	4.75	247.29	4,797.10	-29.32	-132.57	-27.51	0.19	-0.14	1.49
4,896.00	4.84	246.42	4,891.77	-32.44	-139.88	-30.53	0.12	0.09	-0.92
4,990.00	4.40	244.83	4,985.46	-35.56	-146.77	-33.56	0.49	-0.47	-1.69
5,084.00	4.92	253.18	5,079.15	-38.26	-153.90	-36.16	0.91	0.55	8.88
5,189.00	6.15	256.87	5,183.66	-40.84	-163.68	-38.61	1.22	1.17	3.51
5,278.00	5.67	256.43	5,272.19	-42.96	-172.60	-40.60	0.54	-0.54	-0.49
5,374.00	5.67	253.97	5,367.72	-45.38	-181.77	-42.90	0.25	0.00	-2.56
5,468.00	5.58	254.76	5,461.27	-47.86	-190.64	-45.26	0.13	-0.10	0.84
5,562.00	5.67	255.38	5,554.82	-50.24	-199.54	-47.52	0.12	0.10	0.66
5,657.00	5.71	255.56	5,649.35	-52.60	-208.66	-49.75	0.05	0.04	0.19
5,751.00	5.58	256.17	5,742.89	-54.86	-217.63	-51.89	0.15	-0.14	0.65

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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)
5,846.00	5.71	253.45	5,837.43	-57.31	-226.64	-54.22	0.31	0.14	-2.86
5,940.00	5.67	253.45	5,930.97	-59.96	-235.57	-56.75	0.04	-0.04	0.00
6,034.00	5.63	250.19	6,024.51	-62.85	-244.36	-59.52	0.34	-0.04	-3.47
6,129.00	5.58	249.58	6,119.06	-66.04	-253.08	-62.59	0.08	-0.05	-0.64
6,223.00	5.63	250.19	6,212.61	-69.20	-261.70	-65.63	0.08	0.05	0.65
6,317.00	5.71	250.28	6,306.15	-72.34	-270.44	-68.65	0.09	0.09	0.10
6,411.00	5.49	249.05	6,399.70	-75.52	-279.04	-71.72	0.27	-0.23	-1.31
6,506.00	3.82	247.65	6,494.38	-78.35	-286.21	-74.45	1.76	-1.76	-1.47
6,600.00	2.15	248.44	6,588.25	-80.19	-290.75	-76.22	1.78	-1.78	0.84
6,695.00	1.05	269.35	6,683.21	-80.85	-293.27	-76.85	1.29	-1.16	22.01
6,789.00	0.97	354.87	6,777.20	-80.07	-294.21	-76.06	1.46	-0.09	90.98
6,883.00	1.23	5.42	6,871.19	-78.27	-294.18	-74.26	0.35	0.28	11.22
6,978.00	1.01	8.41	6,966.17	-76.43	-293.96	-72.42	0.24	-0.23	3.15
7,072.00	0.53	351.97	7,060.16	-75.18	-293.90	-71.17	0.56	-0.51	-17.49
7,166.00	0.53	11.75	7,154.16	-74.33	-293.88	-70.32	0.19	0.00	21.04
7,355.00	0.48	345.29	7,343.15	-72.70	-293.90	-68.70	0.12	-0.03	-14.00
7,450.00	0.09	21.68	7,438.15	-72.25	-293.97	-68.24	0.43	-0.41	38.31
7,544.00	0.26	219.17	7,532.15	-72.35	-294.08	-68.34	0.37	0.18	-172.88
7,639.00	0.22	214.95	7,627.15	-72.66	-294.32	-68.65	0.05	-0.04	-4.44
7,733.00	0.79	197.99	7,721.14	-73.43	-294.62	-69.41	0.62	0.61	-18.04
7,828.00	0.79	184.10	7,816.13	-74.70	-294.87	-70.68	0.20	0.00	-14.62
7,922.00	0.88	170.13	7,910.12	-76.06	-294.80	-72.04	0.24	0.10	-14.86
8,017.00	1.01	162.22	8,005.11	-77.58	-294.41	-73.56	0.19	0.14	-8.33
8,112.00	1.19	145.87	8,100.09	-79.19	-293.61	-75.19	0.38	0.19	-17.21
8,206.00	0.66	159.67	8,194.08	-80.51	-292.87	-76.51	0.61	-0.56	14.68
8,300.00	0.70	210.64	8,288.07	-81.51	-292.97	-77.51	0.62	0.04	54.22
8,394.00	1.05	301.26	8,382.07	-81.56	-294.00	-77.55	1.35	0.37	96.40
8,488.00	1.80	309.70	8,476.04	-80.17	-295.88	-76.13	0.83	0.80	8.98
8,583.00	1.76	295.90	8,570.99	-78.57	-298.34	-74.51	0.45	-0.04	-14.53
8,677.00	1.67	277.44	8,664.95	-77.77	-300.99	-73.66	0.59	-0.10	-19.64
8,771.00	1.54	256.87	8,758.91	-77.88	-303.58	-73.74	0.62	-0.14	-21.88
8,866.00	1.76	258.46	8,853.88	-78.46	-306.25	-74.28	0.24	0.23	1.67
8,960.00	2.20	271.90	8,947.82	-78.69	-309.47	-74.47	0.68	0.47	14.30
9,054.00	1.80	272.87	9,041.76	-78.55	-312.75	-74.29	0.43	-0.43	1.03
9,148.00	1.76	258.02	9,135.72	-78.78	-315.63	-74.48	0.49	-0.04	-15.80
9,243.00	1.89	246.59	9,230.67	-79.70	-318.50	-75.36	0.41	0.14	-12.03
9,337.00	1.45	247.82	9,324.63	-80.77	-321.02	-76.39	0.47	-0.47	1.31
9,432.00	0.84	304.86	9,419.61	-80.83	-322.71	-76.42	1.28	-0.64	60.04
9,526.00	2.11	345.56	9,513.58	-78.76	-323.70	-74.34	1.67	1.35	43.30
9,620.00	1.67	356.63	9,607.53	-75.71	-324.22	-71.29	0.61	-0.47	11.78
9,714.00	0.97	10.17	9,701.50	-73.56	-324.16	-69.14	0.81	-0.74	14.40
9,809.00	0.84	87.77	9,796.50	-72.74	-323.32	-68.33	1.20	-0.14	81.68
9,904.00	0.88	114.23	9,891.49	-73.02	-321.96	-68.63	0.42	0.04	27.85

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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)
9,934.00	0.62	117.74	9,921.48	-73.19	-321.60	-68.80	0.88	-0.87	11.70
10,043.00	0.66	146.31	10,030.48	-73.98	-320.73	-69.61	0.29	0.04	26.21
10,090.00	1.19	345.91	10,077.47	-73.73	-320.70	-69.36	3.88	1.13	-341.28
10,137.00	8.70	348.90	10,124.27	-69.77	-321.51	-65.38	15.98	15.98	6.36
10,184.00	16.75	352.41	10,170.07	-59.55	-323.09	-55.14	17.20	17.13	7.47
10,231.00	23.60	350.21	10,214.16	-43.54	-325.59	-39.11	14.66	14.57	-4.68
10,325.00	31.96	351.80	10,297.26	-0.30	-332.35	4.22	8.93	8.89	1.69
10,419.00	39.30	355.31	10,373.62	54.07	-338.34	58.67	8.10	7.81	3.73
10,514.00	51.91	359.35	10,439.96	121.73	-341.23	126.36	13.61	13.27	4.25
10,608.00	60.88	3.84	10,491.95	199.87	-338.90	204.46	10.33	9.54	4.78
10,702.00	64.84	3.05	10,534.82	283.35	-333.88	287.87	4.28	4.21	-0.84
10,797.00	75.52	359.35	10,567.00	372.56	-332.11	377.04	11.82	11.24	-3.89
10,891.00	86.29	357.68	10,581.83	465.20	-334.53	469.72	11.59	11.46	-1.78
10,985.00	91.08	357.41	10,583.99	559.07	-338.56	563.62	5.10	5.10	-0.29
11,080.00	89.45	357.76	10,583.55	653.98	-342.56	658.58	1.75	-1.72	0.37
11,175.00	89.23	359.52	10,584.65	748.94	-344.81	753.57	1.87	-0.23	1.85
11,269.00	89.63	359.08	10,585.58	842.93	-345.96	847.56	0.63	0.43	-0.47
11,363.00	89.27	359.87	10,586.48	936.92	-346.82	941.55	0.92	-0.38	0.84
11,457.00	89.05	0.05	10,587.86	1,030.91	-346.89	1,035.54	0.30	-0.23	0.19
11,552.00	89.54	0.05	10,589.03	1,125.90	-346.81	1,130.52	0.52	0.52	0.00
11,646.00	87.03	0.14	10,591.84	1,219.85	-346.65	1,224.46	2.67	-2.67	0.10
11,740.00	86.99	0.40	10,596.75	1,313.72	-346.21	1,318.31	0.28	-0.04	0.28
11,834.00	87.30	0.05	10,601.43	1,407.61	-345.84	1,412.18	0.50	0.33	-0.37
11,928.00	87.12	359.70	10,606.00	1,501.49	-346.05	1,506.07	0.42	-0.19	-0.37
12,023.00	87.30	359.70	10,610.63	1,596.38	-346.54	1,600.95	0.19	0.19	0.00
12,117.00	87.34	359.52	10,615.02	1,690.27	-347.18	1,694.84	0.20	0.04	-0.19
12,211.00	87.65	0.05	10,619.13	1,784.18	-347.53	1,788.75	0.65	0.33	0.56
12,305.00	87.56	359.78	10,623.06	1,878.10	-347.67	1,882.66	0.30	-0.10	-0.29
12,400.00	91.52	0.93	10,623.82	1,973.08	-347.08	1,977.62	4.34	4.17	1.21
12,495.00	89.58	1.01	10,622.91	2,068.05	-345.48	2,072.56	2.04	-2.04	0.08
12,589.00	89.32	0.84	10,623.81	2,162.04	-343.96	2,166.52	0.33	-0.28	-0.18
12,684.00	89.05	1.28	10,625.16	2,257.01	-342.20	2,261.46	0.54	-0.28	0.46
12,778.00	88.57	359.52	10,627.12	2,350.98	-341.55	2,355.42	1.94	-0.51	-1.87
12,872.00	87.43	358.64	10,630.40	2,444.91	-343.05	2,449.36	1.53	-1.21	-0.94
12,966.00	86.33	358.20	10,635.51	2,538.74	-345.64	2,543.21	1.26	-1.17	-0.47
13,061.00	88.75	358.55	10,639.59	2,633.60	-348.33	2,638.10	2.57	2.55	0.37
13,155.00	89.93	359.61	10,640.67	2,727.58	-349.84	2,732.09	1.69	1.26	1.13
13,249.00	90.55	0.22	10,640.28	2,821.58	-349.98	2,826.08	0.93	0.66	0.65
13,343.00	89.19	0.31	10,640.49	2,915.58	-349.55	2,920.06	1.45	-1.45	0.10
13,438.00	93.10	1.10	10,638.59	3,010.53	-348.38	3,014.99	4.20	4.12	0.83
13,532.00	91.78	0.22	10,634.59	3,104.44	-347.30	3,108.88	1.69	-1.40	-0.94
13,626.00	90.68	358.99	10,632.57	3,198.41	-347.94	3,202.85	1.76	-1.17	-1.31
13,720.00	90.73	358.20	10,631.42	3,292.37	-350.25	3,296.84	0.84	0.05	-0.84
13,814.00	93.27	358.55	10,628.14	3,386.27	-352.91	3,390.76	2.73	2.70	0.37

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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)
13,909.00	92.31	357.67	10,623.51	3,481.10	-356.04	3,485.63	1.37	-1.01	-0.93
14,003.00	93.76	357.41	10,618.54	3,574.88	-360.07	3,579.45	1.57	1.54	-0.28
14,097.00	93.45	357.32	10,612.63	3,668.60	-364.38	3,673.22	0.34	-0.33	-0.10
14,192.00	91.60	357.59	10,608.44	3,763.41	-368.60	3,768.08	1.97	-1.95	0.28
14,286.00	91.21	359.52	10,606.14	3,857.34	-370.97	3,862.04	2.09	-0.41	2.05
14,380.00	90.59	359.61	10,604.66	3,951.33	-371.68	3,956.02	0.67	-0.66	0.10
14,474.00	91.12	359.08	10,603.26	4,045.31	-372.76	4,050.01	0.80	0.56	-0.56
14,568.00	91.16	358.99	10,601.39	4,139.28	-374.34	4,143.99	0.10	0.04	-0.10
14,663.00	92.35	359.96	10,598.48	4,234.23	-375.21	4,238.94	1.62	1.25	1.02
14,757.00	92.70	359.96	10,594.34	4,328.14	-375.27	4,332.85	0.37	0.37	0.00
14,852.00	92.00	358.82	10,590.44	4,423.05	-376.29	4,427.76	1.41	-0.74	-1.20
14,946.00	91.21	358.03	10,587.81	4,516.98	-378.87	4,521.72	1.19	-0.84	-0.84
15,041.00	91.69	358.38	10,585.40	4,611.90	-381.84	4,616.67	0.63	0.51	0.37
15,135.00	90.95	357.76	10,583.24	4,705.82	-385.01	4,710.62	1.03	-0.79	-0.66
15,229.00	92.13	359.43	10,580.71	4,799.75	-387.31	4,804.58	2.17	1.26	1.78
15,323.00	91.43	358.91	10,577.79	4,893.70	-388.67	4,898.53	0.93	-0.74	-0.55
15,417.00	93.85	0.05	10,573.46	4,987.58	-389.53	4,992.42	2.85	2.57	1.21
15,511.00	94.11	359.78	10,566.94	5,081.36	-389.67	5,086.19	0.40	0.28	-0.29
15,606.00	92.00	359.17	10,561.88	5,176.21	-390.54	5,181.05	2.31	-2.22	-0.64
15,700.00	92.75	359.43	10,557.98	5,270.12	-391.68	5,274.97	0.84	0.80	0.28
15,794.00	90.81	358.91	10,555.06	5,364.06	-393.04	5,368.92	2.14	-2.06	-0.55
15,889.00	90.86	358.82	10,553.68	5,459.04	-394.93	5,463.91	0.11	0.05	-0.09
15,983.00	92.13	359.43	10,551.22	5,552.99	-396.36	5,557.87	1.50	1.35	0.65
16,077.00	90.55	359.61	10,549.03	5,646.96	-397.15	5,651.84	1.69	-1.68	0.19
16,171.00	91.52	359.70	10,547.33	5,740.94	-397.71	5,745.82	1.04	1.03	0.10
16,264.00	89.69	359.43	10,546.35	5,833.93	-398.42	5,838.81	1.99	-1.97	-0.29
16,360.00	89.58	359.61	10,546.96	5,929.92	-399.22	5,934.81	0.22	-0.11	0.19
16,454.00	89.71	359.26	10,547.54	6,023.92	-400.15	6,028.80	0.40	0.14	-0.37
16,549.00	89.41	358.99	10,548.27	6,118.90	-401.60	6,123.80	0.42	-0.32	-0.28
16,643.00	90.68	359.61	10,548.20	6,212.89	-402.75	6,217.80	1.50	1.35	0.66
16,737.00	92.13	359.78	10,545.89	6,306.86	-403.25	6,311.77	1.55	1.54	0.18
16,831.00	90.64	358.82	10,543.62	6,400.82	-404.40	6,405.73	1.89	-1.59	-1.02
16,925.00	91.16	358.55	10,542.14	6,494.79	-406.56	6,499.72	0.62	0.55	-0.29
17,019.00	93.80	359.70	10,538.07	6,588.68	-407.99	6,593.62	3.06	2.81	1.22
17,113.00	93.93	359.78	10,531.74	6,682.46	-408.42	6,687.40	0.16	0.14	0.09
17,207.00	92.88	358.47	10,526.16	6,776.28	-409.85	6,781.23	1.78	-1.12	-1.39
17,301.00	91.74	359.08	10,522.37	6,870.18	-411.86	6,875.15	1.38	-1.21	0.65
17,396.00	90.99	359.17	10,520.10	6,965.14	-413.31	6,970.12	0.80	-0.79	0.09
17,490.00	90.29	358.82	10,519.05	7,059.12	-414.96	7,064.12	0.83	-0.74	-0.37
17,584.00	89.93	358.55	10,518.87	7,153.10	-417.11	7,158.11	0.48	-0.38	-0.29
17,679.00	90.33	358.29	10,518.66	7,248.06	-419.73	7,253.10	0.50	0.42	-0.27
17,773.00	90.86	358.55	10,517.68	7,342.02	-422.32	7,347.09	0.63	0.56	0.28
17,868.00	91.34	358.55	10,515.86	7,436.97	-424.73	7,442.06	0.51	0.51	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Wool Head 20 State Com 507H
Project:	Lea County, New Mexico	TVD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Site:	Wool Head 20 State Com 507H	MD Reference:	3721'GL+26.5'KB @ 3747.50usft (H&P 620)
Well:	#507H	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)	
17,918.00	91.12	358.47	10,514.78	7,486.94	-426.03	7,492.05	0.47	-0.44	-0.16	
Last Aim MWD Survey										
17,981.00	91.12	358.47	10,513.55	7,549.91	-427.71	7,555.03	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	1.56	-0.67	First Aim MWD Survey	
17,918.00	10,514.78	7,486.94	-426.03	Last Aim MWD Survey	
17,981.00	10,513.55	7,549.91	-427.71	Projection to BHL	



BHA Reports

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	2019-10-30 19:30
Lobe/Stage	7/8, 4.0	Depth In (ft)	140.00
Bend Angle	1.50	Date Out	2019-10-31 22:30
Speed (rev/gal)	0.16	Depth Out (ft)	1875.00
Wear Pad OD (in)	8.250	Distance Slid (ft)	0.00
Incident	No	Distance Rotated (ft)	1735.00
Motor Results		% Distance Sliding	0.00%
Average Total ROP (ft/h)	129.32	% Distance Rotating	100.00%
Average Slide ROP (ft/h)	0.00		
Average Rotating ROP (ft/h)	129.32		

BHA Objective
Drill Surface

Bit Details		POOH Reason/Notes
OD (in)	17.500	
Vendor	Baker	
S/N	7046740	Total Depth/Casing Point: TD Surface
Nozzles	9x12's	
Total Flow Area (in²)	0.994	

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: Motor drained good no visible damage, rack in derrick to rerun, bit chipped cutters
		MWD:

Bit Distances		Comments
Bit To Survey: 63.00 ft, Bend: 6.25 ft		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: 7046740, Jets 9x12's TFA: 0.994, Bit Runs: 7

Mud Properties		Parameters	
Type	Water	Flow Rate (gpm)	448.00 - 800.00
WT	8.50	On Bottom Pressure (psi)	1200.00 - 2850.00
VIS	27.00	Off Bottom Pressure (psi)	800.00 - 2200.00
PV	1.00	Stall Pressure (psi)	0.00
YP	2.00	Stalls	0
		NPT	0.0
		Motor RPM	72.00 - 128.00
		Surface RPM	50.00 - 80.00
		Rotating WOB (klbs)	15.00 - 37.00
		Sliding WOB (klbs)	0.00 - 0.00
		Temp (°F)	77.00 - 85.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 17.5 DP606S, Style: PDC, Gauge Length (in): 5.00, Size (in): 17.50	Baker	7046740	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 Box		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortrack 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 x 4 1/2 IF Box), Type: Steel	DTI	DR38029	4 1/2" IF Box	6 5/8" Reg Pin	2.875	8.250		3.90	108.04
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1036.44





Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

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

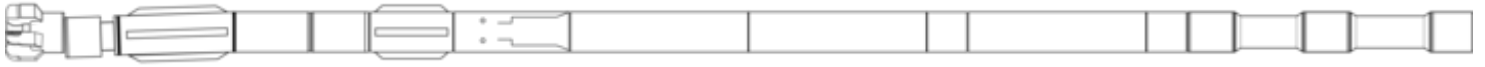
Motor Details		Date/Depth/Distances	Hours
Size(in)	8.00	Date In	2019-11-05 02:15
Lobe/Stage	7/8, 5.9	Depth In (ft)	1875.00
Bend Angle	1.50	Date Out	2019-11-07 12:00
Speed (rev/gal)	0.16	Depth Out (ft)	5260.00
Wear Pad OD (in)	8.250	Distance Slid (ft)	185.00
Incident	No	Distance Rotated (ft)	3200.00
Motor Results		% Distance Sliding	5.47%
Average Total ROP (ft/h)	165.80	% Distance Rotating	94.53%
Average Slide ROP (ft/h)	69.38		
Average Rotating ROP (ft/h)	180.28		

Bit Details		BHA Objective
OD (in)	12.250	Drill Intermediate
Vendor	Baker	
S/N	5306362	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	

Bit Details		POOH Reason/Notes
OD (in)	12.250	
Vendor	Baker	
S/N	5306362	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	

Total Depth/Casing Point: Pooh to run Casing	
--	--

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 12.25 D606X, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5306362	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fix 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800-40-001	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.96	39.21
Stabilizer Description: 12" NM Nortrack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	47.98
UBHO Sub Description: Steel UBHO, Type: NM	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		4.05	52.03
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	82.10
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	112.55
Crossover Sub Description: X-Over (6 5/8 Reg Pin x 4 1/2 XH Box), Type: Steel	DTI	DR39518	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	116.10
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	734.07
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	CTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	736.37
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1664.77





Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

BHA #3 - BHA #3 Intermediate II (Directional)

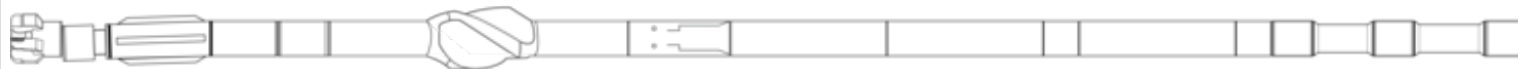
Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-11-14 03:15
Lobe/Stage	7/8, 8.5	Depth In (ft)	5260.00
Bend Angle	1.50	Date Out	2019-11-15 08:00
Speed (rev/gal)	0.26	Depth Out (ft)	8065.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	49.00
Incident	No	Distance Rotated (ft)	2756.00
Motor Results		% Distance Sliding	1.75%
Average Total ROP (ft/h)	297.88	% Distance Rotating	98.25%
Average Slide ROP (ft/h)	73.50		
Average Rotating ROP (ft/h)	314.97		

Bit Details		BHA Objective
OD (in)	8.500	Drill 8.5" Intermediate to KOP
Vendor	Security	
S/N	13266539	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	

Bit Details		POOH Reason/Notes
OD (in)	8.500	
Vendor	Security	
S/N	13266539	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	
		Penetration Rate: SHOULDER ROW WAS GONE BIT DBR / MTR DRAINED FINE AT SURFACE

Motor RPM	72.00 - 128.00
Surface RPM	40.00 - 60.00
Rotating WOB (klbs)	35.00 - 40.00
Sliding WOB (klbs)	20.00 - 20.00
Temp (°F)	104.00 - 104.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Security GT65DRM , Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	Security	13266539	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.27	37.25
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.28
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.24
Drill Collar Description: 6 3/4" 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	77.79
Drill Collar Description: 6 3/4" 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	108.67
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	112.85
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	642.54
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	646.84
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.24





Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

BHA #4 - BHA #4 8.5" hole (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-11-15 08:00
Lobe/Stage	7/8, 8.5	Depth In (ft)	8065.00
Bend Angle	1.50	Date Out	2019-11-16 10:00
Speed (rev/gal)	0.26	Depth Out (ft)	10004.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	69.00
Incident	No	Distance Rotated (ft)	1870.00
Motor Results		% Distance Sliding	3.56%
Average Total ROP (ft/h)	137.68	% Distance Rotating	96.44%
Average Slide ROP (ft/h)	39.43		
Average Rotating ROP (ft/h)	151.62		

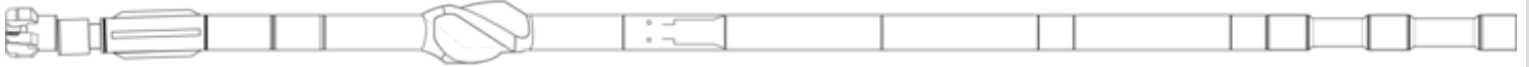
Bit Details		BHA Objective
OD (in)	8.500	Drill 8.5" hole down to KOP
Vendor	REED	
S/N	A268159	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	

Bit Details		POOH Reason/Notes
OD (in)	8.500	
Vendor	REED	
S/N	A268159	
Nozzles	6x12's	
Total Flow Area (in²)	0.663	

Total Depth/Casing Point: POOH at KOP	
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Motor RPM	191.00 - 195.00
Surface RPM	40.00 - 60.00
Rotating WOB (klbs)	40.00 - 40.00
Sliding WOB (klbs)	15.00 - 28.00
Temp (°F)	131.00 - 131.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 REED TKC66, Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	REED	A268159	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.23	37.21
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.24
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.20
Drill Collar Description: 6 3/4" 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	77.75
Drill Collar Description: 6 3/4" 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	108.63
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	112.81
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	642.50
Crossover Sub Description: X-Over (4 1/2 IF Pin 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	646.80
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.20





Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #5 - BHA #5 (Curve) (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.75	Date In	2019-12-14 07:00
Lobe/Stage	7/8, 5.0	Depth In (ft)	10004.00
Bend Angle	2.12	Date Out	2019-12-15 17:20
Speed (rev/gal)	0.28	Depth Out (ft)	10943.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	538.00
Incident	No	Distance Rotated (ft)	401.00
Motor Results		% Distance Sliding	57.29%
Average Total ROP (ft/h)	45.99	% Distance Rotating	42.71%
Average Slide ROP (ft/h)	42.47		
Average Rotating ROP (ft/h)	51.74		

Bit Details		BHA Objective
OD (in)	8.500	BUILD CURVE

Vendor	Halliburton	POOH Reason/Notes
S/N	13243075	Change Bottom Hole Assembly: Curve Section completed. Motor performed well. Yields were 15-21. TF Control was very smooth and controllable. Bit was graded 1-1
Nozzles	6x16's	
Total Flow Area (in²)	1.178	

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

Bit Distances		Comments
Bit To Bend: 4.15 ft, Survey: 52.00 ft, Gamma: 38.00 ft		Directional: Aim Contender: 7/8 5.0 Stg 2.12 FBH SS Mtr, Flow Range: 300-600 GPM, Rev/Gal: 0.28, Max Diff: 1,130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit; Security 8.5" Type: GTD64C , SN:13243075, TFA: 1.178, Jets:6x16's, Bit Runs 0

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.50	On Bottom Pressure (psi)
VIS	72.00	Off Bottom Pressure (psi)
PV	17.00	Stall Pressure (psi)
YP	5.00	Stalls
		NPT

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 SECURITY, Style: PDC, Gauge Length (in): 2.25, Size (in): 8.50	Halliburton	13243075	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 @ 2.12 Fix SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.10	27.10
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	30.15
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	61.56
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	91.76





Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	2019-12-15 17:20
Lobe/Stage	7/8, 8.5	Depth In (ft)	10943.00
Bend Angle	1.75	Date Out	2019-12-21 20:45
Speed (rev/gal)	0.26	Depth Out (ft)	17981.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	562.00
Incident	No	Distance Rotated (ft)	6476.00
Motor Results		% Distance Sliding	7.99%
Average Total ROP (ft/h)	62.51	% Distance Rotating	92.01%
Average Slide ROP (ft/h)	22.94		
Average Rotating ROP (ft/h)	73.52		

Bit Details		BHA Objective
OD (in)	8.500	Drill Lateral
Vendor	Baker	

POOH Reason/Notes	
S/N	5293516
Nozzles	6x22's
Total Flow Area (in²)	2.227
MWD	
Max Downhole Temp (°F)	N/A

Incident Notes	
Directional: N/a	
MWD:	

Bit Distances		Comments
Bit To Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		Directional: Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.40	On Bottom Pressure (psi)
VIS	64.00	Off Bottom Pressure (psi)
PV	14.00	Stall Pressure (psi)
YP	4.00	Stalls
		NPT

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81





Mud Motor Reports

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	2019-10-30 19:30
Size (in)	8.0	Depth In (ft)	140.00
Lobe/Stage	7/8, 4.00	Date Out	2019-10-31 22:30
Bend Angle	1.5	Depth Out (ft)	1875.00
Speed (rev/gal)	0.16	Total Drilled (ft)	1735.00
Wear Pad OD (in)	8.250	Distance Slid (ft)	0.00
Manufacturer	N/A	Distance Rotated (ft)	1735.00
Motor Results		% Distance Sliding	0.00%
Motor Incident	No	% Distance Rotating	100.00%
Average Total ROP (ft/h)	129.32	BHA Parameters	
Average Slide ROP (ft/h)	0.00	Flow Rate (gpm)	448.00 - 800.00
Average Rotating ROP (ft/h)	129.32	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	17.500	On Bottom Pressure (psi)	1200.00 - 2850.00
Vendor	Baker	Off Bottom Pressure (psi)	800.00 - 2200.00
S/N	7046740	NPT	0.0
Nozzles	9x12's	BHA Objective	
Total Flow Area (in²)	0.994	Drill Surface	
Bit Type	PDC		
Bit Distances			
Survey: 63.00 ft, Bend: 6.25 ft			
Mud Properties			
Type	Water		
WT	8.50		
VIS	27.00		
PV	1.00		
YP	2.00		
POOH Reason/Notes			
Total Depth/Casing Point: TD Surface			
Incident Notes			
Directional: Motor drained good no visible damage, rack in derrick to rerun, bit chipped cutters			
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: 7046740, Jets 9x12's TFA: 0.994, Bit Runs: 7			
MWD:			



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 2 (BHA #2 (Intermediate))

Motor Details		Date/Depth/Distances		Hours	
S/N	800-40-001	Date In	2019-11-05 02:15	Downhole Hours	57.75
Size (in)	8.0	Depth In (ft)	1875.00	Drilling/Circulating Hours	22.33
Lobe/Stage	7/8, 5.90	Date Out	2019-11-07 12:00		
Bend Angle	1.5	Depth Out (ft)	5260.00	Circulating Hours	1.92
Speed (rev/gal)	0.16	Total Drilled (ft)	3385.00	Drilling Hours	20.42
Wear Pad OD (in)	8.250	Distance Slid (ft)	185.00	Sliding Hours	2.67
Manufacturer	N/A	Distance Rotated (ft)	3200.00	Rotating Hours	17.75
Motor Results		% Distance Sliding	5.47%	% Hours Rotating	86.94%
Motor Incident	No	% Distance Rotating	94.53%	% Hours Sliding	13.06%
Average Total ROP (ft/h)	165.80	BHA Parameters			
Average Slide ROP (ft/h)	69.38	Flow Rate (gpm)	730.00 - 900.00	Motor RPM	72.00 - 128.00
Average Rotating ROP (ft/h)	180.28	Stalls	0	Surface RPM	40.00 - 70.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	25.00 - 45.00
OD (in)	12.250	On Bottom Pressure (psi)	3200.00 - 4200.00	Sliding WOB (klbs)	20.00 - 25.00
Vendor	Baker	Off Bottom Pressure (psi)	2700.00 - 3800.00	Temp (°F)	100.00 - 140.00
S/N	5306362	NPT	0.0		
Nozzles	6x12's	BHA Objective			
Total Flow Area (in²)	0.663	Drill Intermediate			
Bit Type	PDC				
Bit Distances					
Survey (Bit to Survey): 71.00 ft, Bend: 6.25 ft					
Mud Properties					
Type	Brine				
WT	10.40				
VIS	28.00				
PV	4.00				
YP	1.00				
POOH Reason/Notes					
Total Depth/Casing Point: Pooh to run Casing					
Incident Notes					
Directional: Motor drained as expected					
MWD:					
Comments					
Directional: Aim Contender: 7/8 5.9 Stg 1.50 FBH 12" Stab Mtr, Rev/Gal: 0.16, Max Diff: 1390 psi, Max Operating Torque: 21,870 ft/lbs, Protracted Angle: 1.55 / Bit; Baker Hughes 12.25" Type: D606X , SN:5306362, TFA: 0.663, Jets:6 x 12's, Bit Runs: 3					
MWD:					



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 3 (BHA #3 Intermediate II)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-004	Date In	2019-11-14 03:15	Downhole Hours	28.75
Size (in)	7.0	Depth In (ft)	5260.00	Drilling/Circulating Hours	12.42
Lobe/Stage	7/8, 8.50	Date Out	2019-11-15 08:00		
Bend Angle	1.5	Depth Out (ft)	8065.00	Circulating Hours	3.00
Speed (rev/gal)	0.26	Total Drilled (ft)	2805.00	Drilling Hours	9.42
Wear Pad OD (in)	7.250	Distance Slid (ft)	49.00	Sliding Hours	0.67
Manufacturer	N/A	Distance Rotated (ft)	2756.00	Rotating Hours	8.75
Motor Results		% Distance Sliding	1.75%	% Hours Rotating	92.92%
Motor Incident	No	% Distance Rotating	98.25%	% Hours Sliding	7.08%
Average Total ROP (ft/h)	297.88	BHA Parameters			
Average Slide ROP (ft/h)	73.50	Flow Rate (gpm)	710.00 - 750.00	Motor RPM	72.00 - 128.00
Average Rotating ROP (ft/h)	314.97	Stalls	0	Surface RPM	40.00 - 60.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	35.00 - 40.00
OD (in)	8.500	On Bottom Pressure (psi)	3600.00 - 4150.00	Sliding WOB (klbs)	20.00 - 20.00
Vendor	Security	Off Bottom Pressure (psi)	3000.00 - 3300.00	Temp (°F)	104.00 - 104.00
S/N	13266539	NPT	0.0		
Nozzles	6x12's	BHA Objective			
Total Flow Area (in²)	0.663	Drill 8.5" Intermediate to KOP			
Bit Type	PDC				
Bit Distances					
Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.40 ft, Gamma (Bit to Gamma): 55.00 ft					
Mud Properties					
Type	Water Based				
WT	9.40				
VIS	29.00				
PV	2.00				
YP	1.00				
POOH Reason/Notes					
Penetration Rate: SHOULDER ROW WAS GONE BIT DBR / MTR DRAINED FINE AT SURFACE					
Incident Notes					
Directional: LOSS OF ROP DUE TOO BIT					
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:13266539, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2					
MWD:					



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 4 (BHA #4 8.5" hole)

Motor Details		Date/Depth/Distances	Hours
S/N	700-40-004	Date In	2019-11-15 08:00
Size (in)	7.0	Depth In (ft)	8065.00
Lobe/Stage	7/8, 8.50	Date Out	2019-11-16 10:00
Bend Angle	1.5	Depth Out (ft)	10004.00
Speed (rev/gal)	0.26	Total Drilled (ft)	1939.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	69.00
Manufacturer	N/A	Distance Rotated (ft)	1870.00
Motor Results		% Distance Sliding	3.56%
Motor Incident	No	% Distance Rotating	96.44%
Average Total ROP (ft/h)	137.68	BHA Parameters	
Average Slide ROP (ft/h)	39.43	Flow Rate (gpm)	733.00 - 750.00
Average Rotating ROP (ft/h)	151.62	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	3300.00 - 4150.00
Vendor	REED	Off Bottom Pressure (psi)	2950.00 - 3300.00
S/N	A268159	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): 5.40 ft, Gamma (Bit to Gamma): 55.00 ft			
Mud Properties			
Type	Brine		
WT	9.20		
VIS	28.00		
PV	1.00		
YP	1.00		
POOH Reason/Notes			
Total Depth/Casing Point: POOH at KOP			
Incident Notes			
Directional: On surface motor drained good with no visible damage			
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; REED 8.5" Type: TKC66 , SN:A268159, TFA: 0.663, Jets:6 x 12's, Bit Runs: 1			
MWD:			



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 5 (BHA #5 (Curve))

Motor Details		Date/Depth/Distances		Hours	
S/N	CDM650-017	Date In	2019-12-14 07:00	Downhole Hours	34.33
Size (in)	6.75	Depth In (ft)	10004.00	Drilling/Circulating Hours	22.75
Lobe/Stage	7/8, 5.00	Date Out	2019-12-15 17:20		
Bend Angle	2.12	Depth Out (ft)	10943.00	Circulating Hours	2.33
Speed (rev/gal)	0.28	Total Drilled (ft)	939.00	Drilling Hours	20.42
Wear Pad OD (in)	7.250	Distance Slid (ft)	538.00	Sliding Hours	12.67
Manufacturer	N/A	Distance Rotated (ft)	401.00	Rotating Hours	7.75
Motor Results		% Distance Sliding	57.29%	% Hours Rotating	37.96%
Motor Incident	No	% Distance Rotating	42.71%	% Hours Sliding	62.04%
Average Total ROP (ft/h)	45.99	BHA Parameters			
Average Slide ROP (ft/h)	42.47	Flow Rate (gpm)	350.00 - 575.00	Motor RPM	72.00 - 128.00
Average Rotating ROP (ft/h)	51.74	Stalls	0	Surface RPM	20.00 - 40.00
Bit Details		Stall Pressure (psi)	1129.99	Rotating WOB (klbs)	30.00 - 42.00
OD (in)	8.500	On Bottom Pressure (psi)	3000.00 - 3400.00	Sliding WOB (klbs)	15.00 - 68.00
Vendor	Halliburton	Off Bottom Pressure (psi)	2700.00 - 2950.00	Temp (°F)	122.00 - 147.00
S/N	13243075	NPT	0.0		
Nozzles	6x16's	BHA Objective			
Total Flow Area (in²)	1.178	BUILD CURVE			
Bit Type	PDC				
Bit Distances					
Bend: 4.15 ft, Survey: 52.00 ft, Gamma: 38.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.50				
VIS	72.00				
PV	17.00				
YP	5.00				
POOH Reason/Notes					
Change Bottom Hole Assembly: Curve Section completed. Motor performed well. Yields were 15-21. TF Control was very smooth and controllable. Bit was graded 1-1					
Incident Notes					
Directional: N/a					
MWD:					
Comments					
Directional: Aim Contender: 7/8 5.0 Stg 2.12 FBH SS Mtr, Flow Range: 300-600 GPM, Rev/Gal: 0.28, Max Diff: 1,130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit; Security 8.5" Type: GTD64C , SN:13243075, TFA: 1.178, Jets:6x16's, Bit Runs 0					
MWD:					



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	700-40-033	Date In	2019-12-15 17:20	Downhole Hours	147.42
Size (in)	7.0	Depth In (ft)	10943.00	Drilling/Circulating Hours	116.83
Lobe/Stage	7/8, 8.50	Date Out	2019-12-21 20:45		
Bend Angle	1.75	Depth Out (ft)	17981.00	Circulating Hours	4.25
Speed (rev/gal)	0.26	Total Drilled (ft)	7038.00	Drilling Hours	112.58
Wear Pad OD (in)	7.250	Distance Slid (ft)	562.00	Sliding Hours	24.50
Manufacturer	N/A	Distance Rotated (ft)	6476.00	Rotating Hours	88.08
Motor Results		% Distance Sliding	7.99%	% Hours Rotating	78.24%
Motor Incident	No	% Distance Rotating	92.01%	% Hours Sliding	21.76%
Average Total ROP (ft/h)	62.51	BHA Parameters			
Average Slide ROP (ft/h)	22.94	Flow Rate (gpm)	655.00 - 747.00	Motor RPM	72.00 - 128.00
Average Rotating ROP (ft/h)	73.52	Stalls	0	Surface RPM	30.00 - 50.00
Bit Details		Stall Pressure (psi)	1910.00	Rotating WOB (klbs)	36.00 - 55.00
OD (in)	8.500	On Bottom Pressure (psi)	3800.00 - 4600.00	Sliding WOB (klbs)	28.00 - 65.00
Vendor	Baker	Off Bottom Pressure (psi)	3350.00 - 4300.00	Temp (°F)	147.00 - 191.00
S/N	5293516	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.227	Drill Lateral			
Bit Type	PDC				
Bit Distances					
Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	64.00				
PV	14.00				
YP	4.00				

POOH Reason/Notes

Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Incident Notes

Directional: N/a

MWD:

Comments

Directional: Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2

MWD:



Slide/Rotate Reports

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	10-30	21:30	22:45	10-30	1.25	140.00	263.00	123.00	98.40	N/A	448.00	50.0	15.00	1200.00	800.00	
Rotate	10-30	22:50	23:20	10-30	0.5	263.00	390.00	127.00	254.00	N/A	448.00	50.0	15.00	1200.00	800.00	
Rotate	10-30	23:25	00:10	10-31	0.75	390.00	577.00	187.00	249.33	N/A	750.00	60.0	22.00	2575.00	1700.00	
Rotate	10-31	00:15	00:55	10-31	0.67	577.00	762.00	185.00	277.50	N/A	750.00	60.0	22.00	2575.00	1700.00	
Rotate	10-31	01:00	01:25	10-31	0.42	762.00	853.00	91.00	218.40	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	01:30	01:50	10-31	0.33	853.00	944.00	91.00	273.00	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	01:55	02:20	10-31	0.42	944.00	1036.00	92.00	220.80	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	02:25	02:50	10-31	0.42	1036.00	1043.00	7.00	16.80	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	09:40	10:00	10-31	0.33	1043.00	1130.00	87.00	261.00	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	10:05	10:45	10-31	0.67	1130.00	1224.00	94.00	141.00	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	10:50	11:30	10-31	0.67	1224.00	1319.00	95.00	142.50	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	11:35	12:45	10-31	1.17	1319.00	1413.00	94.00	80.57	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	12:50	14:00	10-31	1.17	1413.00	1507.00	94.00	80.57	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	14:05	14:55	10-31	0.83	1507.00	1602.00	95.00	114.00	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	15:00	16:10	10-31	1.17	1602.00	1696.00	94.00	80.57	N/A	750.00	80.0	22.00	2575.00	1700.00	
Rotate	10-31	16:15	18:00	10-31	1.75	1696.00	1790.00	94.00	53.71	N/A	800.00	80.0	37.00	2850.00	2200.00	
Rotate	10-31	18:05	19:00	10-31	0.92	1790.00	1875.00	85.00	92.73	N/A	800.00	80.0	37.00	2850.00	2200.00	



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	11-05	06:45	08:05	11-05	1.33	1875.00	2041.00	166.00	124.50	N/A	730.00	40.0	25.00	3200.00	2700.00	
Rotate	11-05	08:10	08:15	11-05	0.08	2041.00	2051.00	10.00	120.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Slide	11-05	08:15	08:20	11-05	0.08	2051.00	2071.00	20.00	240.00	90.0	900.00	N/A	20.00	4200.00	3800.00	
Rotate	11-05	08:20	08:40	11-05	0.33	2071.00	2136.00	65.00	195.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-05	08:45	10:00	11-05	1.25	2136.00	2324.00	188.00	150.40	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-05	10:10	10:30	11-05	0.33	2324.00	2379.00	55.00	165.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	04:45	05:00	11-06	0.25	2379.00	2419.00	40.00	160.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	05:05	05:40	11-06	0.58	2419.00	2513.00	94.00	161.14	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	05:45	06:15	11-06	0.5	2513.00	2607.00	94.00	188.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	06:20	07:00	11-06	0.67	2607.00	2701.00	94.00	141.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	07:05	07:30	11-06	0.42	2701.00	2795.00	94.00	225.60	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	07:35	07:55	11-06	0.33	2795.00	2890.00	95.00	285.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	08:00	08:20	11-06	0.33	2890.00	2984.00	94.00	282.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	08:25	08:45	11-06	0.33	2984.00	3078.00	94.00	282.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	13:45	14:05	11-06	0.33	3078.00	3172.00	94.00	282.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	15:05	15:30	11-06	0.42	3172.00	3266.00	94.00	225.60	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	15:35	16:00	11-06	0.42	3266.00	3361.00	95.00	228.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	16:05	16:15	11-06	0.17	3361.00	3371.00	10.00	60.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Slide	11-06	16:15	16:25	11-06	0.17	3371.00	3391.00	20.00	120.00	255.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-06	16:25	16:50	11-06	0.42	3391.00	3455.00	64.00	153.60	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	16:55	17:35	11-06	0.67	3455.00	3549.00	94.00	141.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Rotate	11-06	17:40	17:45	11-06	0.08	3549.00	3559.00	10.00	120.00	N/A	900.00	70.0	25.00	4200.00	3800.00	
Slide	11-06	17:45	18:00	11-06	0.25	3559.00	3579.00	20.00	80.00	255.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-06	18:00	18:20	11-06	0.33	3579.00	3644.00	65.00	195.00	N/A	900.00	70.0	40.00	4200.00	3800.00	
Rotate	11-06	18:25	18:55	11-06	0.5	3644.00	3738.00	94.00	188.00	N/A	900.00	70.0	40.00	4200.00	3800.00	
Rotate	11-06	19:00	19:05	11-06	0.08	3738.00	3749.00	11.00	132.00	N/A	900.00	70.0	40.00	4200.00	3800.00	
Slide	11-06	19:05	19:25	11-06	0.33	3749.00	3774.00	25.00	75.00	260.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-06	19:25	19:45	11-06	0.33	3774.00	3833.00	59.00	177.00	N/A	900.00	70.0	40.00	4200.00	3800.00	
Rotate	11-06	19:50	20:20	11-06	0.5	3833.00	3928.00	95.00	190.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	20:25	20:30	11-06	0.08	3928.00	3938.00	10.00	120.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Slide	11-06	20:30	20:45	11-06	0.25	3938.00	3958.00	20.00	80.00	250.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-06	20:45	21:00	11-06	0.25	3958.00	4022.00	64.00	256.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	21:05	21:25	11-06	0.33	4022.00	4117.00	95.00	285.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	21:30	21:45	11-06	0.25	4117.00	4211.00	94.00	376.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	21:50	22:10	11-06	0.33	4211.00	4305.00	94.00	282.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	22:15	22:20	11-06	0.08	4305.00	4315.00	10.00	120.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Slide	11-06	22:20	22:45	11-06	0.42	4315.00	4345.00	30.00	72.00	240.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-06	22:45	23:00	11-06	0.25	4345.00	4399.00	54.00	216.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	23:05	23:25	11-06	0.33	4399.00	4494.00	95.00	285.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-06	23:30	23:35	11-06	0.08	4494.00	4504.00	10.00	120.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Slide	11-06	23:35	00:00	11-07	0.42	4504.00	4529.00	25.00	60.00	260.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-07	00:00	00:20	11-07	0.33	4529.00	4588.00	59.00	177.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-07	00:25	00:55	11-07	0.5	4588.00	4683.00	95.00	190.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-07	01:00	01:30	11-07	0.5	4683.00	4778.00	95.00	190.00	N/A	805.00	70.0	40.00	4100.00	3500.00	
Rotate	11-07	01:35	02:10	11-07	0.58	4778.00	4872.00	94.00	161.14	N/A	805.00	70.0	45.00	4100.00	3500.00	
Rotate	11-07	02:15	02:50	11-07	0.58	4872.00	4967.00	95.00	162.86	N/A	805.00	70.0	45.00	4100.00	3500.00	
Rotate	11-07	02:55	03:55	11-07	1.0	4967.00	5061.00	94.00	94.00	N/A	805.00	70.0	45.00	4100.00	3500.00	
Rotate	11-07	04:00	04:05	11-07	0.08	5061.00	5071.00	10.00	120.00	N/A	805.00	70.0	45.00	4100.00	3500.00	
Slide	11-07	04:05	04:50	11-07	0.75	5071.00	5096.00	25.00	33.33	280.0	800.00	N/A	25.00	3750.00	3300.00	
Rotate	11-07	04:50	05:25	11-07	0.58	5096.00	5155.00	59.00	101.14	N/A	805.00	70.0	45.00	4100.00	3500.00	
Rotate	11-07	05:40	06:10	11-07	0.5	5155.00	5250.00	95.00	190.00	N/A	805.00	70.0	45.00	4100.00	3500.00	
Rotate	11-07	06:15	06:20	11-07	0.08	5250.00	5260.00	10.00	120.00	N/A	805.00	70.0	45.00	4100.00	3500.00	



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #3 (BHA #3 Intermediate II)

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	11-14	10:45	12:05	11-14	1.33	5260.00	5349.00	89.00	66.75	N/A	710.00	60.0	35.00	3600.00	3000.00	
Rotate	11-14	12:10	12:30	11-14	0.33	5349.00	5444.00	95.00	285.00	N/A	710.00	60.0	35.00	3600.00	3000.00	
Rotate	11-14	12:35	12:50	11-14	0.25	5444.00	5538.00	94.00	376.00	N/A	710.00	60.0	35.00	3600.00	3000.00	
Rotate	11-14	12:55	13:10	11-14	0.25	5538.00	5632.00	94.00	376.00	N/A	710.00	60.0	35.00	3600.00	3000.00	
Rotate	11-14	13:15	13:30	11-14	0.25	5632.00	5727.00	95.00	380.00	N/A	710.00	60.0	35.00	3600.00	3000.00	
Rotate	11-14	13:35	13:50	11-14	0.25	5727.00	5821.00	94.00	376.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	13:55	14:10	11-14	0.25	5821.00	5916.00	95.00	380.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	14:15	14:25	11-14	0.17	5916.00	6010.00	94.00	564.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	14:30	14:40	11-14	0.17	6010.00	6104.00	94.00	564.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	14:45	15:00	11-14	0.25	6104.00	6199.00	95.00	380.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	15:05	15:20	11-14	0.25	6199.00	6293.00	94.00	376.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	15:25	15:40	11-14	0.25	6293.00	6387.00	94.00	376.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	15:45	16:05	11-14	0.33	6387.00	6481.00	94.00	282.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Slide	11-14	16:10	16:20	11-14	0.17	6481.00	6496.00	15.00	90.00	60.0	750.00	N/A	20.00	3650.00	3300.00	
Rotate	11-14	16:20	16:30	11-14	0.17	6496.00	6576.00	80.00	480.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Slide	11-14	16:35	16:45	11-14	0.17	6576.00	6588.00	12.00	72.00	60.0	750.00	N/A	20.00	3650.00	3300.00	
Rotate	11-14	16:45	16:55	11-14	0.17	6588.00	6670.00	82.00	492.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Slide	11-14	17:00	17:10	11-14	0.17	6670.00	6682.00	12.00	72.00	60.0	750.00	N/A	20.00	3650.00	3300.00	
Rotate	11-14	17:10	17:20	11-14	0.17	6682.00	6765.00	83.00	498.00	N/A	710.00	60.0	35.00	3800.00	3200.00	
Slide	11-14	17:25	17:35	11-14	0.17	6765.00	6775.00	10.00	60.00	60.0	750.00	N/A	20.00	3650.00	3300.00	
Rotate	11-14	17:35	18:00	11-14	0.42	6775.00	6859.00	84.00	201.60	N/A	710.00	60.0	35.00	3800.00	3200.00	
Rotate	11-14	20:45	21:00	11-14	0.25	6859.00	6953.00	94.00	376.00	N/A	733.00	60.0	40.00	4100.00	3300.00	
Rotate	11-14	21:05	21:20	11-14	0.25	6953.00	7048.00	95.00	380.00	N/A	733.00	60.0	40.00	4100.00	3300.00	
Rotate	11-14	21:25	21:40	11-14	0.25	7048.00	7142.00	94.00	376.00	N/A	733.00	60.0	40.00	4100.00	3300.00	
Rotate	11-14	21:45	22:05	11-14	0.33	7142.00	7236.00	94.00	282.00	N/A	733.00	60.0	40.00	4100.00	3300.00	
Rotate	11-14	22:10	22:20	11-14	0.17	7236.00	7331.00	95.00	570.00	N/A	733.00	45.0	40.00	4100.00	3300.00	
Rotate	11-14	22:25	22:40	11-14	0.25	7331.00	7395.00	64.00	256.00	N/A	733.00	60.0	40.00	4100.00	3300.00	
Rotate	11-14	22:50	22:55	11-14	0.08	7395.00	7425.00	30.00	360.00	N/A	733.00	40.0	40.00	4100.00	3300.00	
Rotate	11-14	23:00	23:10	11-14	0.17	7425.00	7520.00	95.00	570.00	N/A	733.00	40.0	40.00	4150.00	3300.00	
Rotate	11-14	23:15	23:30	11-14	0.25	7520.00	7614.00	94.00	376.00	N/A	733.00	40.0	40.00	4150.00	3300.00	
Rotate	11-14	23:45	00:00	11-15	0.25	7614.00	7673.00	59.00	236.00	N/A	733.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	00:00	00:05	11-15	0.08	7673.00	7709.00	36.00	432.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	00:50	01:05	11-15	0.25	7709.00	7803.00	94.00	376.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	01:10	01:30	11-15	0.33	7803.00	7898.00	95.00	285.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	01:35	01:55	11-15	0.33	7898.00	7992.00	94.00	282.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	02:00	02:15	11-15	0.25	7992.00	8065.00	73.00	292.00	N/A	750.00	40.0	40.00	4150.00	3300.00	



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #4 (BHA #4 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	11-15	12:15	12:45	11-15	0.5	8065.00	8087.00	22.00	44.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	12:50	13:20	11-15	0.5	8087.00	8182.00	95.00	190.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Slide	11-15	13:25	14:10	11-15	0.75	8182.00	8202.00	20.00	26.67	340.0	750.00	N/A	15.00	3400.00	3100.00	
Rotate	11-15	14:10	14:35	11-15	0.42	8202.00	8276.00	74.00	177.60	N/A	750.00	40.0	40.00	4150.00	3300.00	
Rotate	11-15	14:40	14:55	11-15	0.25	8276.00	8370.00	94.00	376.00	N/A	750.00	40.0	40.00	4150.00	3300.00	
Slide	11-15	15:00	15:30	11-15	0.5	8370.00	8394.00	24.00	48.00	20.0	750.00	N/A	15.00	3400.00	3100.00	
Rotate	11-15	15:30	15:45	11-15	0.25	8394.00	8464.00	70.00	280.00	N/A	750.00	60.0	40.00	4150.00	3300.00	
Rotate	11-15	15:50	16:10	11-15	0.33	8464.00	8558.00	94.00	282.00	N/A	750.00	60.0	40.00	4150.00	3300.00	
Rotate	11-15	16:15	16:40	11-15	0.42	8558.00	8653.00	95.00	228.00	N/A	750.00	60.0	40.00	4150.00	3300.00	
Rotate	11-15	16:45	17:10	11-15	0.42	8653.00	8747.00	94.00	225.60	N/A	750.00	60.0	40.00	4150.00	3300.00	
Rotate	11-15	17:45	18:10	11-15	0.42	8747.00	8841.00	94.00	225.60	N/A	750.00	60.0	40.00	4000.00	3200.00	
Rotate	11-15	18:15	19:05	11-15	0.83	8841.00	8936.00	95.00	114.00	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	19:10	19:45	11-15	0.58	8936.00	9030.00	94.00	161.14	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	19:50	20:35	11-15	0.75	9030.00	9124.00	94.00	125.33	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	20:50	21:25	11-15	0.58	9124.00	9218.00	94.00	161.14	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	21:30	22:10	11-15	0.67	9218.00	9313.00	95.00	142.50	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	22:15	22:55	11-15	0.67	9313.00	9407.00	94.00	141.00	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-15	23:00	23:05	11-15	0.08	9407.00	9417.00	10.00	120.00	N/A	735.00	40.0	40.00	3400.00	2950.00	
Slide	11-15	23:05	23:35	11-15	0.5	9417.00	9442.00	25.00	50.00	50.0	733.00	N/A	28.00	3300.00	3000.00	
Rotate	11-15	23:35	00:00	11-16	0.42	9442.00	9502.00	60.00	144.00	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	00:05	00:50	11-16	0.75	9502.00	9596.00	94.00	125.33	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	00:55	01:45	11-16	0.83	9596.00	9690.00	94.00	112.80	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	01:50	02:30	11-16	0.67	9690.00	9784.00	94.00	141.00	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	02:35	03:20	11-16	0.75	9784.00	9879.00	95.00	126.67	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	03:25	04:20	11-16	0.92	9879.00	9974.00	95.00	103.64	N/A	735.00	40.0	40.00	3400.00	2950.00	
Rotate	11-16	04:25	04:45	11-16	0.33	9974.00	10004.00	30.00	90.00	N/A	735.00	40.0	40.00	3400.00	2950.00	



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	12-14	13:45	14:00	12-14	0.25	10004.00	10012.00	8.00	32.00	N/A	575.00	40.0	40.00	3400.00	2950.00	
Rotate	12-14	14:50	15:00	12-14	0.17	10012.00	10016.00	4.00	24.00	N/A	575.00	40.0	40.00	3400.00	2950.00	
Rotate	12-14	15:30	16:45	12-14	1.25	10016.00	10069.00	53.00	42.40	N/A	350.00	30.0	30.00	3200.00	2700.00	
Slide	12-14	16:45	17:40	12-14	0.92	10069.00	10095.00	26.00	28.36	0.0	575.00	N/A	15.00	3000.00	2700.00	
Slide	12-14	17:45	18:50	12-14	1.08	10095.00	10142.00	47.00	43.38	350.0	575.00	N/A	15.00	3000.00	2700.00	
Slide	12-14	18:55	20:10	12-14	1.25	10142.00	10189.00	47.00	37.60	15.0	575.00	N/A	15.00	3000.00	2700.00	
Slide	12-14	20:15	20:55	12-14	0.67	10189.00	10203.00	14.00	21.00	10.0	575.00	N/A	15.00	3000.00	2700.00	
Slide	12-14	21:00	22:05	12-14	1.08	10203.00	10236.00	33.00	30.46	15.0	575.00	N/A	40.00	3000.00	2700.00	
Rotate	12-14	22:10	22:35	12-14	0.42	10236.00	10253.00	17.00	40.80	N/A	350.00	20.0	35.00	3200.00	2700.00	
Slide	12-14	22:35	23:20	12-14	0.75	10253.00	10283.00	30.00	40.00	10.0	575.00	N/A	52.00	3100.00	2700.00	
Rotate	12-14	23:25	00:00	12-15	0.58	10283.00	10313.00	30.00	51.43	N/A	350.00	20.0	40.00	3200.00	2700.00	
Slide	12-15	00:00	01:15	12-15	1.25	10313.00	10377.00	64.00	51.20	25.0	575.00	N/A	52.00	3100.00	2700.00	
Rotate	12-15	01:20	02:20	12-15	1.0	10377.00	10429.00	52.00	52.00	N/A	350.00	20.0	40.00	3200.00	2700.00	
Slide	12-15	02:20	03:10	12-15	0.83	10429.00	10471.00	42.00	50.40	15.0	575.00	N/A	52.00	3100.00	2700.00	
Rotate	12-15	03:15	03:30	12-15	0.25	10471.00	10486.00	15.00	60.00	N/A	350.00	25.0	42.00	3200.00	2700.00	
Slide	12-15	03:30	05:00	12-15	1.5	10486.00	10566.00	80.00	53.33	35.0	575.00	N/A	68.00	3100.00	2700.00	
Rotate	12-15	05:05	06:10	12-15	1.08	10566.00	10629.00	63.00	58.15	N/A	575.00	25.0	42.00	3200.00	2700.00	
Slide	12-15	06:10	06:50	12-15	0.67	10629.00	10660.00	31.00	46.50	0.0	575.00	N/A	68.00	3100.00	2700.00	
Rotate	12-15	06:55	07:50	12-15	0.92	10660.00	10716.00	56.00	61.09	N/A	575.00	25.0	42.00	3200.00	2700.00	
Slide	12-15	07:50	08:35	12-15	0.75	10716.00	10754.00	38.00	50.67	0.0	575.00	N/A	68.00	3100.00	2700.00	
Rotate	12-15	08:40	09:00	12-15	0.33	10754.00	10780.00	26.00	78.00	N/A	575.00	25.0	42.00	3200.00	2700.00	
Slide	12-15	09:00	10:10	12-15	1.17	10780.00	10836.00	56.00	48.00	0.0	575.00	N/A	68.00	3100.00	2700.00	
Rotate	12-15	10:10	10:30	12-15	0.33	10836.00	10849.00	13.00	39.00	N/A	350.00	25.0	42.00	3200.00	2700.00	
Rotate	12-15	10:35	11:10	12-15	0.58	10849.00	10880.00	31.00	53.14	N/A	575.00	25.0	42.00	3200.00	2700.00	
Slide	12-15	11:10	11:55	12-15	0.75	10880.00	10910.00	30.00	40.00	45.0	575.00	N/A	68.00	3100.00	2700.00	
Rotate	12-15	11:55	12:30	12-15	0.58	10910.00	10943.00	33.00	56.57	N/A	575.00	25.0	42.00	3200.00	2700.00	



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
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	12-15	23:10	23:20	12-15	0.17	10943.00	10954.00	11.00	66.00	N/A	655.00	30.0	36.00	3800.00	3350.00	
Rotate	12-15	23:25	00:00	12-16	0.58	10954.00	10998.00	44.00	75.43	N/A	697.00	40.0	39.00	4050.00	3600.00	
Rotate	12-16	00:00	00:35	12-16	0.58	10998.00	11048.00	50.00	85.71	N/A	697.00	40.0	39.00	4050.00	3600.00	
Rotate	12-16	00:40	00:50	12-16	0.17	11048.00	11058.00	10.00	60.00	N/A	697.00	40.0	39.00	4050.00	3600.00	
Slide	12-16	00:50	01:10	12-16	0.33	11058.00	11065.00	7.00	21.00	135.0	697.00	N/A	42.00	3950.00	3600.00	
Slide	12-16	01:15	01:40	12-16	0.42	11065.00	11080.00	15.00	36.00	135.0	697.00	N/A	42.00	3950.00	3600.00	
Rotate	12-16	01:40	02:30	12-16	0.83	11080.00	11143.00	63.00	75.60	N/A	697.00	40.0	39.00	4050.00	3600.00	
Rotate	12-16	02:35	02:40	12-16	0.08	11143.00	11153.00	10.00	120.00	N/A	697.00	40.0	39.00	4050.00	3600.00	
Slide	12-16	02:45	03:25	12-16	0.67	11153.00	11173.00	20.00	30.00	100.0	747.00	N/A	28.00	4300.00	4050.00	
Rotate	12-16	03:25	04:15	12-16	0.83	11173.00	11238.00	65.00	78.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	04:20	05:15	12-16	0.92	11238.00	11332.00	94.00	102.55	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	05:20	05:30	12-16	0.17	11332.00	11342.00	10.00	60.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Slide	12-16	05:30	05:45	12-16	0.25	11342.00	11348.00	6.00	24.00	130.0	747.00	N/A	28.00	4300.00	4050.00	
Slide	12-16	05:45	06:20	12-16	0.58	11348.00	11362.00	14.00	24.00	130.0	747.00	N/A	28.00	4300.00	4050.00	
Rotate	12-16	06:20	07:00	12-16	0.67	11362.00	11426.00	64.00	96.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	07:05	08:00	12-16	0.92	11426.00	11520.00	94.00	102.55	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	08:05	09:05	12-16	1.0	11520.00	11615.00	95.00	95.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	09:10	09:15	12-16	0.08	11615.00	11625.00	10.00	120.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Slide	12-16	09:15	09:50	12-16	0.58	11625.00	11645.00	20.00	34.29	180.0	747.00	N/A	28.00	4300.00	4050.00	
Rotate	12-16	09:50	10:35	12-16	0.75	11645.00	11709.00	64.00	85.33	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	10:40	11:50	12-16	1.17	11709.00	11803.00	94.00	80.57	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	11:55	12:50	12-16	0.92	11803.00	11897.00	94.00	102.55	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	12:55	13:55	12-16	1.0	11897.00	11991.00	94.00	94.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	14:10	14:50	12-16	0.67	11991.00	12086.00	95.00	142.50	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	14:55	16:00	12-16	1.08	12086.00	12180.00	94.00	86.77	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	16:05	17:20	12-16	1.25	12180.00	12274.00	94.00	75.20	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	18:05	19:05	12-16	1.0	12274.00	12368.00	94.00	94.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	19:10	19:25	12-16	0.25	12368.00	12378.00	10.00	40.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Slide	12-16	19:25	20:00	12-16	0.58	12378.00	12393.00	15.00	25.71	20.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-16	20:00	21:05	12-16	1.08	12393.00	12463.00	70.00	64.62	N/A	747.00	50.0	40.00	4600.00	4050.00	
Rotate	12-16	21:10	21:20	12-16	0.17	12463.00	12474.00	11.00	66.00	N/A	747.00	50.0	40.00	4600.00	4050.00	
Slide	12-16	21:20	22:10	12-16	0.83	12474.00	12497.00	23.00	27.60	180.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-16	22:10	23:00	12-16	0.83	12497.00	12558.00	61.00	73.20	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-16	23:05	00:00	12-17	0.92	12558.00	12630.00	72.00	78.55	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	00:00	00:15	12-17	0.25	12630.00	12652.00	22.00	88.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	00:20	00:30	12-17	0.17	12652.00	12664.00	12.00	72.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	00:30	01:15	12-17	0.75	12664.00	12683.00	19.00	25.33	180.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	01:15	02:05	12-17	0.83	12683.00	12747.00	64.00	76.80	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	02:10	02:20	12-17	0.17	12747.00	12759.00	12.00	72.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	02:20	02:50	12-17	0.5	12759.00	12774.00	15.00	30.00	220.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	02:50	03:35	12-17	0.75	12774.00	12841.00	67.00	89.33	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	03:40	03:50	12-17	0.17	12841.00	12866.00	25.00	150.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	03:50	04:25	12-17	0.58	12866.00	12880.00	14.00	24.00	190.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	04:25	05:15	12-17	0.83	12880.00	12935.00	55.00	66.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	05:20	06:20	12-17	1.0	12935.00	13029.00	94.00	94.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	06:25	06:55	12-17	0.5	13029.00	13049.00	20.00	40.00	30.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	06:55	07:30	12-17	0.58	13049.00	13124.00	75.00	128.57	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	07:35	07:45	12-17	0.17	13124.00	13144.00	20.00	120.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	07:45	08:15	12-17	0.5	13144.00	13164.00	20.00	40.00	30.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	08:15	08:35	12-17	0.33	13164.00	13218.00	54.00	162.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	08:40	09:20	12-17	0.67	13218.00	13312.00	94.00	141.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	09:25	09:50	12-17	0.42	13312.00	13378.00	66.00	158.40	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	09:50	10:30	12-17	0.67	13378.00	13407.00	29.00	43.50	355.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	10:35	11:15	12-17	0.67	13407.00	13501.00	94.00	141.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	11:20	12:00	12-17	0.67	13501.00	13595.00	94.00	141.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	12:05	12:10	12-17	0.08	13595.00	13609.00	14.00	168.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	12:10	12:25	12-17	0.25	13609.00	13624.00	15.00	60.00	355.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	12:25	13:30	12-17	1.08	13624.00	13689.00	65.00	60.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	13:35	13:40	12-17	0.08	13689.00	13699.00	10.00	120.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	13:40	14:35	12-17	0.92	13699.00	13739.00	40.00	43.64	0.0	747.00	N/A	50.00	4500.00	4050.00	
Rotate	12-17	14:35	15:10	12-17	0.58	13739.00	13783.00	44.00	75.43	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	15:15	16:00	12-17	0.75	13783.00	13877.00	94.00	125.33	N/A	747.00	40.0	50.00	4600.00	4050.00	
Rotate	12-17	16:05	16:25	12-17	0.33	13877.00	13925.00	48.00	144.00	N/A	747.00	40.0	50.00	4600.00	4050.00	
Slide	12-17	16:25	17:05	12-17	0.67	13925.00	13940.00	15.00	22.50	0.0	747.00	N/A	50.00	4500.00	4050.00	

Rotate	12-17	17:05	17:25	12-17	0.33	13940.00	13972.00	32.00	96.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-17	18:00	18:40	12-17	0.67	13972.00	14066.00	94.00	141.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-17	18:45	19:45	12-17	1.0	14066.00	14160.00	94.00	94.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-17	19:50	20:00	12-17	0.17	14160.00	14170.00	10.00	60.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Slide	12-17	20:00	20:50	12-17	0.83	14170.00	14192.00	22.00	26.40	135.0	747.00	N/A	50.00	4500.00	4050.00
Rotate	12-17	20:50	21:40	12-17	0.83	14192.00	14255.00	63.00	75.60	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-17	21:45	21:55	12-17	0.17	14255.00	14267.00	12.00	72.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Slide	12-17	21:55	22:45	12-17	0.83	14267.00	14289.00	22.00	26.40	100.0	747.00	N/A	50.00	4500.00	4050.00
Rotate	12-17	22:45	23:35	12-17	0.83	14289.00	14349.00	60.00	72.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-17	23:40	00:00	12-18	0.33	14349.00	14375.00	26.00	78.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-18	00:00	01:10	12-18	1.17	14375.00	14443.00	68.00	58.29	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-18	01:15	02:35	12-18	1.33	14443.00	14537.00	94.00	70.50	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-18	02:40	03:50	12-18	1.17	14537.00	14631.00	94.00	80.57	N/A	747.00	40.0	50.00	4600.00	4050.00
Rotate	12-18	03:55	04:05	12-18	0.17	14631.00	14644.00	13.00	78.00	N/A	747.00	40.0	50.00	4600.00	4050.00
Slide	12-18	04:05	04:25	12-18	0.33	14644.00	14654.00	10.00	30.00	20.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-18	04:25	05:40	12-18	1.25	14654.00	14726.00	72.00	57.60	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	05:45	07:05	12-18	1.33	14726.00	14820.00	94.00	70.50	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	07:10	08:40	12-18	1.5	14820.00	14915.00	95.00	63.33	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	08:45	10:00	12-18	1.25	14915.00	15009.00	94.00	75.20	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	10:05	10:15	12-18	0.17	15009.00	15019.00	10.00	60.00	N/A	747.00	40.0	50.00	4600.00	4200.00
Slide	12-18	10:15	11:15	12-18	1.0	15019.00	15034.00	15.00	15.00	30.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-18	11:15	12:25	12-18	1.17	15034.00	15104.00	70.00	60.00	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	12:30	13:45	12-18	1.25	15104.00	15198.00	94.00	75.20	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	13:50	14:00	12-18	0.17	15198.00	15208.00	10.00	60.00	N/A	747.00	40.0	50.00	4600.00	4200.00
Slide	12-18	14:00	15:20	12-18	1.33	15208.00	15228.00	20.00	15.00	60.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-18	15:20	16:15	12-18	0.92	15228.00	15292.00	64.00	69.82	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	16:50	17:55	12-18	1.08	15292.00	15386.00	94.00	86.77	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	18:00	18:10	12-18	0.17	15386.00	15396.00	10.00	60.00	N/A	747.00	40.0	50.00	4600.00	4200.00
Slide	12-18	18:10	19:10	12-18	1.0	15396.00	15413.00	17.00	17.00	30.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-18	19:10	20:20	12-18	1.17	15413.00	15480.00	67.00	57.43	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	20:25	22:15	12-18	1.83	15480.00	15574.00	94.00	51.27	N/A	747.00	40.0	50.00	4600.00	4200.00
Rotate	12-18	22:20	22:35	12-18	0.25	15574.00	15585.00	11.00	44.00	N/A	747.00	40.0	50.00	4600.00	4200.00
Slide	12-18	22:35	00:00	12-19	1.42	15585.00	15605.00	20.00	14.12	160.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-19	00:00	01:15	12-19	1.25	15605.00	15669.00	64.00	51.20	N/A	747.00	40.0	55.00	4600.00	4200.00
Rotate	12-19	01:20	02:00	12-19	0.67	15669.00	15710.00	41.00	61.50	N/A	747.00	40.0	55.00	4600.00	4200.00
Slide	12-19	02:00	02:50	12-19	0.83	15710.00	15721.00	11.00	13.20	170.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-19	02:50	03:40	12-19	0.83	15721.00	15763.00	42.00	50.40	N/A	747.00	40.0	55.00	4600.00	4200.00
Rotate	12-19	03:45	04:05	12-19	0.33	15763.00	15785.00	22.00	66.00	N/A	747.00	40.0	55.00	4600.00	4200.00
Slide	12-19	04:05	04:45	12-19	0.67	15785.00	15795.00	10.00	15.00	150.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-19	04:45	05:55	12-19	1.17	15795.00	15857.00	62.00	53.14	N/A	747.00	50.0	55.00	4600.00	4200.00
Rotate	12-19	06:00	07:10	12-19	1.17	15857.00	15952.00	95.00	81.43	N/A	747.00	50.0	55.00	4600.00	4200.00
Rotate	12-19	07:15	08:00	12-19	0.75	15952.00	16006.00	54.00	72.00	N/A	747.00	50.0	55.00	4600.00	4200.00
Slide	12-19	08:00	09:00	12-19	1.0	16006.00	16021.00	15.00	15.00	150.0	747.00	N/A	55.00	4400.00	4200.00
Rotate	12-19	09:00	09:30	12-19	0.5	16021.00	16046.00	25.00	50.00	N/A	747.00	50.0	55.00	4600.00	4200.00
Rotate	12-19	09:35	11:10	12-19	1.58	16046.00	16140.00	94.00	59.37	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	11:15	12:50	12-19	1.58	16140.00	16234.00	94.00	59.37	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	12:55	13:00	12-19	0.08	16234.00	16244.00	10.00	120.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-19	13:00	14:00	12-19	1.0	16244.00	16261.00	17.00	17.00	180.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-19	14:00	15:15	12-19	1.25	16261.00	16327.00	66.00	52.80	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	15:20	17:00	12-19	1.67	16327.00	16423.00	96.00	57.60	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	17:05	18:15	12-19	1.17	16423.00	16517.00	94.00	80.57	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	18:20	19:25	12-19	1.08	16517.00	16612.00	95.00	87.69	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	19:30	19:40	12-19	0.17	16612.00	16625.00	13.00	78.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-19	19:40	20:10	12-19	0.5	16625.00	16640.00	15.00	30.00	40.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-19	20:10	20:55	12-19	0.75	16640.00	16706.00	66.00	88.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	21:00	21:55	12-19	0.92	16706.00	16800.00	94.00	102.55	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	22:00	23:00	12-19	1.0	16800.00	16894.00	94.00	94.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-19	23:05	23:10	12-19	0.08	16894.00	16906.00	12.00	144.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-19	23:10	23:35	12-19	0.42	16906.00	16920.00	14.00	33.60	30.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-19	23:35	00:00	12-20	0.42	16920.00	16946.00	26.00	62.40	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	00:00	00:25	12-20	0.42	16946.00	16988.00	42.00	100.80	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	00:30	00:40	12-20	0.17	16988.00	17002.00	14.00	84.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-20	00:40	01:00	12-20	0.33	17002.00	17014.00	12.00	36.00	30.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-20	01:00	01:45	12-20	0.75	17014.00	17082.00	68.00	90.67	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	01:50	02:50	12-20	1.0	17082.00	17176.00	94.00	94.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	02:55	03:05	12-20	0.17	17176.00	17192.00	16.00	96.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-20	03:05	04:05	12-20	1.0	17192.00	17205.00	13.00	13.00	180.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-20	04:05	05:10	12-20	1.08	17205.00	17270.00	65.00	60.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	05:15	05:25	12-20	0.17	17270.00	17279.00	9.00	54.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-20	05:25	07:00	12-20	1.58	17279.00	17291.00	12.00	7.58	150.0	695.00	N/A	65.00	4300.00	4050.00
Rotate	12-20	07:00	08:40	12-20	1.67	17291.00	17364.00	73.00	43.80	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	08:45	09:00	12-20	0.25	17364.00	17376.00	12.00	48.00	N/A	695.00	50.0	55.00	4400.00	4050.00
Slide	12-20	09:00	09:50	12-20	0.83	17376.00	17386.00	10.00	12.00	180.0	699.00	N/A	60.00	4050.00	4300.00
Rotate	12-20	09:50	11:05	12-20	1.25	17386.00	17459.00	73.00	58.40	N/A	695.00	50.0	55.00	4400	

Rotate	12-20	13:25	15:10	12-20	1.75	17553.00	17647.00	94.00	53.71	N/A	695.00	50.0	55.00	4400.00	4050.00
Rotate	12-20	15:15	18:15	12-20	3.0	17647.00	17742.00	95.00	31.67	N/A	695.00	40.0	55.00	4600.00	4300.00
Rotate	12-20	18:20	21:25	12-20	3.08	17742.00	17836.00	94.00	30.49	N/A	695.00	40.0	55.00	4600.00	4300.00
Rotate	12-20	21:30	23:20	12-20	1.83	17836.00	17931.00	95.00	51.82	N/A	695.00	40.0	55.00	4600.00	4300.00
Rotate	12-20	23:25	00:00	12-21	0.58	17931.00	17963.00	32.00	54.86	N/A	695.00	40.0	55.00	4600.00	4300.00
Rotate	12-21	00:00	00:20	12-21	0.33	17963.00	17981.00	18.00	54.00	N/A	695.00	40.0	55.00	4600.00	4300.00



Daily Reports

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Oct 29 00:00 - 23:59 (Day 1 of 23)

Billing: \$1,500.00 (\$175,927.74 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
Joel Johnson	Directional Driller
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	10-29	00:00	02:00	10-29			Standby while Rig Move
Standby	15	10-29	02:00	23:55	10-29			Standby while Rigging Up

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Oct 30 00:00 - 23:59 (Day 2 of 23)

Billing: \$19,587.50 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	140.00	Downhole Hours	4.50	Rotating WOB (klbs)	15.00 - 15.00
Bit Depth (ft)	390.00	Drilling Hours	1.75	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	390.00	Hours Circulating	0.00	Rotating SPM	140.00 - 140.00
Total Distance (ft)	250.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	250.00	Hours Rotating	1.75	Motor RPM	72.00 - 128.00
Distance Slid (ft)	0.00			Surface RPM	50.00 - 50.00
Inclination In	0.97			Flow Rate (gpm)	448.00 - 448.00
Inclination Out	1.14			On Bottom Pressure (psi)	1200.00 - 1200.00
Azimuth In	336.85	% Hours Rotating	100%	Off Bottom Pressure (psi)	800.00 - 800.00
Azimuth Out	319.10	% Hours Sliding	0%		
AVG Total ROP (ft/h)	174.80	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	174.80	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

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

BHA #1 - BHA #1 Surface

Date In: Oct 30, 2019, 19:30 Date Out: Oct 31, 2019, 22:30

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	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: 7046740, Jets 9x12's TFA: 0.994, Bit Runs: 7
Vendor	Baker	Lobe/Stage	7/8, 4.0	
S/N	7046740	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	1.75	Bit Distances		POOH Reason Total Depth/Casing Point: TD Surface
Total Drilled for Day (ft)	250.00	Survey: 63.00 ft, Bend: 6.25 ft		
Drilling Hours for BHA	13.42			
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: Baker 17.5 DP606S, Style: PDC, Gauge Length (in): 5.00, Size (in): 17.50	Baker	7046740	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 Box		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortrack 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 x 4 1/2 IF Box), Type: Steel	DTI	DR38029	4 1/2" IF Box	6 5/8" Reg Pin	2.875	8.250		3.90	108.04
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1036.44

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	10-30	00:00	02:30	10-30			Standby while Rigging Up
Standby	15	10-30	02:30	19:30	10-30			Standby while P/U HWDP, DC, DP rack in derrick

Change BHA	6	10-30	19:30	21:30	10-30			P/U BHA # 1
Rotary Drill	1	10-30	21:30	22:45	10-30	140.00	263.00	Pressure On (psi): 1200.00, Pressure Off (psi): 800.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 448.00, Strokes Per Minute: 140.00
Survey	46	10-30	22:45	22:50	10-30	263.00	263.00	Inclination (°): 0.970, Azimuth (°): 336.850, TVD (ft): 199.99, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 200.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-30	22:50	23:20	10-30	263.00	390.00	Pressure On (psi): 1200.00, Pressure Off (psi): 800.00, Weight On Bit (klbs): 15.00, Surface RPM: 50, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 448.00, Strokes Per Minute: 140.00
Survey	46	10-30	23:20	23:25	10-30	390.00	390.00	Inclination (°): 1.140, Azimuth (°): 319.100, TVD (ft): 326.97, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 327.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-30	23:25	00:10	10-31	390.00	577.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Thursday, Oct 31 00:00 - 23:59 (Day 3 of 23)

Billing: \$6,100.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	390.00	Downhole Hours	22.50	Rotating WOB (klbs)	22.00 - 37.00
Bit Depth (ft)	1875.00	Drilling Hours	11.67	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	1875.00	Hours Circulating	0.92	Rotating SPM	231.00 - 249.00
Total Distance (ft)	1485.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	1485.00	Hours Rotating	11.67	Motor RPM	72.00 - 128.00
Distance Slid (ft)	0.00			Surface RPM	60.00 - 80.00
Inclination In	1.10			Flow Rate (gpm)	750.00 - 800.00
Inclination Out	3.08			On Bottom Pressure (psi)	2575.00 - 2850.00
Azimuth In	307.32	% Hours Rotating	100%	Off Bottom Pressure (psi)	1700.00 - 2200.00
Azimuth Out	265.49	% Hours Sliding	0%		
AVG Total ROP (ft/h)	127.29	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	127.29	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

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

BHA #1 - BHA #1 Surface

Date In: Oct 30, 2019, 19:30 Date Out: Oct 31, 2019, 22:30

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	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: 7046740, Jets 9x12's TFA: 0.994, Bit Runs: 7
Vendor	Baker	Lobe/Stage	7/8, 4.0	
S/N	7046740	Bend Angle	1.5	
Nozzles	9x12's	Speed (rev/gal)	0.16	
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.250	
Drilling Hours for Day	11.67	Bit Distances		MWD Comments
Total Drilled for Day (ft)	1485.00	Survey: 63.00 ft, Bend: 6.25 ft		
Drilling Hours for BHA	13.42			
Total Drilled for BHA (ft)	1735.00			
				POOH Reason
				Total Depth/Casing Point: TD Surface

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 17.5 DP606S, Style: PDC, Gauge Length (in): 5.00, Size (in): 17.50	Baker	7046740	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 Box		8.000		30.19	31.94
Stabilizer Description: 17" Steel Nortrack 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 x 4 1/2 IF Box), Type: Steel	DTI	DR38029	4 1/2" IF Box	6 5/8" Reg Pin	2.875	8.250		3.90	108.04
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1036.44

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	10-30	23:25	00:10	10-31	390.00	577.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00

Survey	46	10-31	00:10	00:15	10-31	577.00	577.00	Inclination (°): 1.100, Azimuth (°): 307.320, TVD (ft): 513.93, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 514.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	00:15	00:55	10-31	577.00	762.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	00:55	01:00	10-31	762.00	762.00	Inclination (°): 1.490, Azimuth (°): 283.940, TVD (ft): 698.89, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 699.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	01:00	01:25	10-31	762.00	853.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	01:25	01:30	10-31	853.00	853.00	Inclination (°): 1.360, Azimuth (°): 286.140, TVD (ft): 789.86, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 790.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	01:30	01:50	10-31	853.00	944.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	01:50	01:55	10-31	944.00	944.00	Inclination (°): 1.230, Azimuth (°): 278.410, TVD (ft): 880.84, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 881.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	01:55	02:20	10-31	944.00	1036.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	02:20	02:25	10-31	1036.00	1036.00	Inclination (°): 1.140, Azimuth (°): 284.210, TVD (ft): 972.82, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 973.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	02:25	02:50	10-31	1036.00	1043.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Other	16	10-31	02:50	08:00	10-31			Work on cellar trash pump
Other	16	10-31	08:00	08:35	10-31			Stand pipe transducer frozen up.
Rig Repair	14	10-31	08:35	09:40	10-31			Work on Pumps
Rotary Drill	1	10-31	09:40	10:00	10-31	1043.00	1130.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	10:00	10:05	10-31	1130.00	1130.00	Inclination (°): 1.140, Azimuth (°): 283.770, TVD (ft): 1066.80, Dogleg (°/100 ft): 0.01, Sensor Depth (ft): 1067.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	10:05	10:45	10-31	1130.00	1224.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	10:45	10:50	10-31	1224.00	1224.00	Inclination (°): 1.190, Azimuth (°): 267.860, TVD (ft): 1160.78, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 1161.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	10:50	11:30	10-31	1224.00	1319.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	11:30	11:35	10-31	1319.00	1319.00	Inclination (°): 1.490, Azimuth (°): 260.390, TVD (ft): 1255.75, Dogleg (°/100 ft): 0.36, Sensor Depth (ft): 1256.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	11:35	12:45	10-31	1319.00	1413.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	12:45	12:50	10-31	1413.00	1413.00	Inclination (°): 1.930, Azimuth (°): 261.530, TVD (ft): 1349.71, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 1350.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	12:50	14:00	10-31	1413.00	1507.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	14:00	14:05	10-31	1507.00	1507.00	Inclination (°): 2.330, Azimuth (°): 256.080, TVD (ft): 1443.65, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 1444.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	14:05	14:55	10-31	1507.00	1602.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	14:55	15:00	10-31	1602.00	1602.00	Inclination (°): 2.200, Azimuth (°): 256.870, TVD (ft): 1538.57, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 1539.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	15:00	16:10	10-31	1602.00	1696.00	Pressure On (psi): 2575.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 22.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	10-31	16:10	16:15	10-31	1696.00	1696.00	Inclination (°): 2.330, Azimuth (°): 257.050, TVD (ft): 1632.50, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 1633.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	16:15	18:00	10-31	1696.00	1790.00	Pressure On (psi): 2850.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 37.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	10-31	18:00	18:05	10-31	1790.00	1790.00	Inclination (°): 2.590, Azimuth (°): 258.810, TVD (ft): 1726.41, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 1727.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	10-31	18:05	19:00	10-31	1790.00	1875.00	Pressure On (psi): 2850.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 37.00, Surface RPM: 80, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249.00
Survey	46	10-31	19:00	19:05	10-31	1875.00	1875.00	Inclination (°): 3.080, Azimuth (°): 265.490, TVD (ft): 1811.31, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 1812.00, Bit To Sensor (ft): 63.00
Circulating	3	10-31	19:05	20:00	10-31			Circulate BTU
Pooh	7	10-31	20:00	21:00	10-31			POOH to Run Surface Casing
Other	16	10-31	21:00	21:30	10-31			C/O Holes on ST80
Change BHA	6	10-31	21:30	22:30	10-31			L/D Top NMDC , Rack BHA in derrick
Standby	15	10-31	22:30	08:30	11-01			Standby while running surface casing

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Nov 01 00:00 - 23:59 (Day 4 of 23)

Billing: N/A (\$175,927.74 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
Joel Johnson	Directional Driller
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	10-31	22:30	08:30	11-01			Standby while running surface casing

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Nov 04 23:00 - 22:59 (Day 5 of 23)

Billing: \$10,227.50 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1875.00	Downhole Hours	20.75	Rotating WOB (klbs)	25.00 - 25.00
Bit Depth (ft)	2379.00	Drilling Hours	3.42	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	2379.00	Hours Circulating	1.33	Rotating SPM	228.00 - 279.00
Total Distance (ft)	504.00	Hours Sliding	0.08	Sliding SPM	279.00 - 279.00
Distance Rotated (ft)	484.00	Hours Rotating	3.33	Motor RPM	72.00 - 128.00
Distance Slid (ft)	20.00			Surface RPM	40.00 - 70.00
Inclination In	3.74			Flow Rate (gpm)	730.00 - 900.00
Inclination Out	1.58			On Bottom Pressure (psi)	3200.00 - 4200.00
Azimuth In	270.59	% Hours Rotating	98%	Off Bottom Pressure (psi)	2700.00 - 3800.00
Azimuth Out	258.19	% Hours Sliding	2%		
AVG Total ROP (ft/h)	147.51	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	145.20	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	240.00				

Personnel

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

BHA #2 - BHA #2 (Intermediate)

Date In: Nov 5, 2019, 2:15 Date Out: Nov 7, 2019, 12:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Aim Contender: 7/8 5.9 Stg 1.50 FBH 12" Stab Mtr, Rev/Gal: 0.16, Max Diff: 1390 psi, Max Operating Torque: 21,870 ft/lbs, Protracted Angle: 1.55 / Bit; Baker Hughes 12.25" Type: D606X , SN:5306362, TFA: 0.663, Jets:6 x 12's, Bit Runs: 3
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5306362	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.16	
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.250	
Drilling Hours for Day	3.42	Bit Distances		MWD Comments
Total Drilled for Day (ft)	504.00	Survey (Bit to Survey): 71.00 ft, Bend: 6.25 ft		POOH Reason
Drilling Hours for BHA	20.42			
Total Drilled for BHA (ft)	3385.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 12.25 D606X, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5306362	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fix 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800-40-001	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.96	39.21
Stabilizer Description: 12" NM Nortrack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	47.98
UBHO Sub Description: Steel UBHO, Type: NM	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		4.05	52.03
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	82.10
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	112.55
Crossover Sub Description: X-Over (6 5/8 Reg Pin x 4 1/2 XH Box), Type: Steel	DTI	DR39518	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	116.10
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	734.07
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	CTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	736.37
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1664.77

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	11-05	00:00	02:15	11-05			Standby while making ready to drill
Change BHA	6	11-05	02:15	03:30	11-05			P/U BHA # 2
Circulating	3	11-05	03:30	03:35	11-05			Test MWD (Good)
TIH	8	11-05	03:35	05:30	11-05			TIH W/ BHA #2
Reaming	4	11-05	05:30	06:45	11-05			Drill Plug, cement and shoe track
Rotary Drill	1	11-05	06:45	08:05	11-05	1875.00	2041.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 25.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 730.00, Strokes Per Minute: 228.00
Survey	46	11-05	08:05	08:10	11-05	2041.00	2041.00	Inclination (°): 3.740, Azimuth (°): 270.590, TVD (ft): 1969.03, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 1970.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-05	08:10	08:15	11-05	2041.00	2051.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Slide Drill	2	11-05	08:15	08:20	11-05	2051.00	2071.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279, Toolface: 90, Toolface Type: magnetic
Rotary Drill	1	11-05	08:20	08:40	11-05	2071.00	2136.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-05	08:40	08:45	11-05	2136.00	2136.00	Inclination (°): 2.290, Azimuth (°): 265.840, TVD (ft): 2063.89, Dogleg (°/100 ft): 1.55, Sensor Depth (ft): 2065.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-05	08:45	10:00	11-05	2136.00	2324.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-05	10:00	10:10	11-05	2324.00	2324.00	Inclination (°): 1.580, Azimuth (°): 258.190, TVD (ft): 2251.78, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 2253.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-05	10:10	10:30	11-05	2324.00	2379.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Rig Repair	14	11-05	10:30	00:00	11-06			Rig Power Failure

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Nov 05 23:00 - 22:59 (Day 6 of 23)

Billing: \$6,600.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	2379.00	Downhole Hours	24.00	Rotating WOB (klbs)	25.00 - 40.00
Bit Depth (ft)	4399.00	Drilling Hours	10.67	Sliding WOB (klbs)	25.00 - 25.00
Bottom Hole Depth (ft)	4399.00	Hours Circulating	0.00	Rotating SPM	249.00 - 279.00
Total Distance (ft)	2020.00	Hours Sliding	1.42	Sliding SPM	249.00 - 249.00
Distance Rotated (ft)	1905.00	Hours Rotating	9.25	Motor RPM	72.00 - 128.00
Distance Slid (ft)	115.00			Surface RPM	70.00 - 70.00
Inclination In	1.36			Flow Rate (gpm)	800.00 - 900.00
Inclination Out	3.52			On Bottom Pressure (psi)	3750.00 - 4200.00
Azimuth In	255.56	% Hours Rotating	87%	Off Bottom Pressure (psi)	3300.00 - 3800.00
Azimuth Out	243.87	% Hours Sliding	13%		
AVG Total ROP (ft/h)	186.96	% Distance Sliding	6%		
AVG Rotating ROP (ft/h)	207.93	% Distance Rotating	94%		
AVG Sliding ROP (ft/h)	76.36				

Personnel

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

BHA #2 - BHA #2 (Intermediate)

Date In: Nov 5, 2019, 2:15 Date Out: Nov 7, 2019, 12:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Aim Contender: 7/8 5.9 Stg 1.50 FBH 12" Stab Mtr, Rev/Gal: 0.16, Max Diff: 1390 psi, Max Operating Torque: 21,870 ft/lbs, Protracted Angle: 1.55 / Bit; Baker Hughes 12.25" Type: D606X , SN:5306362, TFA: 0.663, Jets:6 x 12's, Bit Runs: 3
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5306362	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: Pooh to run Casing
Drilling Hours for Day	10.67	Bit Distances		
Total Drilled for Day (ft)	2020.00	Survey (Bit to Survey): 71.00 ft,		
Drilling Hours for BHA	20.42	Bend: 6.25 ft		
Total Drilled for BHA (ft)	3385.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 12.25 D606X, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5306362	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fix 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800-40-001	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.96	39.21
Stabilizer Description: 12" NM Nortrack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	47.98
UBHO Sub Description: Steel UBHO, Type: NM	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		4.05	52.03
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	82.10
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	112.55
Crossover Sub Description: X-Over (6 5/8 Reg Pin x 4 1/2 XH Box), Type: Steel	DTI	DR39518	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	116.10
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	734.07
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	CTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	736.37
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1664.77

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rig Repair	14	11-05	10:30	00:00	11-06			Rig Power Failure
Rig Repair	14	11-06	00:00	04:45	11-06			Rig Power Failure
Rotary Drill	1	11-06	04:45	05:00	11-06	2379.00	2419.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	05:00	05:05	11-06	2419.00	2419.00	Inclination (°): 1.360, Azimuth (°): 255.560, TVD (ft): 2346.75, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 2348.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	05:05	05:40	11-06	2419.00	2513.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	05:40	05:45	11-06	2513.00	2513.00	Inclination (°): 1.100, Azimuth (°): 252.740, TVD (ft): 2440.73, Dogleg (°/100 ft): 0.28, Sensor Depth (ft): 2442.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	05:45	06:15	11-06	2513.00	2607.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Connection	33	11-06	06:15	06:20	11-06			
Rotary Drill	1	11-06	06:20	07:00	11-06	2607.00	2701.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	07:00	07:05	11-06	2701.00	2701.00	Inclination (°): 0.570, Azimuth (°): 243.690, TVD (ft): 2628.71, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 2630.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	07:05	07:30	11-06	2701.00	2795.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	07:30	07:35	11-06	2795.00	2795.00	Inclination (°): 0.440, Azimuth (°): 252.480, TVD (ft): 2722.71, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 2724.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	07:35	07:55	11-06	2795.00	2890.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	07:55	08:00	11-06	2890.00	2890.00	Inclination (°): 0.310, Azimuth (°): 227.430, TVD (ft): 2817.71, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 2819.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	08:00	08:20	11-06	2890.00	2984.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	08:20	08:25	11-06	2984.00	2984.00	Inclination (°): 0.220, Azimuth (°): 96.740, TVD (ft): 2911.71, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 2913.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	08:25	08:45	11-06	2984.00	3078.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Rig Repair	14	11-06	08:45	13:45	11-06			Replace parts on Rig Gen
Rotary Drill	1	11-06	13:45	14:05	11-06	3078.00	3172.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Rig Repair	14	11-06	14:05	15:00	11-06			Rig Repair on VFD house
Survey	46	11-06	15:00	15:05	11-06	3172.00	3172.00	Inclination (°): 0.920, Azimuth (°): 81.270, TVD (ft): 3099.69, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 3101.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	15:05	15:30	11-06	3172.00	3266.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	15:30	15:35	11-06	3266.00	3266.00	Inclination (°): 1.320, Azimuth (°): 80.740, TVD (ft): 3193.68, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 3195.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	15:35	16:00	11-06	3266.00	3361.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	16:00	16:05	11-06	3361.00	3361.00	Inclination (°): 1.190, Azimuth (°): 69.320, TVD (ft): 3288.65, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 3290.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	16:05	16:15	11-06	3361.00	3371.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Slide Drill	2	11-06	16:15	16:25	11-06	3371.00	3391.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 255, Toolface Type: magnetic
Rotary Drill	1	11-06	16:25	16:50	11-06	3391.00	3455.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	16:50	16:55	11-06	3455.00	3455.00	Inclination (°): 0.570, Azimuth (°): 109.130, TVD (ft): 3382.64, Dogleg (°/100 ft): 0.89, Sensor Depth (ft): 3384.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	16:55	17:35	11-06	3455.00	3549.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	17:35	17:40	11-06	3549.00	3549.00	Inclination (°): 0.350, Azimuth (°): 180.850, TVD (ft): 3476.64, Dogleg (°/100 ft): 0.60, Sensor Depth (ft): 3478.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	17:40	17:45	11-06	3549.00	3559.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 25.00, Surface RPM: 70, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Slide Drill	2	11-06	17:45	18:00	11-06	3559.00	3579.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 255, Toolface Type: magnetic
Rotary Drill	1	11-06	18:00	18:20	11-06	3579.00	3644.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Connection	33	11-06	18:20	18:25	11-06			

Rotary Drill	1	11-06	18:25	18:55	11-06	3644.00	3738.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	18:55	19:00	11-06	3738.00	3738.00	Inclination (°): 1.850, Azimuth (°): 242.110, TVD (ft): 3665.60, Dogleg (°/100 ft): 0.90, Sensor Depth (ft): 3667.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	19:00	19:05	11-06	3738.00	3749.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Slide Drill	2	11-06	19:05	19:25	11-06	3749.00	3774.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 260, Toolface Type: magnetic
Rotary Drill	1	11-06	19:25	19:45	11-06	3774.00	3833.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 900.00, Strokes Per Minute: 279.00
Survey	46	11-06	19:45	19:50	11-06	3833.00	3833.00	Inclination (°): 1.980, Azimuth (°): 245.180, TVD (ft): 3760.55, Dogleg (°/100 ft): 0.17, Sensor Depth (ft): 3762.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	19:50	20:20	11-06	3833.00	3928.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	20:20	20:25	11-06	3928.00	3928.00	Inclination (°): 2.640, Azimuth (°): 254.940, TVD (ft): 3855.47, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 3857.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	20:25	20:30	11-06	3928.00	3938.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Slide Drill	2	11-06	20:30	20:45	11-06	3938.00	3958.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 250, Toolface Type: magnetic
Rotary Drill	1	11-06	20:45	21:00	11-06	3958.00	4022.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	21:00	21:05	11-06	4022.00	4022.00	Inclination (°): 2.900, Azimuth (°): 251.250, TVD (ft): 3949.36, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 3951.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	21:05	21:25	11-06	4022.00	4117.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Connection	33	11-06	21:25	21:30	11-06			
Rotary Drill	1	11-06	21:30	21:45	11-06	4117.00	4211.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	21:45	21:50	11-06	4211.00	4211.00	Inclination (°): 4.130, Azimuth (°): 244.830, TVD (ft): 4138.00, Dogleg (°/100 ft): 0.68, Sensor Depth (ft): 4140.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	21:50	22:10	11-06	4211.00	4305.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	22:10	22:15	11-06	4305.00	4305.00	Inclination (°): 3.520, Azimuth (°): 243.870, TVD (ft): 4231.80, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 4234.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	22:15	22:20	11-06	4305.00	4315.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Slide Drill	2	11-06	22:20	22:45	11-06	4315.00	4345.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 240, Toolface Type: magnetic
Rotary Drill	1	11-06	22:45	23:00	11-06	4345.00	4399.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	23:00	23:05	11-06	4399.00	4399.00	Inclination (°): 3.560, Azimuth (°): 245.100, TVD (ft): 4325.62, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 4328.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	23:05	23:25	11-06	4399.00	4494.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-06	23:25	23:30	11-06	4494.00	4494.00	Inclination (°): 4.310, Azimuth (°): 245.270, TVD (ft): 4420.39, Dogleg (°/100 ft): 0.79, Sensor Depth (ft): 4423.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-06	23:30	23:35	11-06	4494.00	4504.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Slide Drill	2	11-06	23:35	00:00	11-07	4504.00	4529.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 260, Toolface Type: magnetic

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Nov 06 23:00 - 22:59 (Day 7 of 23)

Billing: \$7,663.75 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	4399.00	Downhole Hours	13.00	Rotating WOB (klbs)	40.00 - 45.00
Bit Depth (ft)	5260.00	Drilling Hours	6.33	Sliding WOB (klbs)	25.00 - 25.00
Bottom Hole Depth (ft)	5260.00	Hours Circulating	0.58	Rotating SPM	249.00 - 249.00
Total Distance (ft)	861.00	Hours Sliding	1.17	Sliding SPM	249.00 - 249.00
Distance Rotated (ft)	811.00	Hours Rotating	5.17	Motor RPM	72.00 - 128.00
Distance Slid (ft)	50.00			Surface RPM	70.00 - 70.00
Inclination In	3.56			Flow Rate (gpm)	800.00 - 805.00
Inclination Out	6.15			On Bottom Pressure (psi)	3750.00 - 4100.00
Azimuth In	245.10	% Hours Rotating	82%	Off Bottom Pressure (psi)	3300.00 - 3500.00
Azimuth Out	256.87	% Hours Sliding	18%		
AVG Total ROP (ft/h)	127.77	% Distance Sliding	6%		
AVG Rotating ROP (ft/h)	148.63	% Distance Rotating	94%		
AVG Sliding ROP (ft/h)	42.86				

Personnel

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

BHA #2 - BHA #2 (Intermediate)

Date In: Nov 5, 2019, 2:15 Date Out: Nov 7, 2019, 12:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Aim Contender: 7/8 5.9 Stg 1.50 FBH 12" Stab Mtr, Rev/Gal: 0.16, Max Diff: 1390 psi, Max Operating Torque: 21,870 ft/lbs, Protracted Angle: 1.55 / Bit; Baker Hughes 12.25" Type: D606X , SN:5306362, TFA: 0.663, Jets:6 x 12's, Bit Runs: 3
Vendor	Baker	Lobe/Stage	7/8, 5.9	
S/N	5306362	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: Pooh to run Casing
Drilling Hours for Day	6.33	Bit Distances		
Total Drilled for Day (ft)	861.00	Survey (Bit to Survey): 71.00 ft,		
Drilling Hours for BHA	20.42	Bend: 6.25 ft		
Total Drilled for BHA (ft)	3385.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: Baker 12.25 D606X, Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	Baker	5306362	6 5/8" Reg Pin			12.250		1.25	1.25
Mud Motor Description: 8" 7/8 5.9 @1.5 Fix 12" Stab, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	Aim	800-40-001	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.96	39.21
Stabilizer Description: 12" NM Nortrack Stab	DTI	DR43542	6 5/8" Reg Box	6 5/8" Reg Pin	2.750	8.250		8.77	47.98
UBHO Sub Description: Steel UBHO, Type: NM	Aim	800226	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		4.05	52.03
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	82.10
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	112.55
Crossover Sub Description: X-Over (6 5/8 Reg Pin x 4 1/2 XH Box), Type: Steel	DTI	DR39518	4 1/2" XH Box	6 5/8" Reg Pin	2.875	8.000		3.55	116.10
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	734.07
Crossover Sub Description: X-Over (4 1/2 IF Box x 4 1/2 XH Pin), Type: Steel	CTI	DR23523	4 1/2" IF Box	4 1/2" XH Pin	2.813	6.625		2.30	736.37
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1664.77

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	11-06	23:35	00:00	11-07	4504.00	4529.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 260, Toolface Type: <i>magnetic</i>
Rotary Drill	1	11-07	00:00	00:20	11-07	4529.00	4588.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	00:20	00:25	11-07	4588.00	4588.00	Inclination (°): 4.530, Azimuth (°): 244.390, TVD (ft): 4514.11, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 4517.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	00:25	00:55	11-07	4588.00	4683.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	00:55	01:00	11-07	4683.00	4683.00	Inclination (°): 4.970, Azimuth (°): 245.710, TVD (ft): 4608.78, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 4612.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	01:00	01:30	11-07	4683.00	4778.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 40.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	01:30	01:35	11-07	4778.00	4778.00	Inclination (°): 4.880, Azimuth (°): 245.890, TVD (ft): 4703.43, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 4707.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	01:35	02:10	11-07	4778.00	4872.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	02:10	02:15	11-07	4872.00	4872.00	Inclination (°): 4.750, Azimuth (°): 247.290, TVD (ft): 4797.10, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 4801.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	02:15	02:50	11-07	4872.00	4967.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	02:50	02:55	11-07	4967.00	4967.00	Inclination (°): 4.840, Azimuth (°): 246.420, TVD (ft): 4891.77, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 4896.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	02:55	03:55	11-07	4967.00	5061.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	03:55	04:00	11-07	5061.00	5061.00	Inclination (°): 4.400, Azimuth (°): 244.830, TVD (ft): 4985.46, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 4990.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	04:00	04:05	11-07	5061.00	5071.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Slide Drill	2	11-07	04:05	04:50	11-07	5071.00	5096.00	Pressure On (psi): 3750.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 800.00, Strokes Per Minute: 249, Toolface: 280, Toolface Type: <i>magnetic</i>
Rotary Drill	1	11-07	04:50	05:25	11-07	5096.00	5155.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	05:25	05:40	11-07	5155.00	5155.00	Inclination (°): 4.920, Azimuth (°): 253.180, TVD (ft): 5079.15, Dogleg (°/100 ft): 0.91, Sensor Depth (ft): 5084.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	11-07	05:40	06:10	11-07	5155.00	5250.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Connection	33	11-07	06:10	06:15	11-07			
Rotary Drill	1	11-07	06:15	06:20	11-07	5250.00	5260.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 45.00, Surface RPM: 70, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 805.00, Strokes Per Minute: 249.00
Survey	46	11-07	06:20	06:25	11-07	5260.00	5260.00	Inclination (°): 6.150, Azimuth (°): 256.870, TVD (ft): 5183.66, Dogleg (°/100 ft): 1.22, Sensor Depth (ft): 5189.00, Bit To Sensor (ft): 71.00
Circulating	3	11-07	06:25	07:00	11-07			Circulate Hole Clean to run Run Intermediate Casing
Pooh	7	11-07	07:00	12:00	11-07			POOH to run casing, broke off bit and racked back Directional BHA
Standby	15	11-07	12:00	00:00	11-08			Standby while running casing, and walking rig to 553H

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Thursday, Nov 07 23:00 - 22:59 (Day 8 of 23)

Billing: \$2,648.54 (\$175,927.74 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
Joel Johnson	Directional Driller
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	11-07	12:00	00:00	11-08			Standby while running casing, and walking rig to 553H

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Nov 13 23:00 - 22:59 (Day 9 of 23)

Billing: \$10,935.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5260.00	Downhole Hours	19.75	Rotating WOB (klbs)	35.00 - 40.00
Bit Depth (ft)	7425.00	Drilling Hours	7.50	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	7425.00	Hours Circulating	1.67	Rotating SPM	220.00 - 228.00
Total Distance (ft)	2165.00	Hours Sliding	0.67	Sliding SPM	220.00 - 220.00
Distance Rotated (ft)	2116.00	Hours Rotating	6.83	Motor RPM	72.00 - 128.00
Distance Slid (ft)	49.00			Surface RPM	40.00 - 60.00
Inclination In	5.67			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	0.48			On Bottom Pressure (psi)	3600.00 - 4100.00
Azimuth In	256.43	% Hours Rotating	91%	Off Bottom Pressure (psi)	3000.00 - 3300.00
Azimuth Out	345.29	% Hours Sliding	9%		
AVG Total ROP (ft/h)	295.47	% Distance Sliding	2%		
AVG Rotating ROP (ft/h)	315.20	% Distance Rotating	98%		
AVG Sliding ROP (ft/h)	73.50				

Personnel

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

BHA #3 - BHA #3 Intermediate II

Date In: Nov 14, 2019, 3:15 Date Out: Nov 15, 2019, 8:00

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:13266539, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13266539	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	
Total Flow Area (in²)	0.663	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	7.50	Bit Distances		
Total Drilled for Day (ft)	2165.00	Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.40 ft, Gamma (Bit to Gamma): 55.00 ft		
Drilling Hours for BHA	9.42			
Total Drilled for BHA (ft)	2805.00			
				POOH Reason
				Penetration Rate: SHOULDER ROW WAS GONE BIT DBR / MTR DRAINED FINE AT SURFACE

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Security GT65DRM, Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	Security	13266539	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.27	37.25
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.28
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.24
Drill Collar Description: 6 3/4" 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	77.79
Drill Collar Description: 6 3/4" 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	108.67
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	112.85
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	642.54
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	646.84
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.24

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	11-14	00:00	01:45	11-14			Standby while rigging and prepping to drill
Change BHA	6	11-14	01:45	02:30	11-14			P/U BHA # 3
Circulating	3	11-14	02:30	02:40	11-14			Test MWD (100 spm... 321 gpm... 570...)
Change BHA	6	11-14	02:40	03:15	11-14			Finish P/U BHA # 3
TIH	8	11-14	03:15	05:00	11-14			TIH W/ BHA #3 inspecting collars box and pins due to excessive break out torque on previous well.
TIH	8	11-14	05:00	07:00	11-14			TIH W/ BHA #3
Circulating	3	11-14	07:00	07:45	11-14			DRILL DV TOOL
TIH	8	11-14	07:45	10:00	11-14			TIH W/ BHA #3
Circulating	3	11-14	10:00	10:45	11-14			DRILL FLOAT AND SHOE
Rotary Drill	1	11-14	10:45	12:05	11-14	5260.00	5349.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	12:05	12:10	11-14	5348.00	5348.00	Inclination (°): 5.670, Azimuth (°): 256.430, TVD (ft): 5272.19, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 5278.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	12:10	12:30	11-14	5349.00	5444.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	12:30	12:35	11-14	5444.00	5444.00	Inclination (°): 5.670, Azimuth (°): 253.970, TVD (ft): 5367.72, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 5374.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	12:35	12:50	11-14	5444.00	5538.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	12:50	12:55	11-14	5538.00	5538.00	Inclination (°): 5.580, Azimuth (°): 254.760, TVD (ft): 5461.27, Dogleg (°/100 ft): 0.13, Sensor Depth (ft): 5468.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	12:55	13:10	11-14	5538.00	5632.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	13:10	13:15	11-14	5632.00	5632.00	Inclination (°): 5.670, Azimuth (°): 255.380, TVD (ft): 5554.82, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 5562.00, Bit To Sensor (ft): 70.00, Temperature (°F): 104.00
Rotary Drill	1	11-14	13:15	13:30	11-14	5632.00	5727.00	Pressure On (psi): 3600.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	13:30	13:35	11-14	5727.00	5727.00	Inclination (°): 5.710, Azimuth (°): 255.560, TVD (ft): 5649.35, Dogleg (°/100 ft): 0.05, Sensor Depth (ft): 5657.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	13:35	13:50	11-14	5727.00	5821.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	13:50	13:55	11-14	5821.00	5821.00	Inclination (°): 5.580, Azimuth (°): 256.170, TVD (ft): 5742.89, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 5751.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	13:55	14:10	11-14	5821.00	5916.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	14:10	14:15	11-14	5916.00	5916.00	Inclination (°): 5.710, Azimuth (°): 253.450, TVD (ft): 5837.43, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 5846.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	14:15	14:25	11-14	5916.00	6010.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	14:25	14:30	11-14	6010.00	6010.00	Inclination (°): 5.670, Azimuth (°): 253.450, TVD (ft): 5930.97, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 5940.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	14:30	14:40	11-14	6010.00	6104.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	14:40	14:45	11-14	6104.00	6104.00	Inclination (°): 5.630, Azimuth (°): 250.190, TVD (ft): 6024.51, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 6034.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	14:45	15:00	11-14	6104.00	6199.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	15:00	15:05	11-14	6199.00	6199.00	Inclination (°): 5.580, Azimuth (°): 249.580, TVD (ft): 6119.06, Dogleg (°/100 ft): 0.08, Sensor Depth (ft): 6129.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	15:05	15:20	11-14	6199.00	6293.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	15:20	15:25	11-14	6293.00	6293.00	Inclination (°): 5.630, Azimuth (°): 250.190, TVD (ft): 6212.61, Dogleg (°/100 ft): 0.08, Sensor Depth (ft): 6223.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	15:25	15:40	11-14	6293.00	6387.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	15:40	15:45	11-14	6387.00	6387.00	Inclination (°): 5.710, Azimuth (°): 250.280, TVD (ft): 6306.15, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 6317.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	15:45	16:05	11-14	6387.00	6481.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	16:05	16:10	11-14	6481.00	6481.00	Inclination (°): 5.490, Azimuth (°): 249.050, TVD (ft): 6399.70, Dogleg (°/100 ft): 0.27, Sensor Depth (ft): 6411.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-14	16:10	16:20	11-14	6481.00	6496.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 60, Toolface Type: magnetic

Rotary Drill	1	11-14	16:20	16:30	11-14	6496.00	6576.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	16:30	16:35	11-14	6576.00	6576.00	Inclination (°): 3.820, Azimuth (°): 247.650, TVD (ft): 6494.38, Dogleg (°/100 ft): 1.76, Sensor Depth (ft): 6506.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-14	16:35	16:45	11-14	6576.00	6588.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 60, Toolface Type: magnetic
Rotary Drill	1	11-14	16:45	16:55	11-14	6588.00	6670.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	16:55	17:00	11-14	6670.00	6670.00	Inclination (°): 2.150, Azimuth (°): 248.440, TVD (ft): 6588.25, Dogleg (°/100 ft): 1.78, Sensor Depth (ft): 6600.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-14	17:00	17:10	11-14	6670.00	6682.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 60, Toolface Type: magnetic
Rotary Drill	1	11-14	17:10	17:20	11-14	6682.00	6765.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Survey	46	11-14	17:20	17:25	11-14	6765.00	6765.00	Inclination (°): 1.050, Azimuth (°): 269.350, TVD (ft): 6683.21, Dogleg (°/100 ft): 1.29, Sensor Depth (ft): 6695.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-14	17:25	17:35	11-14	6765.00	6775.00	Pressure On (psi): 3650.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 60, Toolface Type: magnetic
Rotary Drill	1	11-14	17:35	18:00	11-14	6775.00	6859.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 35.00, Surface RPM: 60, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00
Other	16	11-14	18:00	20:40	11-14			break out of DP with tongs and change out saver sub
Survey	46	11-14	20:40	20:45	11-14	6859.00	6859.00	Inclination (°): 0.970, Azimuth (°): 354.870, TVD (ft): 6777.20, Dogleg (°/100 ft): 1.46, Sensor Depth (ft): 6789.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	20:45	21:00	11-14	6859.00	6953.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	21:00	21:05	11-14	6953.00	6953.00	Inclination (°): 1.230, Azimuth (°): 5.420, TVD (ft): 6871.19, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 6883.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	21:05	21:20	11-14	6953.00	7048.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	21:20	21:25	11-14	7048.00	7048.00	Inclination (°): 1.010, Azimuth (°): 8.410, TVD (ft): 6966.17, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 6978.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	21:25	21:40	11-14	7048.00	7142.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	21:40	21:45	11-14	7142.00	7142.00	Inclination (°): 0.530, Azimuth (°): 351.970, TVD (ft): 7060.16, Dogleg (°/100 ft): 0.56, Sensor Depth (ft): 7072.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	21:45	22:05	11-14	7142.00	7236.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	22:05	22:10	11-14	7236.00	7236.00	Inclination (°): 0.530, Azimuth (°): 11.750, TVD (ft): 7154.16, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 7166.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	22:10	22:20	11-14	7236.00	7331.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 45, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Connection	33	11-14	22:20	22:25	11-14			
Rotary Drill	1	11-14	22:25	22:40	11-14	7331.00	7395.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
L/D DP	28	11-14	22:40	22:50	11-14			L/d washed out drill pipe
Rotary Drill	1	11-14	22:50	22:55	11-14	7395.00	7425.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	22:55	23:00	11-14	7425.00	7425.00	Inclination (°): 0.480, Azimuth (°): 345.290, TVD (ft): 7343.15, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 7355.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	23:00	23:10	11-14	7425.00	7520.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Survey	46	11-14	23:10	23:15	11-14	7520.00	7520.00	Inclination (°): 0.090, Azimuth (°): 21.680, TVD (ft): 7438.15, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 7450.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	23:15	23:30	11-14	7520.00	7614.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Other	16	11-14	23:30	23:40	11-14			Fix dead line on horses head
Survey	46	11-14	23:40	23:45	11-14	7614.00	7614.00	Inclination (°): 0.260, Azimuth (°): 219.170, TVD (ft): 7532.15, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 7544.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-14	23:45	00:00	11-15	7614.00	7673.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Thursday, Nov 14 23:00 - 22:59 (Day 10 of 23)

Billing: \$7,792.25 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	7425.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	9407.00	Drilling Hours	10.75	Sliding WOB (klbs)	15.00 - 15.00
Bottom Hole Depth (ft)	9407.00	Hours Circulating	1.50	Rotating SPM	228.00 - 235.00
Total Distance (ft)	1982.00	Hours Sliding	1.25	Sliding SPM	220.00 - 220.00
Distance Rotated (ft)	1938.00	Hours Rotating	9.50	Motor RPM	72.00 - 195.00
Distance Slid (ft)	44.00			Surface RPM	40.00 - 60.00
Inclination In	0.09			Flow Rate (gpm)	733.00 - 750.00
Inclination Out	1.45			On Bottom Pressure (psi)	3400.00 - 4150.00
Azimuth In	21.68	% Hours Rotating	88%	Off Bottom Pressure (psi)	2950.00 - 3300.00
Azimuth Out	247.82	% Hours Sliding	12%		
AVG Total ROP (ft/h)	166.59	% Distance Sliding	2%		
AVG Rotating ROP (ft/h)	189.81	% Distance Rotating	98%		
AVG Sliding ROP (ft/h)	39.43				

Personnel

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

BHA #3 - BHA #3 Intermediate II

Date In: Nov 14, 2019, 3:15 Date Out: Nov 15, 2019, 8:00

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:13266539, TFA: 0.663, Jets:6 x 12's, Bit Runs: 2
Vendor	Security	Lobe/Stage	7/8, 8.5	
S/N	13266539	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	7.250	
Drilling Hours for Day	1.92	Bit Distances		
Total Drilled for Day (ft)	640.00	Survey (Bit to Survey): 70.00 ft, Bend		
Drilling Hours for BHA	9.42	(Bit to Bend): 5.40 ft, Gamma (Bit to		
Total Drilled for BHA (ft)	2805.00	Gamma): 55.00 ft		
				POOH Reason
				Penetration Rate: SHOULDER ROW WAS GONE BIT DBR / MTR DRAINED FINE AT SURFACE

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Security GT65DRM, Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	Security	13266539	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.27	37.25
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.28
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.24
Drill Collar Description: 6 3/4" 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	77.79
Drill Collar Description: 6 3/4" 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	108.67
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	112.85
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	642.54
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	646.84
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.24

MWD Items

No Items

BHA #4 - BHA #4 8.5" hole

Date In: Nov 15, 2019, 8:00 Date Out: Nov 16, 2019, 10:00

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; REED 8.5" Type: TKC66 , SN:A268159, TFA: 0.663, Jets:6 x 12's, Bit Runs: 1
Vendor	REED	Lobe/Stage	7/8, 8.5	
S/N	A268159	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point: POOH at KOP
Drilling Hours for Day	8.83	Bit Distances		
Total Drilled for Day (ft)	1342.00	Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.40 ft, Gamma (Bit to Gamma): 55.00 ft		
Drilling Hours for BHA	14.08			
Total Drilled for BHA (ft)	1939.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 REED TKC66, Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	REED	A268159	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.23	37.21
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.24
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.20
Drill Collar Description: 6 3/4" 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	77.75
Drill Collar Description: 6 3/4" 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	108.63
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	112.81
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	642.50
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	646.80
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.20

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	11-14	23:45	00:00	11-15	7614.00	7673.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228.00
Rotary Drill	1	11-15	00:00	00:05	11-15	7673.00	7709.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Other	16	11-15	00:05	00:45	11-15			Break out of stump with tongs
Survey	46	11-15	00:45	00:50	11-15	7709.00	7709.00	Inclination (°): 0.220, Azimuth (°): 214.950, TVD (ft): 7627.15, Dogleg (°/100 ft): 0.05, Sensor Depth (ft): 7639.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	00:50	01:05	11-15	7709.00	7803.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	01:05	01:10	11-15	7803.00	7803.00	Inclination (°): 0.790, Azimuth (°): 197.990, TVD (ft): 7721.14, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 7733.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	01:10	01:30	11-15	7803.00	7898.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	01:30	01:35	11-15	7898.00	7898.00	Inclination (°): 0.790, Azimuth (°): 184.100, TVD (ft): 7816.13, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 7828.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	01:35	01:55	11-15	7898.00	7992.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	01:55	02:00	11-15	7992.00	7992.00	Inclination (°): 0.880, Azimuth (°): 170.130, TVD (ft): 7910.12, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 7922.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	02:00	02:15	11-15	7992.00	8065.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Circulating	3	11-15	02:15	03:45	11-15			Circulate hole clean to pooh for motor and bit due to ROP
Pooh	7	11-15	03:45	06:00	11-15			POOH for motor and bit due to ROP

Poon	7	11-15	06:00	08:00	11-15			POOH for ROP
Change BHA	6	11-15	08:00	08:45	11-15			P/U BHA # 4
TIH	8	11-15	08:45	12:15	11-15			TIH W/ BHA #4
Rotary Drill	1	11-15	12:15	12:45	11-15	8065.00	8087.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	12:45	12:50	11-15	8087.00	8087.00	Inclination (°): 1.010, Azimuth (°): 162.220, TVD (ft): 8005.11, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 8017.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	12:50	13:20	11-15	8087.00	8182.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	13:20	13:25	11-15	8182.00	8182.00	Inclination (°): 1.190, Azimuth (°): 145.870, TVD (ft): 8100.09, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 8112.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-15	13:25	14:10	11-15	8182.00	8202.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 340, Toolface Type: magnetic
Rotary Drill	1	11-15	14:10	14:35	11-15	8202.00	8276.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	14:35	14:40	11-15	8276.00	8276.00	Inclination (°): 0.660, Azimuth (°): 159.670, TVD (ft): 8194.08, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 8206.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	14:40	14:55	11-15	8276.00	8370.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	14:55	15:00	11-15	8370.00	8370.00	Inclination (°): 0.700, Azimuth (°): 210.640, TVD (ft): 8288.07, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 8300.00, Bit To Sensor (ft): 70.00
Slide Drill	2	11-15	15:00	15:30	11-15	8370.00	8394.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3100.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 220, Toolface: 20, Toolface Type: magnetic
Rotary Drill	1	11-15	15:30	15:45	11-15	8394.00	8464.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	15:45	15:50	11-15	8464.00	8464.00	Inclination (°): 1.050, Azimuth (°): 301.260, TVD (ft): 8382.07, Dogleg (°/100 ft): 1.35, Sensor Depth (ft): 8394.00, Bit To Sensor (ft): 70.00, Temperature (°F): 131.00
Rotary Drill	1	11-15	15:50	16:10	11-15	8464.00	8558.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	16:10	16:15	11-15	8558.00	8558.00	Inclination (°): 1.800, Azimuth (°): 309.700, TVD (ft): 8476.04, Dogleg (°/100 ft): 0.83, Sensor Depth (ft): 8488.00, Bit To Sensor (ft): 70.00, Temperature (°F): 131.00
Rotary Drill	1	11-15	16:15	16:40	11-15	8558.00	8653.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	16:40	16:45	11-15	8653.00	8653.00	Inclination (°): 1.760, Azimuth (°): 295.900, TVD (ft): 8570.99, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 8583.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	16:45	17:10	11-15	8653.00	8747.00	Pressure On (psi): 4150.00, Pressure Off (psi): 3300.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Rig Service - In Hole	19	11-15	17:10	17:40	11-15			
Survey	46	11-15	17:40	17:45	11-15	8747.00	8747.00	Inclination (°): 1.670, Azimuth (°): 277.440, TVD (ft): 8664.95, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 8677.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	17:45	18:10	11-15	8747.00	8841.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3200.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 235.00
Survey	46	11-15	18:10	18:15	11-15	8841.00	8841.00	Inclination (°): 1.540, Azimuth (°): 256.870, TVD (ft): 8758.91, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 8771.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	18:15	19:05	11-15	8841.00	8936.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-15	19:05	19:10	11-15	8936.00	8936.00	Inclination (°): 1.760, Azimuth (°): 258.460, TVD (ft): 8853.87, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 8866.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	19:10	19:45	11-15	8936.00	9030.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-15	19:45	19:50	11-15	9030.00	9030.00	Inclination (°): 2.200, Azimuth (°): 271.900, TVD (ft): 8947.82, Dogleg (°/100 ft): 0.68, Sensor Depth (ft): 8960.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	19:50	20:35	11-15	9030.00	9124.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-15	20:35	20:50	11-15	9124.00	9124.00	Inclination (°): 1.800, Azimuth (°): 272.870, TVD (ft): 9041.76, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 9054.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	20:50	21:25	11-15	9124.00	9218.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-15	21:25	21:30	11-15	9218.00	9218.00	Inclination (°): 1.760, Azimuth (°): 258.020, TVD (ft): 9135.72, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 9148.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	21:30	22:10	11-15	9218.00	9313.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-15	22:10	22:15	11-15	9313.00	9313.00	Inclination (°): 1.890, Azimuth (°): 246.590, TVD (ft): 9230.67, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 9243.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	22:15	22:55	11-15	9313.00	9407.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00

Survey	46	11-15	22:55	23:00	11-15	9407.00	9407.00	Inclination (°): 1.450, Azimuth (°): 247.820, TVD (ft): 9324.63, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 9337.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-15	23:00	23:05	11-15	9407.00	9417.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Slide Drill	2	11-15	23:05	23:35	11-15	9417.00	9442.00	Pressure On (psi): 3300.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 733.00, Strokes Per Minute: 228, Toolface: 50, Toolface Type: magnetic
Rotary Drill	1	11-15	23:35	00:00	11-16	9442.00	9502.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Friday, Nov 15 23:00 - 22:59 (Day 11 of 23)

Billing: N/A (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	9407.00	Downhole Hours	11.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	10004.00	Drilling Hours	5.25	Sliding WOB (klbs)	28.00 - 28.00
Bottom Hole Depth (ft)	10004.00	Hours Circulating	0.50	Rotating SPM	228.00 - 228.00
Total Distance (ft)	597.00	Hours Sliding	0.50	Sliding SPM	228.00 - 228.00
Distance Rotated (ft)	572.00	Hours Rotating	4.75	Motor RPM	191.00 - 195.00
Distance Slid (ft)	25.00			Surface RPM	40.00 - 40.00
Inclination In	0.84			Flow Rate (gpm)	733.00 - 735.00
Inclination Out	0.62			On Bottom Pressure (psi)	3300.00 - 3400.00
Azimuth In	304.86	% Hours Rotating	90%	Off Bottom Pressure (psi)	2950.00 - 3000.00
Azimuth Out	117.74	% Hours Sliding	10%		
AVG Total ROP (ft/h)	120.43	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	120.43	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

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

BHA #4 - BHA #4 8.5" hole

Date In: Nov 15, 2019, 8:00 Date Out: Nov 16, 2019, 10:00

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; REED 8.5" Type: TKC66 , SN:A268159, TFA: 0.663, Jets:6 x 12's, Bit Runs: 1
Vendor	REED	Lobe/Stage	7/8, 8.5	
S/N	A268159	Bend Angle	1.5	
Nozzles	6x12's	Speed (rev/gal)	0.26	
Total Flow Area (in²)	0.663	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	5.25	Bit Distances		
Total Drilled for Day (ft)	597.00	Survey (Bit to Survey): 70.00 ft, Bend (Bit to Bend): 5.40 ft, Gamma (Bit to Gamma): 55.00 ft		
Drilling Hours for BHA	14.08			
Total Drilled for BHA (ft)	1939.00			
				POOH Reason
				Total Depth/Casing Point: POOH at KOP

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 REED TKC66, Style: PDC, Gauge Length (in): 3.50, Size (in): 8.50	REED	A268159	4 1/2" Reg Pin			8.500		0.98	0.98
Mud Motor Description: 7" 7/8 8.5 @ 1.5 Fix 8 1/4" Stab, Size (in): 7.00, Bend Angle (°): 1.5, 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		36.23	37.21
Stabilizer Description: 8 1/4" Steel AutoTrak Stab	Gator	GT22314	4 1/2" IF Box	4 1/2" IF Pin	2.812	6.750		6.03	43.24
UBHO Sub Description: NM UBHO, Type: NM	Gator	GT67441138	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.96	47.20
Drill Collar Description: 6 3/4" 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	77.75
Drill Collar Description: 6 3/4" 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	108.63
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	112.81
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	642.50
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	646.80
HWDP Description: (30 Jts) 5" HWDP, Style: Slick			4 1/2" IF Box	4 1/2" IF Pin	5.000	5.000		928.40	1575.20

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	11-15	23:35	00:00	11-16	9442.00	9502.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	00:00	00:05	11-16	9502.00	9502.00	Inclination (°): 0.840, Azimuth (°): 304.860, TVD (ft): 9419.61, Dogleg (°/100 ft): 1.28, Sensor Depth (ft): 9432.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	00:05	00:50	11-16	9502.00	9596.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	00:50	00:55	11-16	9596.00	9596.00	Inclination (°): 2.110, Azimuth (°): 345.560, TVD (ft): 9513.58, Dogleg (°/100 ft): 1.67, Sensor Depth (ft): 9526.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	00:55	01:45	11-16	9596.00	9690.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	01:45	01:50	11-16	9690.00	9690.00	Inclination (°): 1.670, Azimuth (°): 356.630, TVD (ft): 9607.53, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 9620.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	01:50	02:30	11-16	9690.00	9784.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	02:30	02:35	11-16	9784.00	9784.00	Inclination (°): 0.970, Azimuth (°): 10.170, TVD (ft): 9701.50, Dogleg (°/100 ft): 0.81, Sensor Depth (ft): 9714.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	02:35	03:20	11-16	9784.00	9879.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	03:20	03:25	11-16	9879.00	9879.00	Inclination (°): 0.840, Azimuth (°): 87.770, TVD (ft): 9796.50, Dogleg (°/100 ft): 1.20, Sensor Depth (ft): 9809.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	03:25	04:20	11-16	9879.00	9974.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	04:20	04:25	11-16	9974.00	9974.00	Inclination (°): 0.880, Azimuth (°): 114.230, TVD (ft): 9891.49, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 9904.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	11-16	04:25	04:45	11-16	9974.00	10004.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 735.00, Strokes Per Minute: 228.00
Survey	46	11-16	04:45	04:50	11-16	10004.00	10004.00	Inclination (°): 0.620, Azimuth (°): 117.740, TVD (ft): 9921.48, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 9934.00, Bit To Sensor (ft): 70.00
Circulating	3	11-16	04:50	05:20	11-16			Circulate hole clean to pooh and set bridge plug
Pooh	7	11-16	05:20	09:00	11-16			POOH @ KOP
Change BHA	6	11-16	09:00	10:00	11-16			L/D Top NMDC, Break Bit, C/O Motor, Scribe, Rack BHA in Derrick
Standby	15	11-16	10:00	00:00	11-17			Standby while, Setting bridge plug, nipple down, skid rig to 553H,

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Saturday, Nov 16 23:00 - 22:59 (Day 12 of 23)

Billing: N/A (\$175,927.74 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
Joel Johnson	Directional Driller
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	11-16	10:00	00:00	11-17			Standby while, Setting bridge plug, nipple down, skid rig to 553H,

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Friday, Dec 13 23:00 - 22:59 (Day 13 of 23)

Billing: \$16,400.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10004.00	Downhole Hours	16.00	Rotating WOB (klbs)	30.00 - 40.00
Bit Depth (ft)	10253.00	Drilling Hours	7.08	Sliding WOB (klbs)	15.00 - 40.00
Bottom Hole Depth (ft)	10253.00	Hours Circulating	1.42	Rotating SPM	165.00 - 178.00
Total Distance (ft)	249.00	Hours Sliding	5.00	Sliding SPM	180.00 - 180.00
Distance Rotated (ft)	82.00	Hours Rotating	2.08	Motor RPM	72.00 - 128.00
Distance Slid (ft)	167.00			Surface RPM	20.00 - 40.00
Inclination In	0.66			Flow Rate (gpm)	350.00 - 575.00
Inclination Out	16.75			On Bottom Pressure (psi)	3000.00 - 3400.00
Azimuth In	146.31	% Hours Rotating	29%	Off Bottom Pressure (psi)	2700.00 - 2950.00
Azimuth Out	352.41	% Hours Sliding	71%		
AVG Total ROP (ft/h)	36.71	% Distance Sliding	67%		
AVG Rotating ROP (ft/h)	42.00	% Distance Rotating	33%		
AVG Sliding ROP (ft/h)	34.26				

Personnel

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

BHA #5 - BHA #5 (Curve)

Date In: Dec 14, 2019, 7:00 Date Out: Dec 15, 2019, 17:20

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Aim Contender: 7/8 5.0 Stg 2.12 FBH SS Mtr, Flow Range: 300-600 GPM, Rev/Gal: 0.28, Max Diff: 1,130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit; Security 8.5" Type: GTD64C , SN:13243075, TFA: 1.178, Jets:6x16's, Bit Runs 0
Vendor	Halliburton	Lobe/Stage	7/8, 5.0	
S/N	13243075	Bend Angle	2.12	
Nozzles	6x16's	Speed (rev/gal)	0.28	
Total Flow Area (in²)	1.178	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	7.08	Bit Distances		
Total Drilled for Day (ft)	249.00	Bend: 4.15 ft, Survey: 52.00 ft, Gamma: 38.00 ft		
Drilling Hours for BHA	20.42			
Total Drilled for BHA (ft)	939.00			
				POOH Reason
				Change Bottom Hole Assembly: Curve Section completed. Motor performed well. Yields were 15-21 . TF Control was very smooth and controllable. Bit was graded 1-1

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 SECURITY, Style: PDC, Gauge Length (in): 2.25, Size (in): 8.50	Halliburton	13243075	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 @ 2.12 Fix SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.10	27.10
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	30.15
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	61.56
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	91.76

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	12-14	00:00	06:00	12-14			Standby while rigging up and retrieving bridge plug
Change BHA	6	12-14	06:00	07:00	12-14			P/U BHA # 5
TIH	8	12-14	07:00	13:15	12-14			TIH W/ BHA #5
Circulating	3	12-14	13:15	13:45	12-14			relog f 9956 - 10004
Rotary Drill	1	12-14	13:45	14:00	12-14	10004.00	10012.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00

Circulating	3	12-14	14:00	14:50	12-14			
Rotary Drill	1	12-14	14:50	15:00	12-14	10012.00	10016.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2950.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Other	16	12-14	15:00	15:30	12-14			install rot head
Rotary Drill	1	12-14	15:30	16:45	12-14	10016.00	10069.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 30.00, Surface RPM: 30, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Slide Drill	2	12-14	16:45	17:40	12-14	10069.00	10095.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: magnetic
Survey	46	12-14	17:40	17:45	12-14	10095.00	10095.00	Inclination (°): 0.660, Azimuth (°): 146.310, TVD (ft): 10030.48, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 10043.00, Bit To Sensor (ft): 52.00
Slide Drill	2	12-14	17:45	18:50	12-14	10095.00	10142.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 350, Toolface Type: magnetic
Survey	46	12-14	18:50	18:55	12-14	10142.00	10142.00	Inclination (°): 1.190, Azimuth (°): 345.910, TVD (ft): 10077.47, Dogleg (°/100 ft): 3.88, Sensor Depth (ft): 10090.00, Bit To Sensor (ft): 52.00
Slide Drill	2	12-14	18:55	20:10	12-14	10142.00	10189.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 15, Toolface Type: gravity
Survey	46	12-14	20:10	20:15	12-14	10189.00	10189.00	Inclination (°): 8.700, Azimuth (°): 348.900, TVD (ft): 10124.27, Dogleg (°/100 ft): 15.98, Sensor Depth (ft): 10137.00, Bit To Sensor (ft): 52.00
Slide Drill	2	12-14	20:15	20:55	12-14	10189.00	10203.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 15.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 10, Toolface Type: gravity
Circulating	3	12-14	20:55	21:00	12-14			swab out on pump. swap pumps.
Slide Drill	2	12-14	21:00	22:05	12-14	10203.00	10236.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 15, Toolface Type: gravity
Survey	46	12-14	22:05	22:10	12-14	10236.00	10236.00	Inclination (°): 16.750, Azimuth (°): 352.410, TVD (ft): 10170.07, Dogleg (°/100 ft): 17.20, Sensor Depth (ft): 10184.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-14	22:10	22:35	12-14	10236.00	10253.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 35.00, Surface RPM: 20, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Slide Drill	2	12-14	22:35	23:20	12-14	10253.00	10283.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 52.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 10, Toolface Type: gravity
Survey	46	12-14	23:20	23:25	12-14	10283.00	10283.00	Inclination (°): 23.600, Azimuth (°): 350.210, TVD (ft): 10214.16, Dogleg (°/100 ft): 14.66, Sensor Depth (ft): 10231.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-14	23:25	00:00	12-15	10283.00	10313.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 20, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Saturday, Dec 14 23:00 - 22:59 (Day 14 of 23)

Billing: \$22,245.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10253.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 42.00
Bit Depth (ft)	10943.00	Drilling Hours	13.33	Sliding WOB (klbs)	52.00 - 68.00
Bottom Hole Depth (ft)	10943.00	Hours Circulating	1.00	Rotating SPM	165.00 - 178.00
Total Distance (ft)	690.00	Hours Sliding	7.67	Sliding SPM	180.00 - 180.00
Distance Rotated (ft)	319.00	Hours Rotating	5.67	Motor RPM	72.00 - 128.00
Distance Slid (ft)	371.00			Surface RPM	20.00 - 25.00
Inclination In	23.60			Flow Rate (gpm)	350.00 - 575.00
Inclination Out	86.29			On Bottom Pressure (psi)	3100.00 - 3200.00
Azimuth In	350.21	% Hours Rotating	43%	Off Bottom Pressure (psi)	2700.00 - 2700.00
Azimuth Out	357.68	% Hours Sliding	57%		
AVG Total ROP (ft/h)	53.62	% Distance Sliding	54%		
AVG Rotating ROP (ft/h)	58.29	% Distance Rotating	46%		
AVG Sliding ROP (ft/h)	49.30				

Personnel

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

BHA #5 - BHA #5 (Curve)

Date In: Dec 14, 2019, 7:00 Date Out: Dec 15, 2019, 17:20

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Aim Contender: 7/8 5.0 Stg 2.12 FBH SS Mtr, Flow Range: 300-600 GPM, Rev/Gal: 0.28, Max Diff: 1,130 psi, Max Operating Torque: 10,460 ft/lbs, Protracted Angle: 2.17 / Bit; Security 8.5" Type: GTD64C , SN:13243075, TFA: 1.178, Jets:6x16's, Bit Runs 0
Vendor	Halliburton	Lobe/Stage	7/8, 5.0	
S/N	13243075	Bend Angle	2.12	
Nozzles	6x16's	Speed (rev/gal)	0.28	
Total Flow Area (in²)	1.178	Wear Pad OD (in)	7.250	MWD Comments
Drilling Hours for Day	13.33	Bit Distances		POOH Reason Change Bottom Hole Assembly: Curve Section completed. Motor performed well. Yields were 15-21. TF Control was very smooth and controllable. Bit was graded 1-1
Total Drilled for Day (ft)	690.00	Bend: 4.15 ft, Survey: 52.00 ft, Gamma: 38.00 ft		
Drilling Hours for BHA	20.42			
Total Drilled for BHA (ft)	939.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 SECURITY, Style: PDC, Gauge Length (in): 2.25, Size (in): 8.50	Halliburton	13243075	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 @ 2.12 Fix SS, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.0	Aim	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.10	27.10
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	30.15
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	61.56
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	91.76

MWD Items

No Items

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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		MWD Comments
Total Drilled for Day (ft)		Bend: 5.31 ft, Survey: 63.00 ft, Gamma:		
Drilling Hours for BHA	112.58	48.00 ft		
Total Drilled for BHA (ft)	7038.00			
				POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-14	23:25	00:00	12-15	10283.00	10313.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 20, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Slide Drill	2	12-15	00:00	01:15	12-15	10313.00	10377.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 52.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 25, Toolface Type: gravity
Survey	46	12-15	01:15	01:20	12-15	10377.00	10377.00	Inclination (°): 31.960, Azimuth (°): 351.800, TVD (ft): 10297.26, Dogleg (°/100 ft): 8.93, Sensor Depth (ft): 10325.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-15	01:20	02:20	12-15	10377.00	10429.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 20, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Slide Drill	2	12-15	02:20	03:10	12-15	10429.00	10471.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 52.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 15, Toolface Type: gravity
Survey	46	12-15	03:10	03:15	12-15	10471.00	10471.00	Inclination (°): 39.300, Azimuth (°): 355.310, TVD (ft): 10373.62, Dogleg (°/100 ft): 8.10, Sensor Depth (ft): 10419.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-15	03:15	03:30	12-15	10471.00	10486.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Slide Drill	2	12-15	03:30	05:00	12-15	10486.00	10566.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 68.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 35, Toolface Type: gravity
Survey	46	12-15	05:00	05:05	12-15	10566.00	10566.00	Inclination (°): 51.910, Azimuth (°): 359.350, TVD (ft): 10439.96, Dogleg (°/100 ft): 13.61, Sensor Depth (ft): 10514.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-15	05:05	06:10	12-15	10566.00	10629.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-15	06:10	06:50	12-15	10629.00	10660.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 68.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	12-15	06:50	06:55	12-15	10660.00	10660.00	Inclination (°): 60.880, Azimuth (°): 3.840, TVD (ft): 10491.95, Dogleg (°/100 ft): 10.33, Sensor Depth (ft): 10608.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-15	06:55	07:50	12-15	10660.00	10716.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-15	07:50	08:35	12-15	10716.00	10754.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 68.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	12-15	08:35	08:40	12-15	10754.00	10754.00	Inclination (°): 64.840, Azimuth (°): 3.050, TVD (ft): 10534.82, Dogleg (°/100 ft): 4.28, Sensor Depth (ft): 10702.00, Bit To Sensor (ft): 52.00

Rotary Drill	1	12-15	08:40	09:00	12-15	10754.00	10780.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-15	09:00	10:10	12-15	10780.00	10836.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 68.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-15	10:10	10:30	12-15	10836.00	10849.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 350.00, Strokes Per Minute: 165.00
Survey	46	12-15	10:30	10:35	12-15	10849.00	10849.00	Inclination (°): 75.520, Azimuth (°): 359.350, TVD (ft): 10567.00, Dogleg (°/100 ft): 11.82, Sensor Depth (ft): 10797.00, Bit To Sensor (ft): 52.00
Rotary Drill	1	12-15	10:35	11:10	12-15	10849.00	10880.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Slide Drill	2	12-15	11:10	11:55	12-15	10880.00	10910.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 68.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 180, Toolface: 45, Toolface Type: gravity
Rotary Drill	1	12-15	11:55	12:30	12-15	10910.00	10943.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 42.00, Surface RPM: 25, Surface Torque (ft lbf): 10000.00, Flow Rate (gpm): 575.00, Strokes Per Minute: 178.00
Survey	46	12-15	12:30	12:35	12-15	10943.00	10943.00	Inclination (°): 86.290, Azimuth (°): 357.680, TVD (ft): 10581.83, Dogleg (°/100 ft): 11.59, Sensor Depth (ft): 10891.00, Bit To Sensor (ft): 52.00
Circulating	3	12-15	12:35	13:30	12-15			Circulate B/u to pooh for lateral assembly
Pooh	7	12-15	13:30	17:20	12-15			POOH for lateral assembly
Change BHA	6	12-15	17:20	18:25	12-15			L/d BHA 5 P/u BHA 6
Circulating	3	12-15	18:25	18:30	12-15			Test MWD (Good)
TIH	8	12-15	18:30	23:10	12-15			TIH W/ BHA #6
Rotary Drill	1	12-15	23:10	23:20	12-15	10943.00	10954.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3350.00, Weight On Bit (klbs): 36.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 655.00, Strokes Per Minute: 204.00
Connection	33	12-15	23:20	23:25	12-15			
Rotary Drill	1	12-15	23:25	00:00	12-16	10954.00	10998.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Dec 15 23:00 - 22:59 (Day 15 of 23)

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10943.00	Downhole Hours	24.00	Rotating WOB (klbs)	36.00 - 50.00
Bit Depth (ft)	12558.00	Drilling Hours	21.42	Sliding WOB (klbs)	28.00 - 50.00
Bottom Hole Depth (ft)	12558.00	Hours Circulating	0.17	Rotating SPM	204.00 - 235.00
Total Distance (ft)	1615.00	Hours Sliding	4.25	Sliding SPM	217.00 - 235.00
Distance Rotated (ft)	1495.00	Hours Rotating	17.17	Motor RPM	72.00 - 128.00
Distance Slid (ft)	120.00			Surface RPM	30.00 - 50.00
Inclination In	91.08			Flow Rate (gpm)	655.00 - 747.00
Inclination Out	91.52			On Bottom Pressure (psi)	3800.00 - 4600.00
Azimuth In	357.41	% Hours Rotating	80%	Off Bottom Pressure (psi)	3350.00 - 4050.00
Azimuth Out	0.93	% Hours Sliding	20%		
AVG Total ROP (ft/h)	75.61	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	86.85	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	28.24				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	21.42	Bit Distances		
Total Drilled for Day (ft)	1615.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-15	23:25	00:00	12-16	10954.00	10998.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00
Rotary Drill	1	12-16	00:00	00:35	12-16	10998.00	11048.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00

Survey	46	12-16	00:35	00:40	12-16	11048.00	11048.00	Inclination (°): 91.080, Azimuth (°): 357.410, TVD (ft): 10583.99, Dogleg (°/100 ft): 5.10, Sensor Depth (ft): 10985.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	00:40	00:50	12-16	11048.00	11058.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00
Slide Drill	2	12-16	00:50	01:10	12-16	11058.00	11065.00	Pressure On (psi): 3950.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 42.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 217, Toolface: 135, Toolface Type: gravity
Circulating	3	12-16	01:10	01:15	12-16			Take pump 2 off hole due to swab
Slide Drill	2	12-16	01:15	01:40	12-16	11065.00	11080.00	Pressure On (psi): 3950.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 42.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 217, Toolface: 135, Toolface Type: gravity
Rotary Drill	1	12-16	01:40	02:30	12-16	11080.00	11143.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00
Survey	46	12-16	02:30	02:35	12-16	11143.00	11143.00	Inclination (°): 89.450, Azimuth (°): 357.760, TVD (ft): 10583.55, Dogleg (°/100 ft): 1.75, Sensor Depth (ft): 11080.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	02:35	02:40	12-16	11143.00	11153.00	Pressure On (psi): 4050.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 39.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 697.00, Strokes Per Minute: 216.00
Circulating	3	12-16	02:40	02:45	12-16			All 3 pumps on hole
Slide Drill	2	12-16	02:45	03:25	12-16	11153.00	11173.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	12-16	03:25	04:15	12-16	11173.00	11238.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	04:15	04:20	12-16	11238.00	11238.00	Inclination (°): 89.230, Azimuth (°): 359.520, TVD (ft): 10584.64, Dogleg (°/100 ft): 1.87, Sensor Depth (ft): 11175.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	04:20	05:15	12-16	11238.00	11332.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	05:15	05:20	12-16	11332.00	11332.00	Inclination (°): 89.630, Azimuth (°): 359.080, TVD (ft): 10585.58, Dogleg (°/100 ft): 0.63, Sensor Depth (ft): 11269.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	05:20	05:30	12-16	11332.00	11342.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-16	05:30	05:45	12-16	11342.00	11348.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235, Toolface: 130, Toolface Type: gravity
Slide Drill	2	12-16	05:45	06:20	12-16	11348.00	11362.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235, Toolface: 130, Toolface Type: gravity
Rotary Drill	1	12-16	06:20	07:00	12-16	11362.00	11426.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	07:00	07:05	12-16	11426.00	11426.00	Inclination (°): 89.270, Azimuth (°): 359.870, TVD (ft): 10586.48, Dogleg (°/100 ft): 0.92, Sensor Depth (ft): 11363.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	07:05	08:00	12-16	11426.00	11520.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	08:00	08:05	12-16	11520.00	11520.00	Inclination (°): 89.050, Azimuth (°): 0.050, TVD (ft): 10587.86, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 11457.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	08:05	09:05	12-16	11520.00	11615.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	09:05	09:10	12-16	11615.00	11615.00	Inclination (°): 89.540, Azimuth (°): 0.050, TVD (ft): 10589.03, Dogleg (°/100 ft): 0.52, Sensor Depth (ft): 11552.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	09:10	09:15	12-16	11615.00	11625.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-16	09:15	09:50	12-16	11625.00	11645.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 28.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-16	09:50	10:35	12-16	11645.00	11709.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	10:35	10:40	12-16	11709.00	11709.00	Inclination (°): 87.030, Azimuth (°): 0.140, TVD (ft): 10591.84, Dogleg (°/100 ft): 2.67, Sensor Depth (ft): 11646.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	10:40	11:50	12-16	11709.00	11803.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	11:50	11:55	12-16	11803.00	11803.00	Inclination (°): 86.990, Azimuth (°): 0.400, TVD (ft): 10596.75, Dogleg (°/100 ft): 0.28, Sensor Depth (ft): 11740.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	11:55	12:50	12-16	11803.00	11897.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	12:50	12:55	12-16	11897.00	11897.00	Inclination (°): 87.300, Azimuth (°): 0.050, TVD (ft): 10601.43, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 11834.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	12:55	13:55	12-16	11897.00	11991.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

Survey	46	12-16	13:55	14:10	12-16	11991.00	11991.00	Inclination (°): 87.120, Azimuth (°): 359.700, TVD (ft): 10606.00, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 11928.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	14:10	14:50	12-16	11991.00	12086.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	14:50	14:55	12-16	12086.00	12086.00	Inclination (°): 87.300, Azimuth (°): 359.700, TVD (ft): 10610.63, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 12023.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	14:55	16:00	12-16	12086.00	12180.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	16:00	16:05	12-16	12180.00	12180.00	Inclination (°): 87.340, Azimuth (°): 359.520, TVD (ft): 10615.02, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 12117.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	16:05	17:20	12-16	12180.00	12274.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Rig Service - In Hole	19	12-16	17:20	18:00	12-16			
Survey	46	12-16	18:00	18:05	12-16	12274.00	12274.00	Inclination (°): 87.650, Azimuth (°): 0.050, TVD (ft): 10619.13, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 12211.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	18:05	19:05	12-16	12274.00	12368.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	19:05	19:10	12-16	12368.00	12368.00	Inclination (°): 87.560, Azimuth (°): 359.780, TVD (ft): 10623.06, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 12305.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	19:10	19:25	12-16	12368.00	12378.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-16	19:25	20:00	12-16	12378.00	12393.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	12-16	20:00	21:05	12-16	12393.00	12463.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	21:05	21:10	12-16	12463.00	12463.00	Inclination (°): 91.520, Azimuth (°): 0.930, TVD (ft): 10623.82, Dogleg (°/100 ft): 4.34, Sensor Depth (ft): 12400.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	21:10	21:20	12-16	12463.00	12474.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-16	21:20	22:10	12-16	12474.00	12497.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-16	22:10	23:00	12-16	12497.00	12558.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-16	23:00	23:05	12-16	12558.00	12558.00	Inclination (°): 89.580, Azimuth (°): 1.010, TVD (ft): 10622.91, Dogleg (°/100 ft): 2.04, Sensor Depth (ft): 12495.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-16	23:05	00:00	12-17	12558.00	12630.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Dec 16 23:00 - 22:59 (Day 16 of 23)

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	12558.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	14289.00	Drilling Hours	21.67	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	14289.00	Hours Circulating	0.00	Rotating SPM	235.00 - 235.00
Total Distance (ft)	1731.00	Hours Sliding	7.00	Sliding SPM	232.00 - 232.00
Distance Rotated (ft)	1500.00	Hours Rotating	14.67	Motor RPM	72.00 - 128.00
Distance Slid (ft)	231.00			Surface RPM	40.00 - 40.00
Inclination In	89.58			Flow Rate (gpm)	747.00 - 747.00
Inclination Out	91.60			On Bottom Pressure (psi)	4500.00 - 4600.00
Azimuth In	1.01	% Hours Rotating	68%	Off Bottom Pressure (psi)	4050.00 - 4050.00
Azimuth Out	357.59	% Hours Sliding	32%		
AVG Total ROP (ft/h)	79.58	% Distance Sliding	13%		
AVG Rotating ROP (ft/h)	100.17	% Distance Rotating	87%		
AVG Sliding ROP (ft/h)	33.00				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	21.67	Bit Distances		
Total Drilled for Day (ft)	1731.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			
				POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-16	23:05	00:00	12-17	12558.00	12630.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Rotary Drill	1	12-17	00:00	00:15	12-17	12630.00	12652.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

Survey	46	12-17	00:15	00:20	12-17	12652.00	12652.00	Inclination (°): 89.320, Azimuth (°): 0.840, TVD (ft): 10623.81, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 12589.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	00:20	00:30	12-17	12652.00	12664.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	00:30	01:15	12-17	12664.00	12683.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-17	01:15	02:05	12-17	12683.00	12747.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	02:05	02:10	12-17	12747.00	12747.00	Inclination (°): 89.050, Azimuth (°): 1.280, TVD (ft): 10625.16, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 12684.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	02:10	02:20	12-17	12747.00	12759.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	02:20	02:50	12-17	12759.00	12774.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 220, Toolface Type: gravity
Rotary Drill	1	12-17	02:50	03:35	12-17	12774.00	12841.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	03:35	03:40	12-17	12841.00	12841.00	Inclination (°): 88.570, Azimuth (°): 359.520, TVD (ft): 10627.12, Dogleg (°/100 ft): 1.94, Sensor Depth (ft): 12778.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	03:40	03:50	12-17	12841.00	12866.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	03:50	04:25	12-17	12866.00	12880.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 190, Toolface Type: gravity
Rotary Drill	1	12-17	04:25	05:15	12-17	12880.00	12935.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	05:15	05:20	12-17	12935.00	12935.00	Inclination (°): 87.430, Azimuth (°): 358.640, TVD (ft): 10630.40, Dogleg (°/100 ft): 1.53, Sensor Depth (ft): 12872.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	05:20	06:20	12-17	12935.00	13029.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	06:20	06:25	12-17	13029.00	13029.00	Inclination (°): 86.330, Azimuth (°): 358.200, TVD (ft): 10635.51, Dogleg (°/100 ft): 1.26, Sensor Depth (ft): 12966.00, Bit To Sensor (ft): 63.00
Slide Drill	2	12-17	06:25	06:55	12-17	13029.00	13049.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-17	06:55	07:30	12-17	13049.00	13124.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	07:30	07:35	12-17	13124.00	13124.00	Inclination (°): 88.750, Azimuth (°): 358.550, TVD (ft): 10639.59, Dogleg (°/100 ft): 2.57, Sensor Depth (ft): 13061.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	07:35	07:45	12-17	13124.00	13144.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	07:45	08:15	12-17	13144.00	13164.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-17	08:15	08:35	12-17	13164.00	13218.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	08:35	08:40	12-17	13218.00	13218.00	Inclination (°): 89.930, Azimuth (°): 359.610, TVD (ft): 10640.67, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 13155.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	08:40	09:20	12-17	13218.00	13312.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	09:20	09:25	12-17	13312.00	13312.00	Inclination (°): 90.550, Azimuth (°): 0.220, TVD (ft): 10640.28, Dogleg (°/100 ft): 0.93, Sensor Depth (ft): 13249.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	09:25	09:50	12-17	13312.00	13378.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	09:50	10:30	12-17	13378.00	13407.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 355, Toolface Type: gravity
Survey	46	12-17	10:30	10:35	12-17	13406.00	13406.00	Inclination (°): 89.190, Azimuth (°): 0.310, TVD (ft): 10640.49, Dogleg (°/100 ft): 1.45, Sensor Depth (ft): 13343.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	10:35	11:15	12-17	13407.00	13501.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	11:15	11:20	12-17	13501.00	13501.00	Inclination (°): 93.100, Azimuth (°): 1.100, TVD (ft): 10638.59, Dogleg (°/100 ft): 4.20, Sensor Depth (ft): 13438.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	11:20	12:00	12-17	13501.00	13595.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	12:00	12:05	12-17	13595.00	13595.00	Inclination (°): 91.780, Azimuth (°): 0.220, TVD (ft): 10634.59, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 13532.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	12:05	12:10	12-17	13595.00	13609.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

Slide Drill	2	12-17	12:10	12:25	12-17	13609.00	13624.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 355, Toolface Type: gravity
Rotary Drill	1	12-17	12:25	13:30	12-17	13624.00	13689.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	13:30	13:35	12-17	13689.00	13689.00	Inclination (°): 90.680, Azimuth (°): 358.990, TVD (ft): 10632.57, Dogleg (°/100 ft): 1.76, Sensor Depth (ft): 13626.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	13:35	13:40	12-17	13689.00	13699.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	13:40	14:35	12-17	13699.00	13739.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-17	14:35	15:10	12-17	13739.00	13783.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	15:10	15:15	12-17	13783.00	13783.00	Inclination (°): 90.730, Azimuth (°): 358.200, TVD (ft): 10631.42, Dogleg (°/100 ft): 0.84, Sensor Depth (ft): 13720.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	15:15	16:00	12-17	13783.00	13877.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	16:00	16:05	12-17	13877.00	13877.00	Inclination (°): 93.270, Azimuth (°): 358.550, TVD (ft): 10628.14, Dogleg (°/100 ft): 2.73, Sensor Depth (ft): 13814.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	16:05	16:25	12-17	13877.00	13925.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	16:25	17:05	12-17	13925.00	13940.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	12-17	17:05	17:25	12-17	13940.00	13972.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Rig Service - In Hole	19	12-17	17:25	17:55	12-17			Rig Service
Survey	46	12-17	17:55	18:00	12-17	13972.00	13972.00	Inclination (°): 92.310, Azimuth (°): 357.670, TVD (ft): 10623.51, Dogleg (°/100 ft): 1.37, Sensor Depth (ft): 13909.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	18:00	18:40	12-17	13972.00	14066.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	18:40	18:45	12-17	14066.00	14066.00	Inclination (°): 93.760, Azimuth (°): 357.410, TVD (ft): 10618.54, Dogleg (°/100 ft): 1.57, Sensor Depth (ft): 14003.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	18:45	19:45	12-17	14066.00	14160.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	19:45	19:50	12-17	14160.00	14160.00	Inclination (°): 93.450, Azimuth (°): 357.320, TVD (ft): 10612.63, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 14097.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	19:50	20:00	12-17	14160.00	14170.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	20:00	20:50	12-17	14170.00	14192.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 135, Toolface Type: gravity
Rotary Drill	1	12-17	20:50	21:40	12-17	14192.00	14255.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	21:40	21:45	12-17	14255.00	14255.00	Inclination (°): 91.600, Azimuth (°): 357.590, TVD (ft): 10608.44, Dogleg (°/100 ft): 1.97, Sensor Depth (ft): 14192.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	21:45	21:55	12-17	14255.00	14267.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-17	21:55	22:45	12-17	14267.00	14289.00	Pressure On (psi): 4500.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	12-17	22:45	23:35	12-17	14289.00	14349.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-17	23:35	23:40	12-17	14349.00	14349.00	Inclination (°): 91.210, Azimuth (°): 359.520, TVD (ft): 10606.14, Dogleg (°/100 ft): 2.09, Sensor Depth (ft): 14286.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-17	23:40	00:00	12-18	14349.00	14375.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Dec 17 23:00 - 22:59 (Day 17 of 23)

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	14289.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	15585.00	Drilling Hours	22.17	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	15585.00	Hours Circulating	0.00	Rotating SPM	235.00 - 235.00
Total Distance (ft)	1296.00	Hours Sliding	3.67	Sliding SPM	232.00 - 232.00
Distance Rotated (ft)	1234.00	Hours Rotating	18.50	Motor RPM	72.00 - 128.00
Distance Slid (ft)	62.00			Surface RPM	40.00 - 40.00
Inclination In	91.21			Flow Rate (gpm)	747.00 - 747.00
Inclination Out	94.11			On Bottom Pressure (psi)	4400.00 - 4600.00
Azimuth In	359.52	% Hours Rotating	83%	Off Bottom Pressure (psi)	4050.00 - 4200.00
Azimuth Out	359.78	% Hours Sliding	17%		
AVG Total ROP (ft/h)	55.21	% Distance Sliding	5%		
AVG Rotating ROP (ft/h)	66.45	% Distance Rotating	95%		
AVG Sliding ROP (ft/h)	16.13				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	22.17	Bit Distances		
Total Drilled for Day (ft)	1296.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-17	23:40	00:00	12-18	14349.00	14375.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Rotary Drill	1	12-18	00:00	01:10	12-18	14375.00	14443.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

Survey	46	12-18	01:10	01:15	12-18	14443.00	14443.00	Inclination (°): 90.590, Azimuth (°): 359.610, TVD (ft): 10604.66, Dogleg (°/100 ft): 0.67, Sensor Depth (ft): 14380.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	01:15	02:35	12-18	14443.00	14537.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	02:35	02:40	12-18	14537.00	14537.00	Inclination (°): 91.120, Azimuth (°): 359.080, TVD (ft): 10603.26, Dogleg (°/100 ft): 0.80, Sensor Depth (ft): 14474.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	02:40	03:50	12-18	14537.00	14631.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	03:50	03:55	12-18	14631.00	14631.00	Inclination (°): 91.160, Azimuth (°): 358.990, TVD (ft): 10601.39, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 14568.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	03:55	04:05	12-18	14631.00	14644.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-18	04:05	04:25	12-18	14644.00	14654.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	12-18	04:25	05:40	12-18	14654.00	14726.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	05:40	05:45	12-18	14726.00	14726.00	Inclination (°): 92.350, Azimuth (°): 359.960, TVD (ft): 10598.48, Dogleg (°/100 ft): 1.62, Sensor Depth (ft): 14663.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	05:45	07:05	12-18	14726.00	14820.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	07:05	07:10	12-18	14820.00	14820.00	Inclination (°): 92.700, Azimuth (°): 359.960, TVD (ft): 10594.34, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 14757.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	07:10	08:40	12-18	14820.00	14915.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	08:40	08:45	12-18	14915.00	14915.00	Inclination (°): 92.000, Azimuth (°): 358.820, TVD (ft): 10590.44, Dogleg (°/100 ft): 1.41, Sensor Depth (ft): 14852.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	08:45	10:00	12-18	14915.00	15009.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	10:00	10:05	12-18	15009.00	15009.00	Inclination (°): 91.210, Azimuth (°): 358.030, TVD (ft): 10587.81, Dogleg (°/100 ft): 1.19, Sensor Depth (ft): 14946.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	10:05	10:15	12-18	15009.00	15019.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-18	10:15	11:15	12-18	15019.00	15034.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-18	11:15	12:25	12-18	15034.00	15104.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	12:25	12:30	12-18	15104.00	15104.00	Inclination (°): 91.690, Azimuth (°): 358.380, TVD (ft): 10585.40, Dogleg (°/100 ft): 0.63, Sensor Depth (ft): 15041.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	12:30	13:45	12-18	15104.00	15198.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	13:45	13:50	12-18	15198.00	15198.00	Inclination (°): 90.950, Azimuth (°): 357.760, TVD (ft): 10583.24, Dogleg (°/100 ft): 1.03, Sensor Depth (ft): 15135.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	13:50	14:00	12-18	15198.00	15208.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-18	14:00	15:20	12-18	15208.00	15228.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	12-18	15:20	16:15	12-18	15228.00	15292.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Rig Service - In Hole	19	12-18	16:15	16:45	12-18			Rig Service
Survey	46	12-18	16:45	16:50	12-18	15292.00	15292.00	Inclination (°): 92.130, Azimuth (°): 359.430, TVD (ft): 10580.71, Dogleg (°/100 ft): 2.17, Sensor Depth (ft): 15229.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	16:50	17:55	12-18	15292.00	15386.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	17:55	18:00	12-18	15386.00	15386.00	Inclination (°): 91.430, Azimuth (°): 358.910, TVD (ft): 10577.79, Dogleg (°/100 ft): 0.93, Sensor Depth (ft): 15323.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	18:00	18:10	12-18	15386.00	15396.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-18	18:10	19:10	12-18	15396.00	15413.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-18	19:10	20:20	12-18	15413.00	15480.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	20:20	20:25	12-18	15480.00	15480.00	Inclination (°): 93.850, Azimuth (°): 0.050, TVD (ft): 10573.46, Dogleg (°/100 ft): 2.85, Sensor Depth (ft): 15417.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-18	20:25	22:15	12-18	15480.00	15574.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-18	22:15	22:20	12-18	15574.00	15574.00	Inclination (°): 94.110, Azimuth (°): 359.780, TVD (ft): 10566.94, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 15511.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	12-18	22:20	22:35	12-18	15574.00	15585.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 26000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-18	22:35	00:00	12-19	15585.00	15605.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 160, Toolface Type: gravity

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Wednesday, Dec 18 23:00 - 22:59 (Day 18 of 23)

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15585.00	Downhole Hours	24.00	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	16894.00	Drilling Hours	23.33	Sliding WOB (klbs)	55.00 - 65.00
Bottom Hole Depth (ft)	16894.00	Hours Circulating	0.00	Rotating SPM	216.00 - 235.00
Total Distance (ft)	1309.00	Hours Sliding	5.42	Sliding SPM	216.00 - 232.00
Distance Rotated (ft)	1221.00	Hours Rotating	17.92	Motor RPM	72.00 - 128.00
Distance Slid (ft)	88.00			Surface RPM	40.00 - 50.00
Inclination In	92.00			Flow Rate (gpm)	695.00 - 747.00
Inclination Out	92.13			On Bottom Pressure (psi)	4300.00 - 4600.00
Azimuth In	359.17	% Hours Rotating	77%	Off Bottom Pressure (psi)	4050.00 - 4200.00
Azimuth Out	359.78	% Hours Sliding	23%		
AVG Total ROP (ft/h)	56.12	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	68.36	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	17.49				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	23.33	Bit Distances		
Total Drilled for Day (ft)	1309.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			
				POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Slide Drill	2	12-18	22:35	00:00	12-19	15585.00	15605.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 160, Toolface Type: gravity
Rotary Drill	1	12-19	00:00	01:15	12-19	15605.00	15669.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00

Survey	46	12-19	01:15	01:20	12-19	15669.00	15669.00	Inclination (°): 92.000, Azimuth (°): 359.170, TVD (ft): 10561.88, Dogleg (°/100 ft): 2.31, Sensor Depth (ft): 15606.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	01:20	02:00	12-19	15669.00	15710.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-19	02:00	02:50	12-19	15710.00	15721.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 170, Toolface Type: gravity
Rotary Drill	1	12-19	02:50	03:40	12-19	15721.00	15763.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-19	03:40	03:45	12-19	15763.00	15763.00	Inclination (°): 92.750, Azimuth (°): 359.430, TVD (ft): 10557.98, Dogleg (°/100 ft): 0.84, Sensor Depth (ft): 15700.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	03:45	04:05	12-19	15763.00	15785.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-19	04:05	04:45	12-19	15785.00	15795.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	12-19	04:45	05:55	12-19	15795.00	15857.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-19	05:55	06:00	12-19	15857.00	15857.00	Inclination (°): 90.810, Azimuth (°): 358.910, TVD (ft): 10555.06, Dogleg (°/100 ft): 2.14, Sensor Depth (ft): 15794.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	06:00	07:10	12-19	15857.00	15952.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-19	07:10	07:15	12-19	15952.00	15952.00	Inclination (°): 90.860, Azimuth (°): 358.820, TVD (ft): 10553.68, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 15889.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	07:15	08:00	12-19	15952.00	16006.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Slide Drill	2	12-19	08:00	09:00	12-19	16006.00	16021.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 232, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	12-19	09:00	09:30	12-19	16021.00	16046.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 747.00, Strokes Per Minute: 235.00
Survey	46	12-19	09:30	09:35	12-19	16046.00	16046.00	Inclination (°): 92.130, Azimuth (°): 359.430, TVD (ft): 10551.22, Dogleg (°/100 ft): 1.50, Sensor Depth (ft): 15983.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	09:35	11:10	12-19	16046.00	16140.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	11:10	11:15	12-19	16140.00	16140.00	Inclination (°): 90.550, Azimuth (°): 359.610, TVD (ft): 10549.03, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 16077.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	11:15	12:50	12-19	16140.00	16234.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	12:50	12:55	12-19	16234.00	16234.00	Inclination (°): 91.520, Azimuth (°): 359.700, TVD (ft): 10547.33, Dogleg (°/100 ft): 1.04, Sensor Depth (ft): 16171.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	12:55	13:00	12-19	16234.00	16244.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-19	13:00	14:00	12-19	16244.00	16261.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-19	14:00	15:15	12-19	16261.00	16327.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	15:15	15:20	12-19	16327.00	16327.00	Inclination (°): 89.690, Azimuth (°): 359.430, TVD (ft): 10546.35, Dogleg (°/100 ft): 1.99, Sensor Depth (ft): 16264.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	15:20	17:00	12-19	16327.00	16423.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	17:00	17:05	12-19	16423.00	16423.00	Inclination (°): 89.580, Azimuth (°): 359.610, TVD (ft): 10546.96, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 16360.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	17:05	18:15	12-19	16423.00	16517.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	18:15	18:20	12-19	16517.00	16517.00	Inclination (°): 89.710, Azimuth (°): 359.260, TVD (ft): 10547.54, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 16454.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	18:20	19:25	12-19	16517.00	16612.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	19:25	19:30	12-19	16612.00	16612.00	Inclination (°): 89.410, Azimuth (°): 358.990, TVD (ft): 10548.27, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 16549.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	19:30	19:40	12-19	16612.00	16625.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-19	19:40	20:10	12-19	16625.00	16640.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	12-19	20:10	20:55	12-19	16640.00	16706.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	20:55	21:00	12-19	16706.00	16706.00	Inclination (°): 90.680, Azimuth (°): 359.610, TVD (ft): 10548.19, Dogleg (°/100 ft): 1.50, Sensor Depth (ft): 16643.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	12-19	21:00	21:55	12-19	16706.00	16800.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	21:55	22:00	12-19	16800.00	16800.00	Inclination (°): 92.130, Azimuth (°): 359.780, TVD (ft): 10545.89, Dogleg (°/100 ft): 1.55, Sensor Depth (ft): 16737.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	22:00	23:00	12-19	16800.00	16894.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-19	23:00	23:05	12-19	16894.00	16894.00	Inclination (°): 90.640, Azimuth (°): 358.820, TVD (ft): 10543.62, Dogleg (°/100 ft): 1.89, Sensor Depth (ft): 16831.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-19	23:05	23:10	12-19	16894.00	16906.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-19	23:10	23:35	12-19	16906.00	16920.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-19	23:35	00:00	12-20	16920.00	16946.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	16894.00	Downhole Hours	24.00	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	17836.00	Drilling Hours	21.25	Sliding WOB (klbs)	60.00 - 65.00
Bottom Hole Depth (ft)	17836.00	Hours Circulating	0.00	Rotating SPM	216.00 - 216.00
Total Distance (ft)	942.00	Hours Sliding	4.17	Sliding SPM	216.00 - 217.00
Distance Rotated (ft)	881.00	Hours Rotating	17.08	Motor RPM	72.00 - 128.00
Distance Slid (ft)	61.00			Surface RPM	40.00 - 50.00
Inclination In	90.64			Flow Rate (gpm)	695.00 - 699.00
Inclination Out	90.86			On Bottom Pressure (psi)	4050.00 - 4600.00
Azimuth In	358.82	% Hours Rotating	80%	Off Bottom Pressure (psi)	4050.00 - 4300.00
Azimuth Out	358.55	% Hours Sliding	20%		
AVG Total ROP (ft/h)	45.02	% Distance Sliding	6%		
AVG Rotating ROP (ft/h)	51.30	% Distance Rotating	94%		
AVG Sliding ROP (ft/h)	12.53				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	21.25	Bit Distances		
Total Drilled for Day (ft)	942.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-19	23:35	00:00	12-20	16920.00	16946.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Rotary Drill	1	12-20	00:00	00:25	12-20	16946.00	16988.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00

Survey	46	12-20	00:25	00:30	12-20	16988.00	16988.00	Inclination (°): 91.160, Azimuth (°): 358.550, TVD (ft): 10542.14, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 16925.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	00:30	00:40	12-20	16988.00	17002.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-20	00:40	01:00	12-20	17002.00	17014.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	12-20	01:00	01:45	12-20	17014.00	17082.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	01:45	01:50	12-20	17082.00	17082.00	Inclination (°): 93.800, Azimuth (°): 359.700, TVD (ft): 10538.07, Dogleg (°/100 ft): 3.06, Sensor Depth (ft): 17019.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	01:50	02:50	12-20	17082.00	17176.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	02:50	02:55	12-20	17176.00	17176.00	Inclination (°): 93.930, Azimuth (°): 359.780, TVD (ft): 10531.74, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 17113.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	02:55	03:05	12-20	17176.00	17192.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-20	03:05	04:05	12-20	17192.00	17205.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-20	04:05	05:10	12-20	17205.00	17270.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	05:10	05:15	12-20	17270.00	17270.00	Inclination (°): 92.880, Azimuth (°): 358.470, TVD (ft): 10526.16, Dogleg (°/100 ft): 1.78, Sensor Depth (ft): 17207.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	05:15	05:25	12-20	17270.00	17279.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-20	05:25	07:00	12-20	17279.00	17291.00	Pressure On (psi): 4300.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 65.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	12-20	07:00	08:40	12-20	17291.00	17364.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	08:40	08:45	12-20	17364.00	17364.00	Inclination (°): 91.740, Azimuth (°): 359.080, TVD (ft): 10522.37, Dogleg (°/100 ft): 1.38, Sensor Depth (ft): 17301.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	08:45	09:00	12-20	17364.00	17376.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Slide Drill	2	12-20	09:00	09:50	12-20	17376.00	17386.00	Pressure On (psi): 4050.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 60.00, Flow Rate (gpm): 699.00, Strokes Per Minute: 217, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	12-20	09:50	11:05	12-20	17386.00	17459.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	11:05	11:10	12-20	17459.00	17459.00	Inclination (°): 90.990, Azimuth (°): 359.170, TVD (ft): 10520.10, Dogleg (°/100 ft): 0.80, Sensor Depth (ft): 17396.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	11:10	13:00	12-20	17459.00	17553.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Rig Service - In Hole	19	12-20	13:00	13:20	12-20			Rig Service
Survey	46	12-20	13:20	13:25	12-20	17553.00	17553.00	Inclination (°): 90.290, Azimuth (°): 358.820, TVD (ft): 10519.05, Dogleg (°/100 ft): 0.83, Sensor Depth (ft): 17490.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	13:25	15:10	12-20	17553.00	17647.00	Pressure On (psi): 4400.00, Pressure Off (psi): 4050.00, Weight On Bit (klbs): 55.00, Surface RPM: 50, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	15:10	15:15	12-20	17647.00	17647.00	Inclination (°): 89.930, Azimuth (°): 358.550, TVD (ft): 10518.87, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 17584.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	15:15	18:15	12-20	17647.00	17742.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	18:15	18:20	12-20	17742.00	17742.00	Inclination (°): 90.330, Azimuth (°): 358.290, TVD (ft): 10518.66, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 17679.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	18:20	21:25	12-20	17742.00	17836.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	21:25	21:30	12-20	17836.00	17836.00	Inclination (°): 90.860, Azimuth (°): 358.550, TVD (ft): 10517.68, Dogleg (°/100 ft): 0.63, Sensor Depth (ft): 17773.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	21:30	23:20	12-20	17836.00	17931.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Survey	46	12-20	23:20	23:25	12-20	17931.00	17931.00	Inclination (°): 91.340, Azimuth (°): 358.550, TVD (ft): 10515.86, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 17868.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	12-20	23:25	00:00	12-21	17931.00	17963.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Dec 20 23:00 - 22:59 (Day 20 of 23)

Billing: \$8,200.00 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	17836.00	Downhole Hours	21.75	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	17981.00	Drilling Hours	2.75	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	17981.00	Hours Circulating	4.00	Rotating SPM	216.00 - 216.00
Total Distance (ft)	145.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	145.00	Hours Rotating	2.75	Motor RPM	72.00 - 128.00
Distance Slid (ft)	0.00			Surface RPM	40.00 - 40.00
Inclination In	91.34			Flow Rate (gpm)	695.00 - 695.00
Inclination Out	91.12			On Bottom Pressure (psi)	4600.00 - 4600.00
Azimuth In	358.55	% Hours Rotating	100%	Off Bottom Pressure (psi)	4300.00 - 4300.00
Azimuth Out	358.47	% Hours Sliding	0%		
AVG Total ROP (ft/h)	54.55	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	54.55	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

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

BHA #6 - BHA #6 (Lateral)

Date In: Dec 15, 2019, 17:20 Date Out: Dec 21, 2019, 20:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Aim Contender: 7/8 8.5 Stg 1.75 FBH TS Mtr, Flow Range: 500-750 GPM, Rev/Gal: 0.26, Max Diff: 1,910 psi, Max Operating Torque: 18,710 ft/lbs, Protracted Angle: 1.76 / Bit; Baker 8.5" Type: DD506TWX , SN:5293516, TFA: 2.227, Jets: 6x22's, Bit Runs 2
Vendor	Baker	Lobe/Stage	7/8, 8.5	
S/N	5293516	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	2.75	Bit Distances		
Total Drilled for Day (ft)	145.00	Bend: 5.31 ft, Survey: 63.00 ft, Gamma: 48.00 ft		
Drilling Hours for BHA	112.58			
Total Drilled for BHA (ft)	7038.00			POOH Reason
				Total Depth/Casing Point: Motor performed excellent. yields were consistent 10-14. On Surface motor had 1/2"+ slack in bearings and partially drained on its own. Bit had flat crested wear all the way around the heel row, 1 chipped cutter on the inner row with no penetration limiters left on bit.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5 Baker DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker	5293516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 @ 1.75 FBH TS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Aim	700-40-033	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
UBHO Sub Description: UBHO SUB, Type: NM	AIM	675-363	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.750		3.05	40.20
Drill Collar Description: 6 3/4" NMDC (MWD Tool), Style: Slick Drill, Type: NM	Gator	GT6730486	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		31.41	71.61
Drill Collar Description: 6 3/4" NMDC (Spacer), Style: Slick Drill, Type: NM	DR	DR39954	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		30.20	101.81

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	12-20	23:25	00:00	12-21	17931.00	17963.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00
Rotary Drill	1	12-21	00:00	00:20	12-21	17963.00	17981.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4300.00, Weight On Bit (klbs): 55.00, Surface RPM: 40, Surface Torque (ft lbf): 32000.00, Flow Rate (gpm): 695.00, Strokes Per Minute: 216.00

Survey	46	12-21	00:20	00:25	12-21	17981.00	17981.00	Inclination (°): 91.120, Azimuth (°): 358.470, TVD (ft): 10514.78, Dogleg (°/100 ft): 0.47, Sensor Depth (ft): 17918.00, Bit To Sensor (ft): 63.00
Survey	46	12-21	00:25	00:30	12-21	17981.00	17981.00	Inclination (°): 91.120, Azimuth (°): 358.470, TVD (ft): 10513.55, Dogleg (°/100 ft): 0.00, Sensor Depth (ft): 17981.00, Bit To Sensor (ft): 0.00
								TD Projection to bit
Circulating	3	12-21	00:30	04:30	12-21			Circulate hole clean at TD
L/D DP	28	12-21	04:30	20:00	12-21			L/d 5" D/P
Change BHA	6	12-21	20:00	20:45	12-21			L/D BHA # 6
Standby	15	12-21	20:45	00:00	12-22			Standby while rig rigs up and runs production casing

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Saturday, Dec 21 23:00 - 22:59 (Day 21 of 23)

Billing: \$4,100.00 (\$175,927.74 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
Joel Johnson	Directional Driller
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Stephen Long	Directional Driller
Shawn Lawson	MWD Engineer
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	12-21	20:45	00:00	12-22			Standby while rig rigs up and runs production casing
Standby	15	12-22	00:00	18:00	12-22			Standby while rig rigs up and runs production casing
Standby	15	12-22	18:00	00:00	12-23			Standby while Cementing

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Billing: \$2,500.00 (\$175,927.74 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
Joel Johnson	Directional Driller
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Stephen Long	Directional Driller
Shawn Lawson	MWD Engineer
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	12-22	18:00	00:00	12-23			Standby while Cementing
Standby	15	12-23	00:00	05:00	12-23			Standby while installing night cap & torq. , Nipple down , Rig Down for Rig Move
Standby	15	12-23	05:00	23:55	12-24			Standby while Rigging Down / Rig Move

MWD Activities

No Activities



Job Number WT-19-165	Operator Advance Energy Partners	Rig Name H&P #620
Start Date 2019-10-29	Well Name Wool Head 20 State Com 507H	Legal Well Name AFE Wool Head 20 State Com 507H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Billing: \$8,428.20 (\$175,927.74 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	0.00	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours		Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating		Rotating SPM	
Total Distance (ft)		Hours Sliding		Sliding SPM	
Distance Rotated (ft)		Hours Rotating		Motor RPM	-
Distance Slid (ft)				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
Joel Johnson	Directional Driller
Shawn Flores	MWD Engineer
Orey Meredith	Directional Driller
Omar Alaniz	Directional Driller
Stephen Long	Directional Driller
Shawn Lawson	MWD Engineer
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	12-23	05:00	23:55	12-24			Standby while Rigging Down / Rig Move

MWD Activities

No Activities



Surface Plat

Wool Head 20 State Com 507H (WT-19-165)

2019-10-29 to 2019-12-24

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	97895	WC-025 G-08 S213304D; BONE SPRING
Property Code	Property Name	Well Number
325948	WOOL HEAD 20 STATE COM	507H
OGRID No.	Operator Name	Elevation
372417	ADVANCE ENERGY PARTNERS HAT MESA	3721'

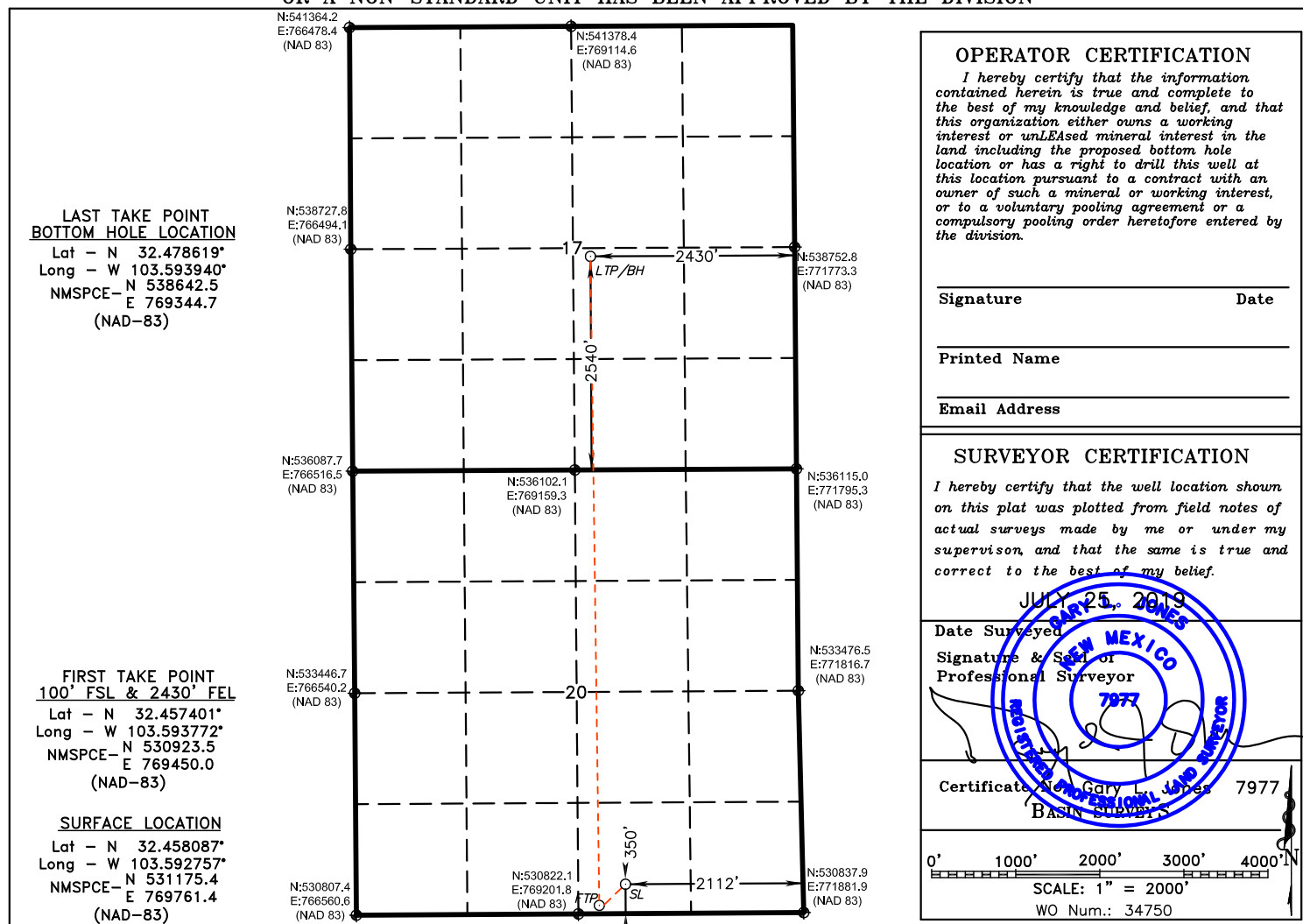
Surface Location

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	2112	EAST	LEA

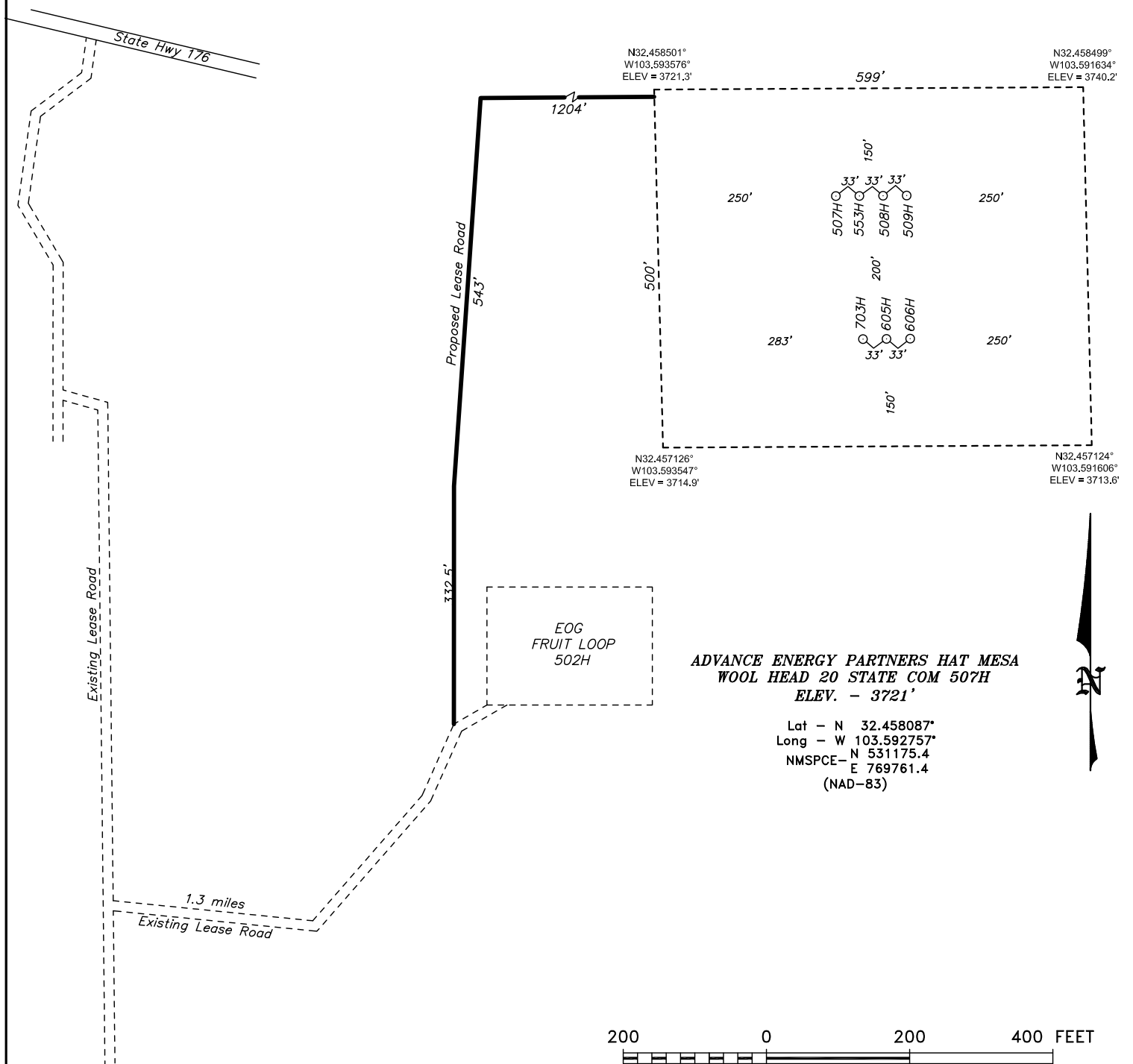
Bottom Hole Location If Different From Surface

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.**



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

ADVANCE ENERGY PARTNERS HAT MESA

REF: WOOL HEAD 20 STATE COM 507H / WELL PAD TOPO

THE WOOL HEAD 20 STATE COM 507H LOCATED 350' FROM
THE SOUTH LINE AND 2112' FROM THE EAST LINE OF
SECTION 20, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

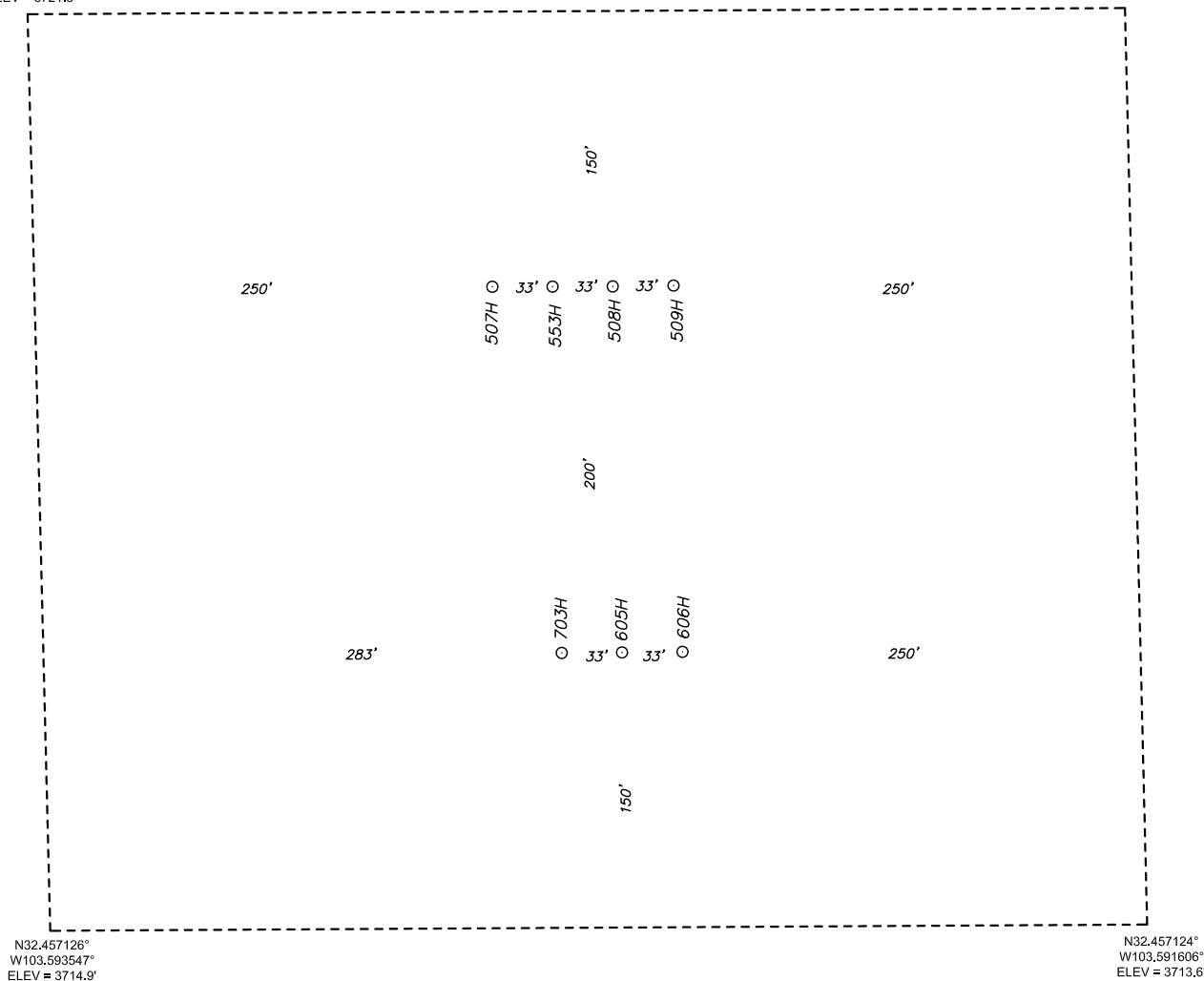
N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 34750	Drawn By: K. GOAD	Date: 07-26-2019	Survey Date: 07-25-2019	Sheet 1 of 1 Sheets
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**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'

100 0 100 200 FEET
SCALE: 1" = 100'

ADVANCE ENERGY PARTNERS HAT MESA

REF: WOOL HEAD 20 STATE COM 507H / WELL PAD TOPO

THE WOOL HEAD 20 STATE COM 507H LOCATED 350' FROM
THE SOUTH LINE AND 2112' 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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1120 N. West County Rd. (575) 392-2206 - Fax
Hobbs, New Mexico 88241 basin-surveys.com

W.O. Number: 34750

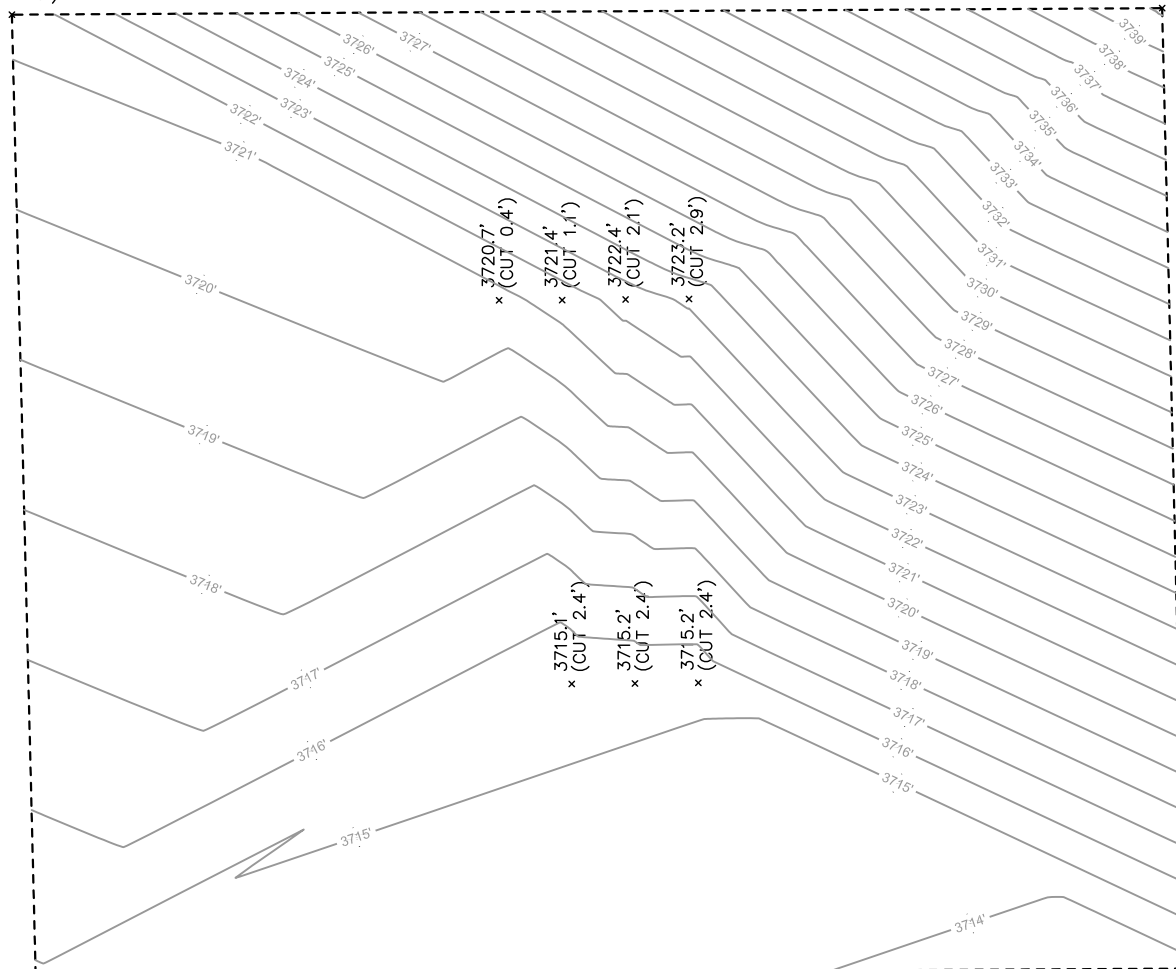
Drawn By: K. GOAD

Date: 07-26-2019

Survey Date: 07-25-2019

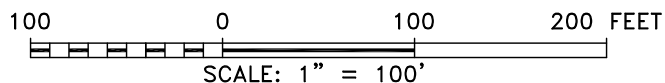
Sheet 1 of 1 Sheets

3721.3'
(CUT 1.0')



3714.9'
(FILL 5.4')

3713.6'
(FILL 6.7')



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.

basin
surveys
focused on excellence
in the oilfield

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

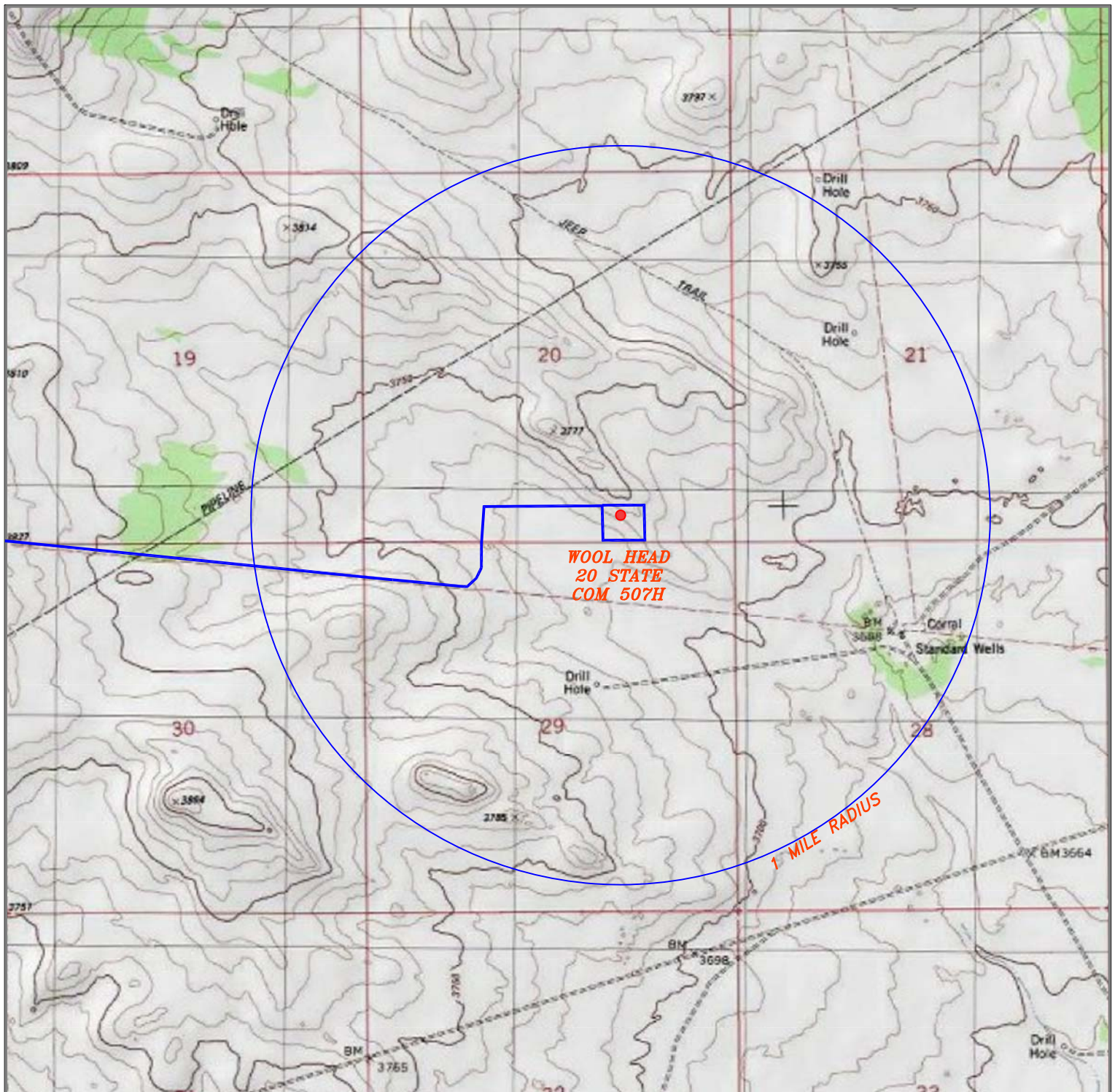
W.O. Number: 34747

Drawn By: K. GOAD

Date: 07-26-2019

Survey Date: 07-25-2019

Sheet 1 of 1 Sheets



WOOL HEAD 20 STATE COM 507H

Located 350' FSL and 2112' FEL
Section 20, Township 21 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.



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

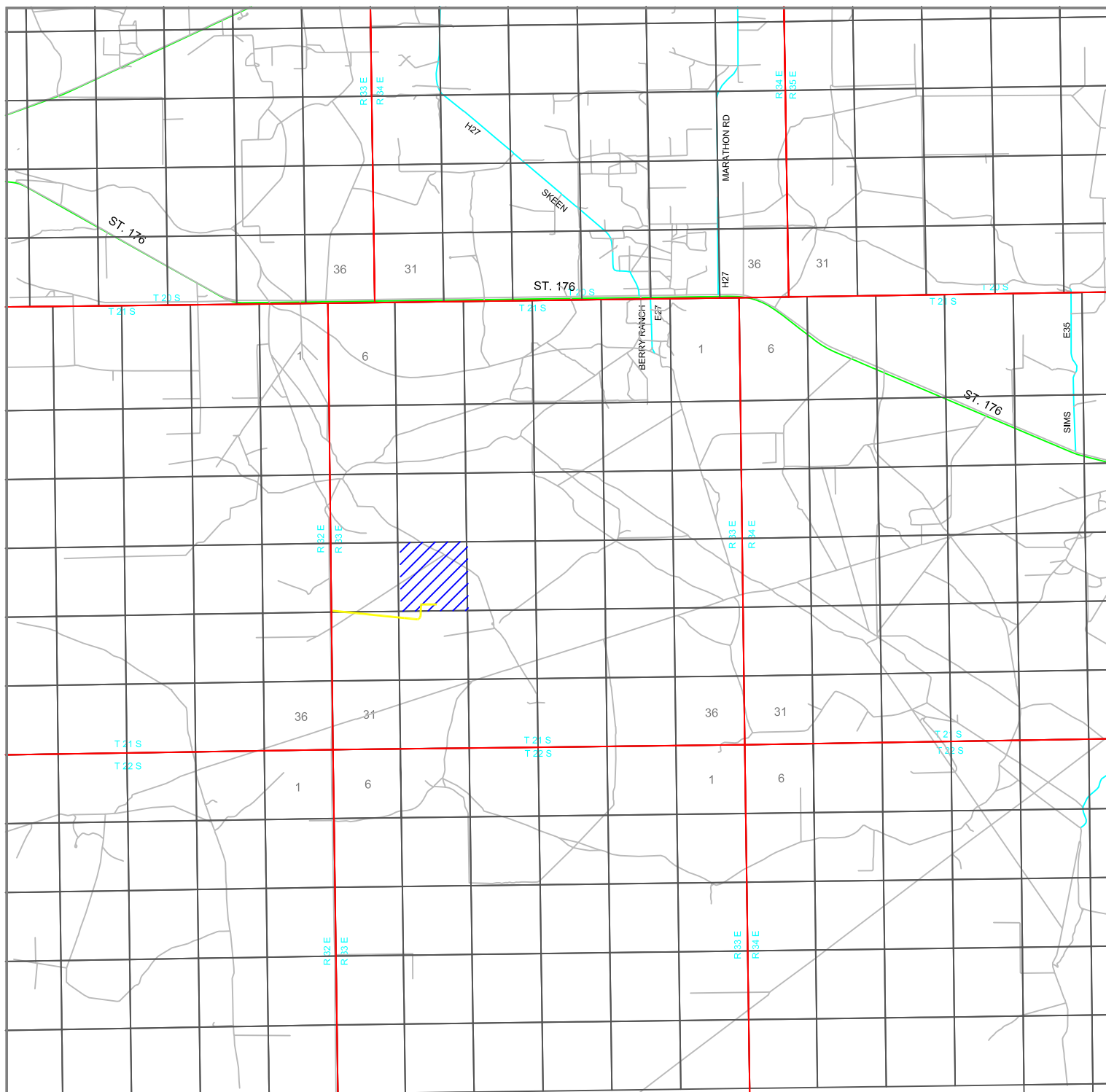
W.O. Number: KJG - 34750

Survey Date: 07-26-2019

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



**ADVANCE
ENERGY
PARTNERS
HAT MESA**



WOOL HEAD 20 STATE COM 507H

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0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

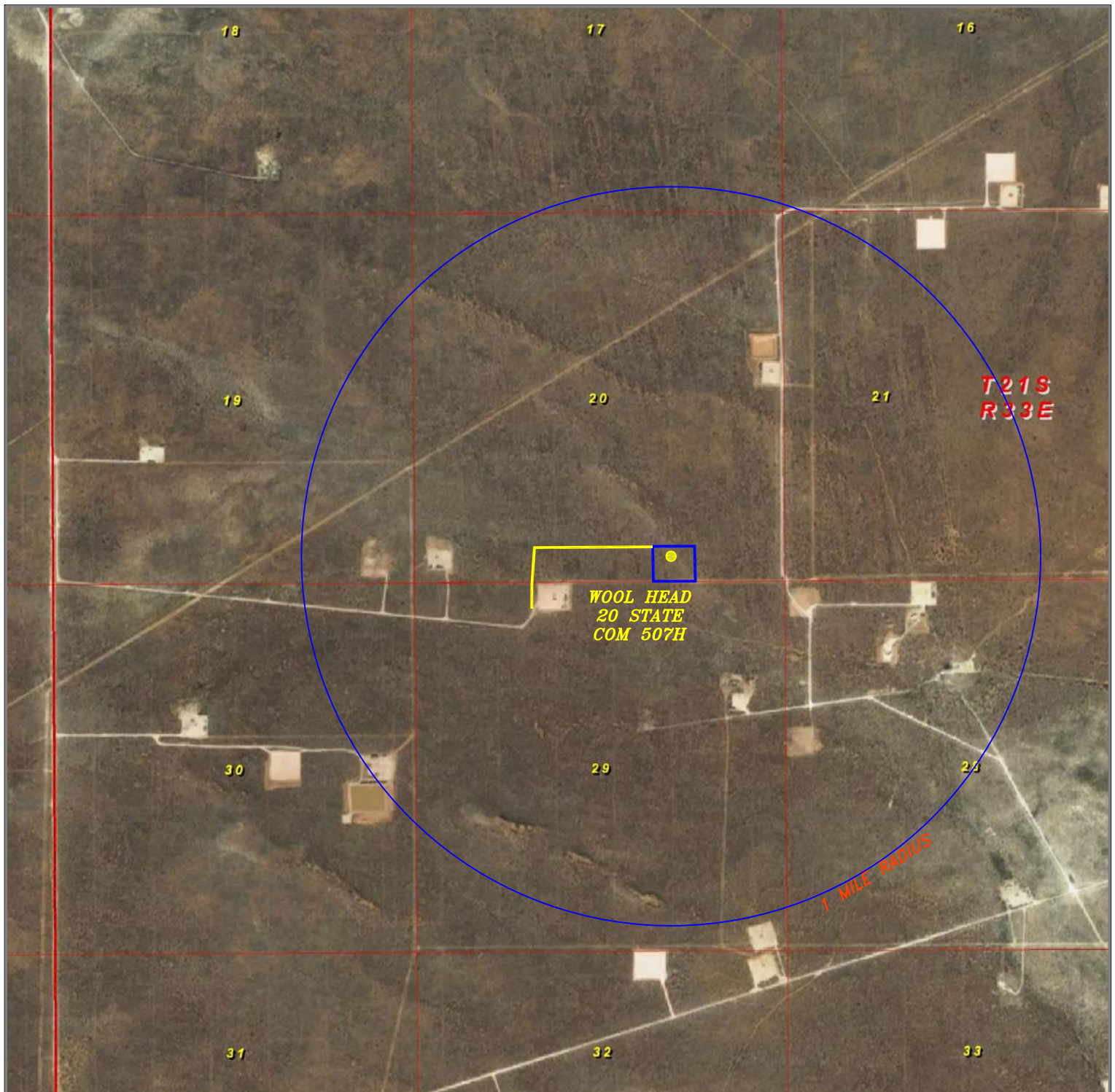
W.O. Number: KJG - 34750

Survey Date: 07-26-2019

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**ADVANCE
 ENERGY
 PARTNERS
 HAT MESA**

Submit 1 Copy To Appropriate District Office

District I – (575) 393-6161

1625 N. French Dr., Hobbs, NM 88240

District II – (575) 748-1283

811 S. First St., Artesia, NM 88210

District III – (505) 334-6178

1000 Rio Brazos Rd., Aztec, NM 87410

District IV – (505) 476-3460

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural ResourcesOIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103

Revised July 18, 2013

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐		WELL API NO. 30-025-46468 5. Indicate Type of Lease STATE ☒ FEE ☐ 6. State Oil & Gas Lease No.
2. Name of Operator Advance Energy Partners Hat Mesa		7. Lease Name or Unit Agreement Name Wool Head 20 State Com
3. Address of Operator 11490 Westheimer Rd, Houston, TX 77077		8. Well Number 507H
4. Well Location Unit Letter <u>O</u> : <u>350</u> feet from the <u>S</u> line and <u>2112</u> feet from the <u>E</u> line Section <u>20</u> Township <u>21S</u> Range <u>33E</u> NMPM County LEA		9. OGRID Number 372417
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3,721'		10. Pool name or Wildcat WC-025 G-08 S213304D;BONE SPRING

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
 TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
 PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
 DOWNHOLE COMMINGLE ☐
 CLOSED-LOOP SYSTEM ☐
 OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
 COMMENCE DRILLING OPNS. ☐ P AND A ☐
 CASING/CEMENT JOB ☐
 OTHER: ☒

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

- 2/1/20: Pressure test casing to 10,000 psi for 30 minutes.
- 2/9/20 – 2/27/20: Perforate from 10,891' – 17,864' (2100). Frac with 17,771,340 lbs sand and 21,593,838 gal fluid.
- 5/15/20 – 5/16/20: Drill all plugs out and clean out to a PBTD of 17,894'.
- 5/20/20 – Set packer at 10,028'. Run 2-7/8" production tubing and gas lift valves. EOT @ 10,047'.
- 6/08/20 – Ready to produce.

Spud Date:

10/30/2019

Rig Release Date:

12/23/2019

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE:

TITLE: Sr. Eng. Tech

DATE:

PRINT NAME: Eileen M Kosakowski

E-mail address: ekosakowski@advanceenergypartners.com

PHONE: 832-672-4604

For State Use Only

APPROVED BY:

TITLE

DATE

Conditions of Approval (if any):

3030 Submit To Appropriate District Office Two Copies District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505		State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505			Form C-105 Revised April 3, 2017					
WELL COMPLETION OR RECOMPLETION REPORT AND LOG										
4. Reason for filing: ☒ COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) ☐ C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)								5. Lease Name or Unit Agreement Name Wool Head 20 State Com		
								6. Well Number: 507H		
7. Type of Completion: ☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER										
8. Name of Operator Advance Energy Partners Hat Mesa, LLC						9. OGRID 372417				
10. Address of Operator 11490 Westheimer RD, Suite 950 Houston, TX 77077						11. Pool name or Wildcat WC-025 G-08 S213304D;BONE SPRING				
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	O	20	21S	33E		350	SOUTH	2112	EAST	LEA
BH:	J	17	21S	33E		2540	SOUTH	2310	EAST	LEA
13. Date Spudded 10/30/2019	14. Date T.D. Reached 12/21/2019	15. Date Rig Released 12/23/2019		16. Date Completed (Ready to Produce) 06/08/20		17. Elevations (DF and RKB, RT, GR, etc.) 3721'				
18. Total Measured Depth of Well 17,981'		19. Plug Back Measured Depth 17,894'		20. Was Directional Survey Made? YES			21. Type Electric and Other Logs Run Gamma Ray			
22. Producing Interval(s), of this completion - Top, Bottom, Name 10,891-17,864'										
23. CASING RECORD (Report all strings set in well)										
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED
13.375"		54.4#		1,860'		17.5"		870 890		
9.625"		40#		5,240'		12.25"		1330		
5.5"		20#		17,966'		8.5"		2417		
24. LINER RECORD										
SIZE	TOP	BOTTOM		SACKS CEMENT		SCREEN				
25. TUBING RECORD										
SIZE	DEPTH SET		PACKER SET							
2 7/8	10,047'		10,028'							
26. Perforation record (interval, size, and number)										
10,891-17,864' (2100 holes)						27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.				
						DEPTH INTERVAL		AMOUNT AND KIND MATERIAL USED		
						10,891-17,864'		17,771,340 lbs sand, 21,593,838 bbls water		
28. PRODUCTION										
Date First Production 06/12/20		Production Method (Flowing, gas lift, pumping - Size and type pump) Flowing				Well Status (Prod. or Shut-in) Prod				
Date of Test 06/30/20	Hours Tested 24 Hrs	Choke Size 32/64	Prod'n For Test Period 24 Hrs	Oil - Bbl 1084	Gas - MCF 1295	Water - Bbl. 4932	Gas - Oil Ratio 1194			
Flow Tubing Press. 510	Casing Pressure 550	Calculated 24-Hour Rate	Oil - Bbl. 1084	Gas - MCF 1295	Water - Bbl. 4932	Oil Gravity - API - (Corr.) 43				
29. Disposition of Gas (Sold, used for fuel, vented, etc.) Sold								30. Test Witnessed By B.Chandler		
31. List Attachments										
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.						33. Rig Release Date: 12/23/2019				
34. If an on-site burial was used at the well, report the exact location of the on-site burial:										
Latitude _____						Longitude _____ NAD83				
I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief										
Signature						Date:				
Printed Name: Eileen M Kosakowski				Title: Sr. Eng. Tech.		E-mail Address: ekosakowski@advanceenergypartners.com				

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	T. Canyon	T. Ojo Alamo	T. Penn A"
T. Salt 1616MD/1616 TVD	T. Strawn	T. Kirtland	T. Penn. "B"
B. Salt	T. Atoka	T. Fruitland	T. Penn. "C"
T. Yates	T. Miss	T. Pictured Cliffs	T. Penn. "D"
T. 7 Rivers 3842MD/3841TVD	T. Devonian	T. Cliff House	T. Leadville
T. Queen 974MD/6962TVD	T. Silurian	T. Menefee	T. Madison
T. Grayburg	T. Montoya	T. Point Lookout	T. Elbert
T. San Andres 8459MD/8447TVD	T. Simpson	T. Mancos	T. McCracken
T. Glorieta	T. McKee	T. Gallup	T. Ignacio Otzte
T. Paddock 8947MD/8935TVD	T. Ellenburger	Base Greenhorn	T. Granite
T. Blinbry	T. Gr. Wash	T. Dakota	
T. Tubb	T. Delaware Sand	T. Morrison	
T. Drinkard	T. Bone Springs 9918MD/9905TVD	T. Todilto	
T. Abo	T. 2SS 10692MD/10530TVD	T. Entrada	
T. Wolfcamp	T.	T. Wingate	
T. Penn	T.	T. Chinle	
T. Cisco (Bough C)	T.	T. Permian	

OIL OR GAS SANDS OR ZONES

No. 1, from.....to..... No. 3, from.....to.....
 No. 2, from.....to..... No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....
 No. 2, from.....to.....feet.....
 No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology	From	To	Thickness In Feet	Lithology
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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. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

ACKNOWLEDGMENTS

Action 110958

ACKNOWLEDGMENTS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 11490 Westheimer Rd., Ste 950 Houston, TX 77077	OGRID: 372417
	Action Number: 110958
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

☒	I hereby certify that the required Water Use Report has been, or will be, submitted for this wells completion.
☒	I hereby certify that the required FracFocus disclosure has been, or will be, submitted for this wells completion.

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Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 110958

CONDITIONS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 11490 Westheimer Rd., Ste 950 Houston, TX 77077	OGRID: 372417
	Action Number: 110958
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
llowe	None	9/28/2022