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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 30-025-46696	⁵ Pool Name WC-025 G-06 S213326D;BONE SPRING	⁶ Pool Code 97929
⁷ Property Code 319603	⁸ Property Name Merchant State Unit	⁹ Well Number 501 H

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
D	35	21S	33E		200	NORTH	830	WEST	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
M	2	22S	33E		30	SOUTH	334	WEST	Lea
¹² Lse Code S	¹³ Producing Method Code F	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date				

III. Oil and Gas Transporters

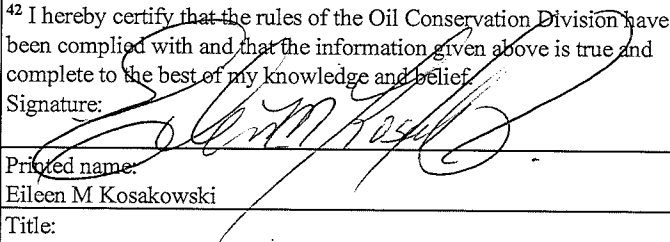
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
214984	Plains Marketing, L.P. 10 Desta Drive, Suite 200E Midland, TX 79705	O
018180	Versado Gas Processors, LLC 1000 Louisiana, Suite 4300 Houston, TX 77022	G

IV. Well Completion Data

²¹ Spud Date 01/10/20	²² Ready Date 12/29/20	²³ TD 21,152	²⁴ PBTD 21,068	²⁵ Perforations 11,221-21,039'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17.5"	13.375"	1743	820		
12.25"	9.625"	5324/3836	2100 1330		
8.5"	5.5"	21,142	2955		

V. Well Test Data

³¹ Date New Oil 12/29/20	³² Gas Delivery Date 12/29/20	³³ Test Date 01/12/21	³⁴ Test Length 24 Hrs	³⁵ Tbg. Pressure 1000	³⁶ Csg. Pressure 831
³⁷ Choke Size 68	³⁸ Oil 1072	³⁹ Water 4747	⁴⁰ Gas 1105		⁴¹ Test Method Flowing

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: 		OIL CONSERVATION DIVISION	
Printed name: Eileen M Kosakowski		Approved by: PATRICIA MARTINEZ	
Title: Sr. Eng. Tech.		Title: PETROLEUM SPECIALIST	
E-mail Address: ekosakowski@advanceenergypartners.com		Approval Date: 7/22/2024	
Date: 2/15/22	Phone: 832-672-4604		

Received by OCD: 2/15/2022 2:29:17 PM

DISTRICT I

1826 N. French Dr., Hobbs, NM 88240
Phone (505) 393-6161 Fax: (505) 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) 478-3460 Fax: (505) 478-3462State 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

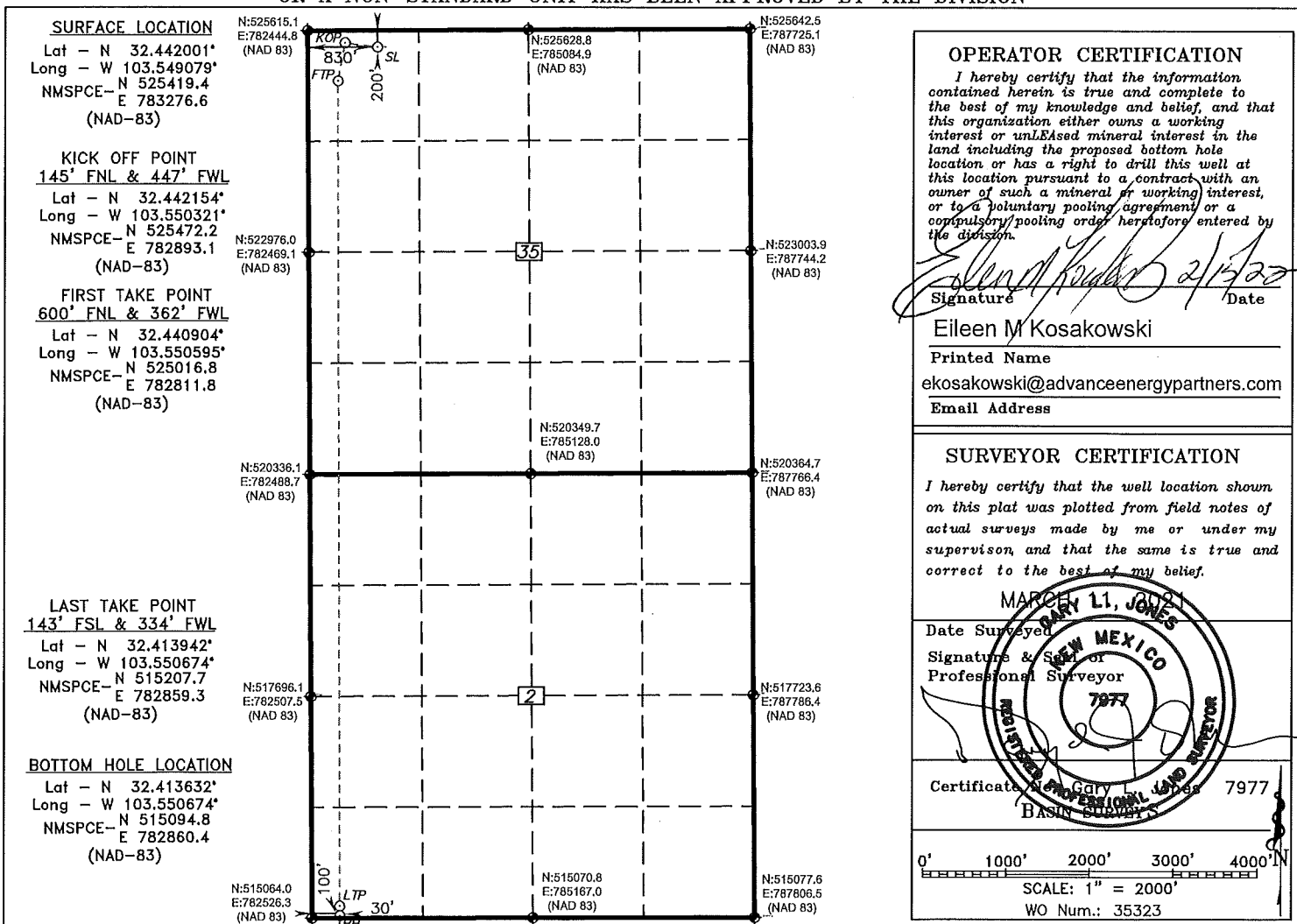
API Number 30-025-46696	Pool Code 97929	Pool Name WC-025 G-06 S213326D;BONE SPRING
Property Code 319603	Property Name MERCHANT STATE UNIT	Well Number 501H
GRID No. 372417	Operator Name ADVANCE ENERGY PARTNERS HAT MESA	Elevation 3685'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
D	35	21 S	33 E		200	NORTH	830	WEST	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
M	2	22 S	33 E		30	SOUTH	334	WEST	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



End of Well Report

Advance Energy Partners, LLC Merchant State Unit, Well No. 501H Lea County, New Mexico

Rig: H&P #389

Job No.: WT-20-003

Start Date: 01/09/2020

End Date: 03/05/2020

Directional Drillers:

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

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

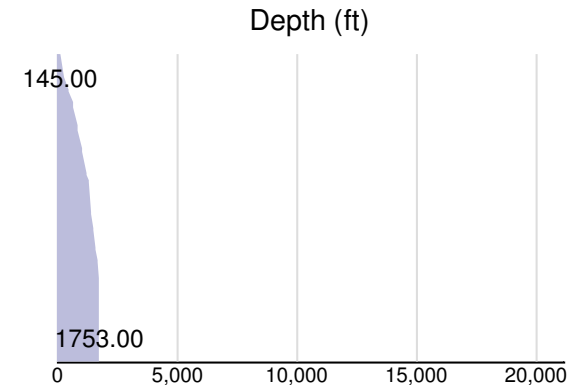
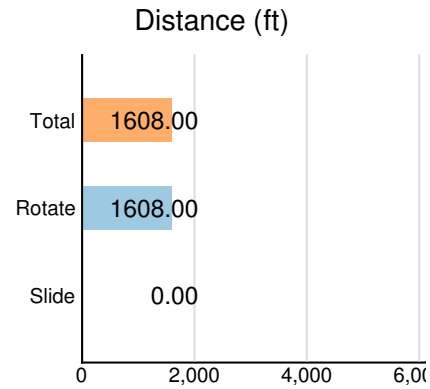
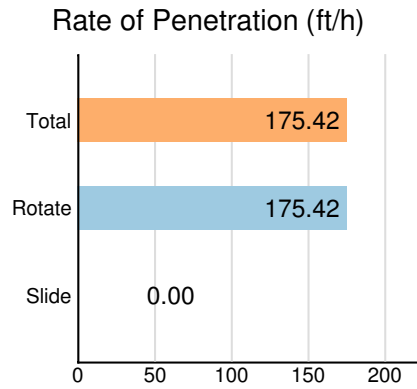
BHA Performance

BHA 1

Surface 17.5"

In: 01/10/2020 21:30

Out: 01/11/2020 11:55

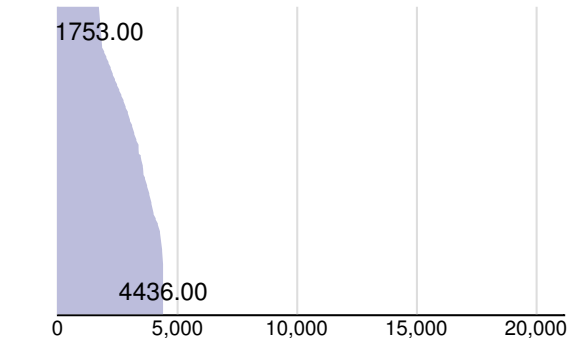
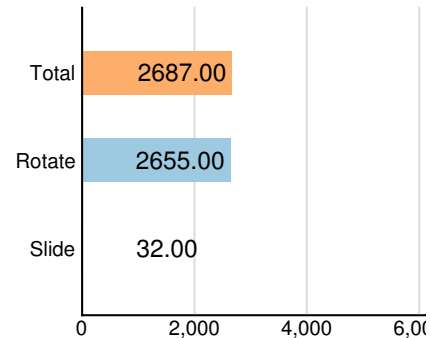
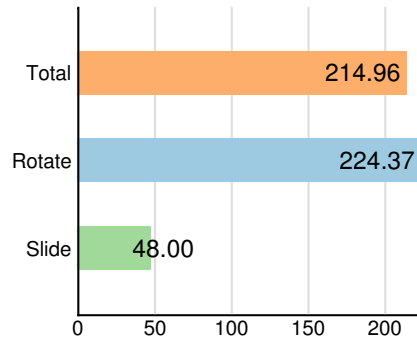


BHA 2

Intermediate 12.25"

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Out: 01/15/2020 09:45

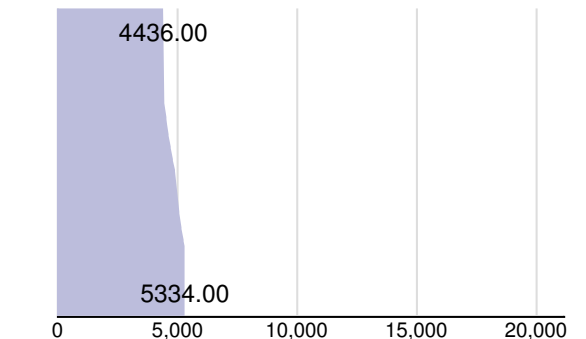
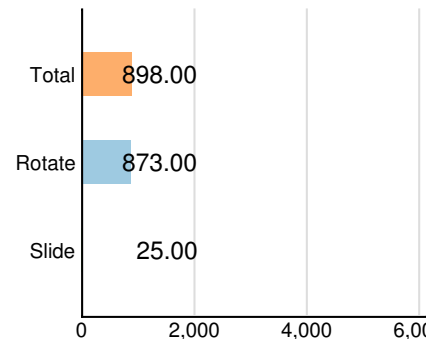
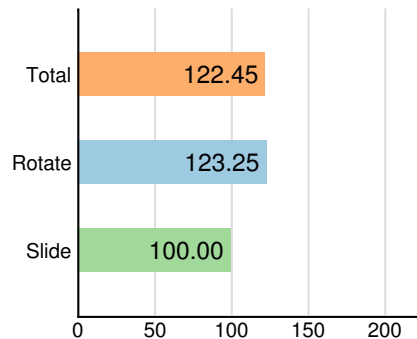


BHA 3

Intermediate 12.25"

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Out: 01/16/2020 03:00

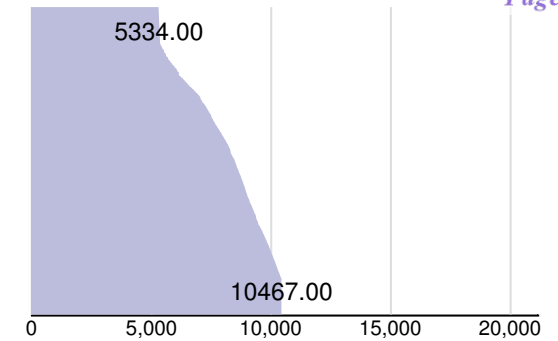
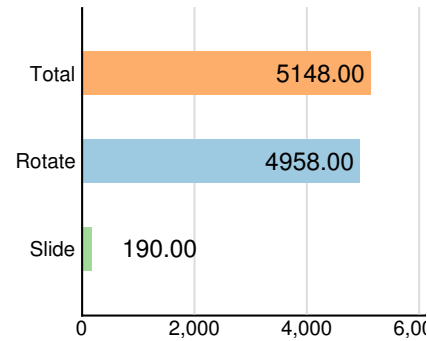
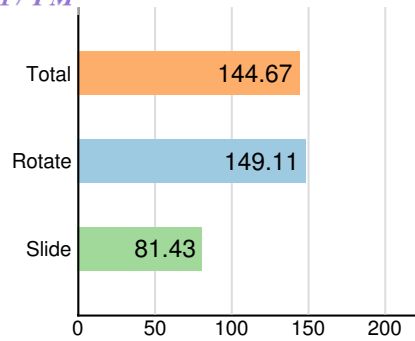


BHA 4

Intermediate 8.5"

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Out: 01/23/2020 09:00

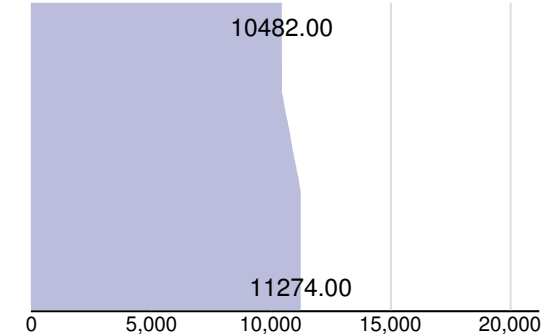
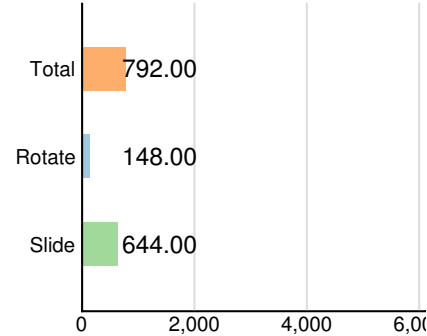
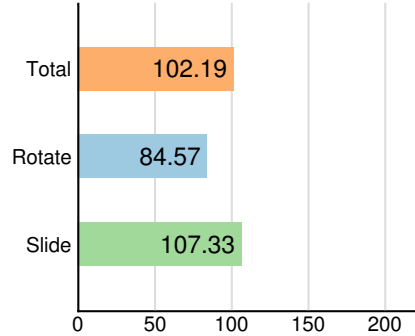


BHA 5

Curve 8.5"

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Out: 01/24/2020 10:45

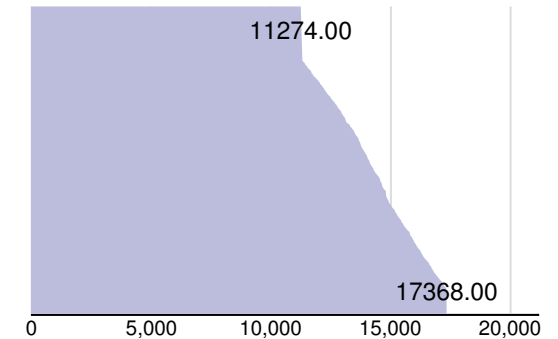
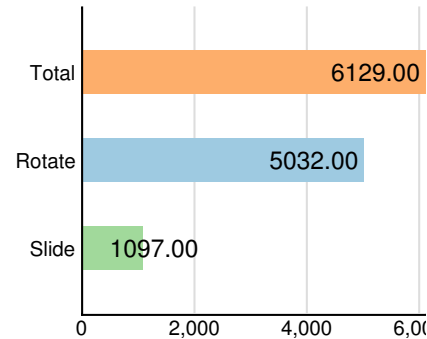
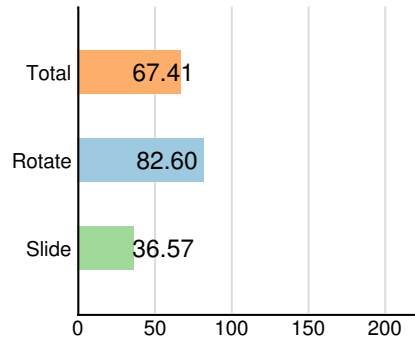


BHA 6

BHA #6 (Lateral
8.5')

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Out: 02/28/2020 12:30

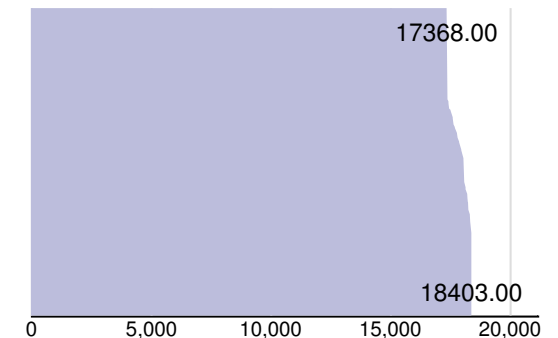
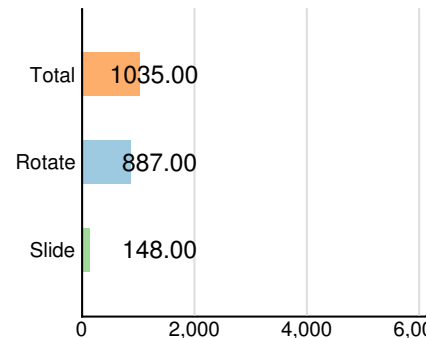
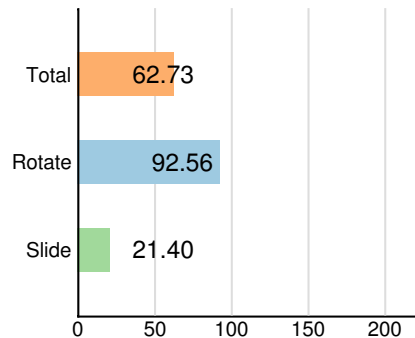


BHA 7

BHA #7 (8.5"
Lateral)

In: 02/28/2020 12:30

Out: 03/01/2020 03:15

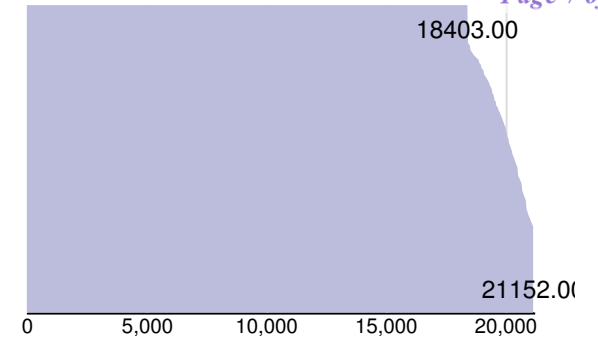
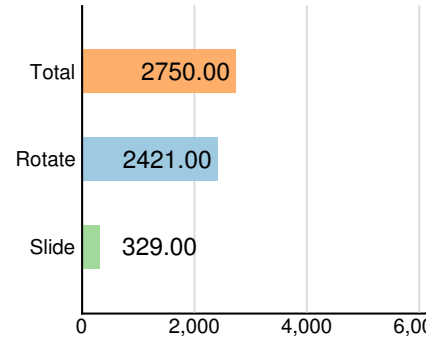
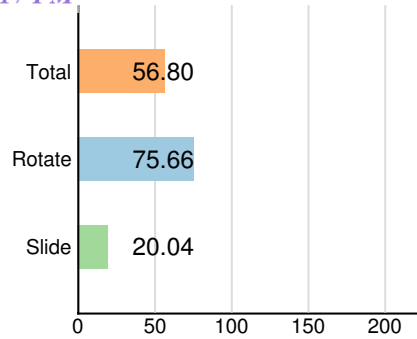


BHA 8

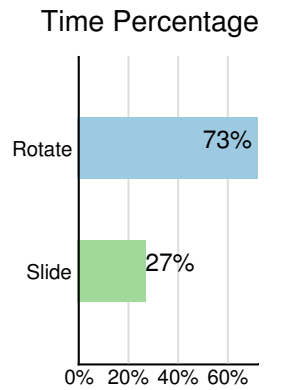
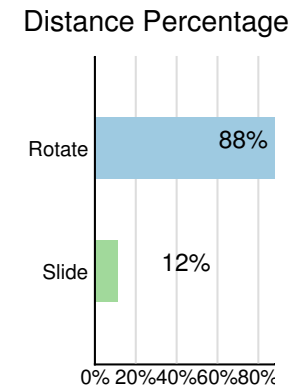
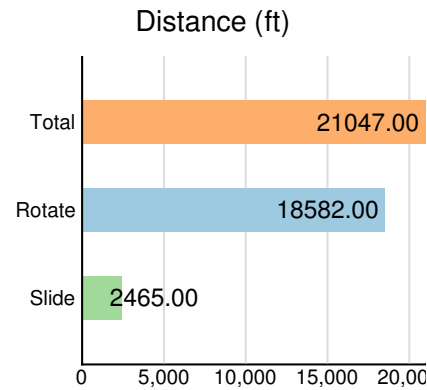
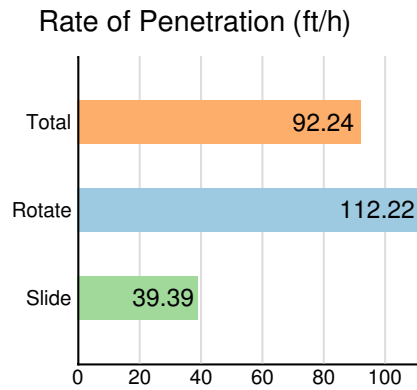
8.5" Lateral

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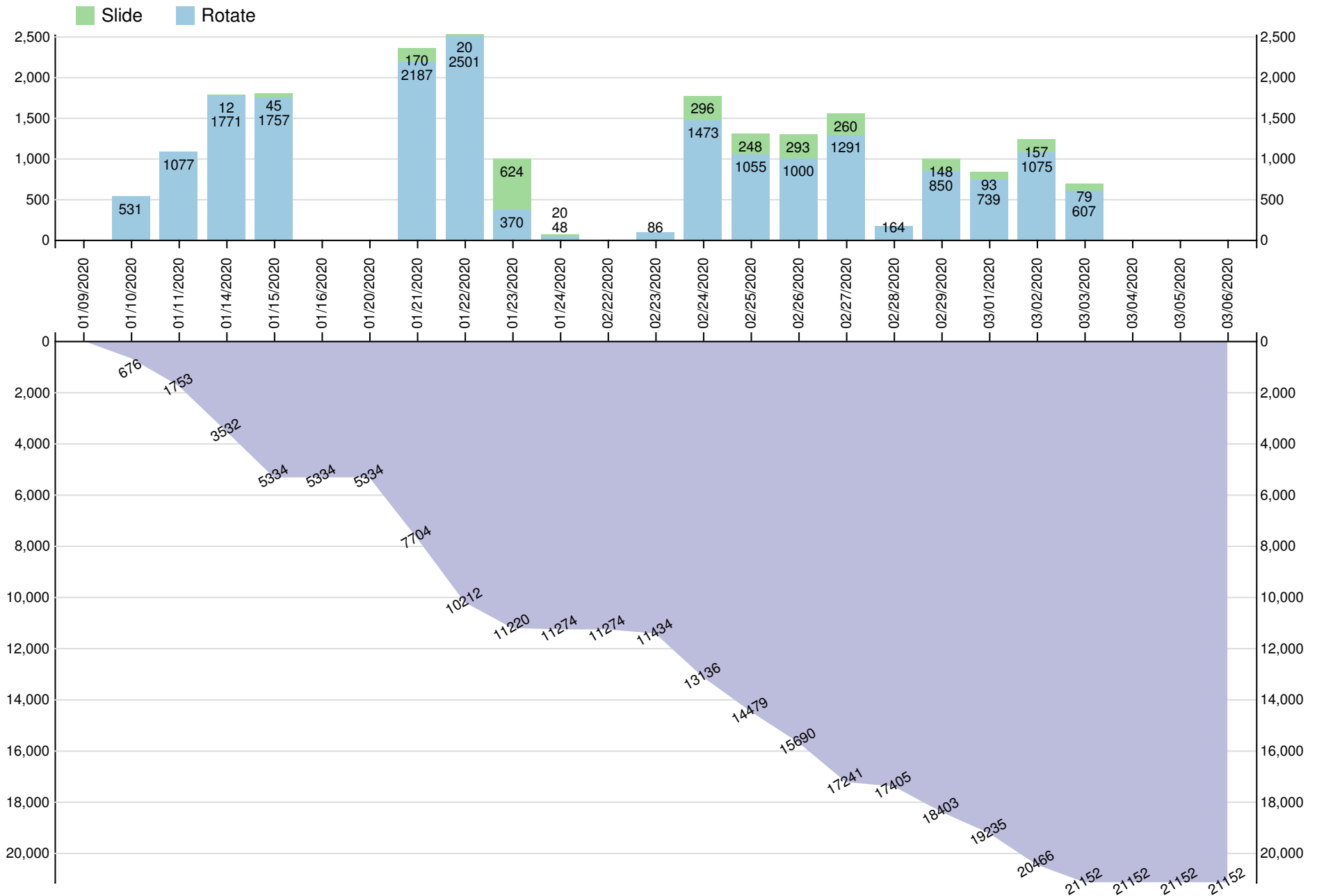
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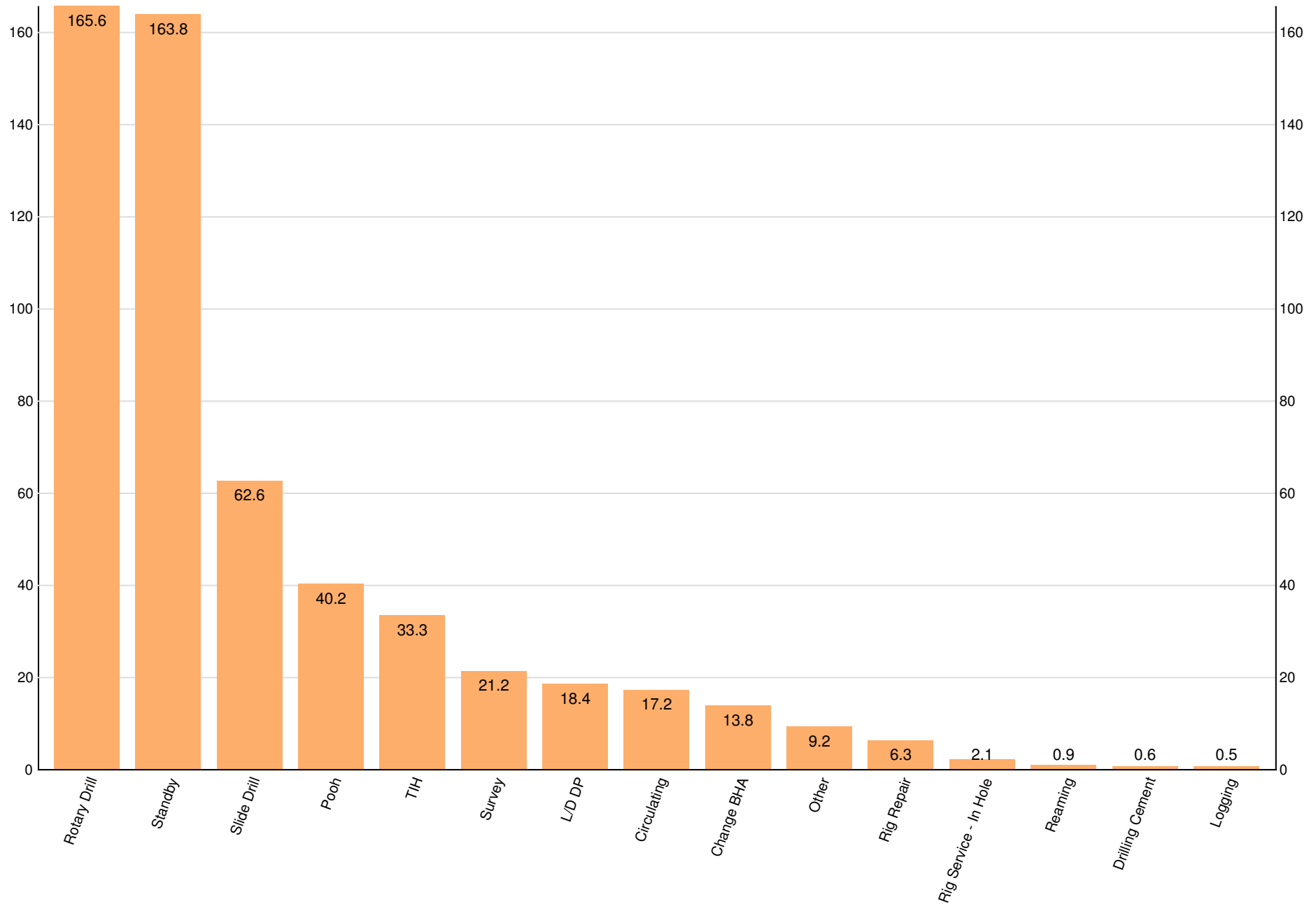
Total



Days vs. Depth



Directional Activity Hours





Proposed vs. As Drilled

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

Advance Energy Partners, LLC

Merchant State Unit 501H
Lea County, New Mexico
Job No. WT-20-003
H&P 389
Plan 1.0



Received to Imaging: 7/22/2024 8:13:13 AM

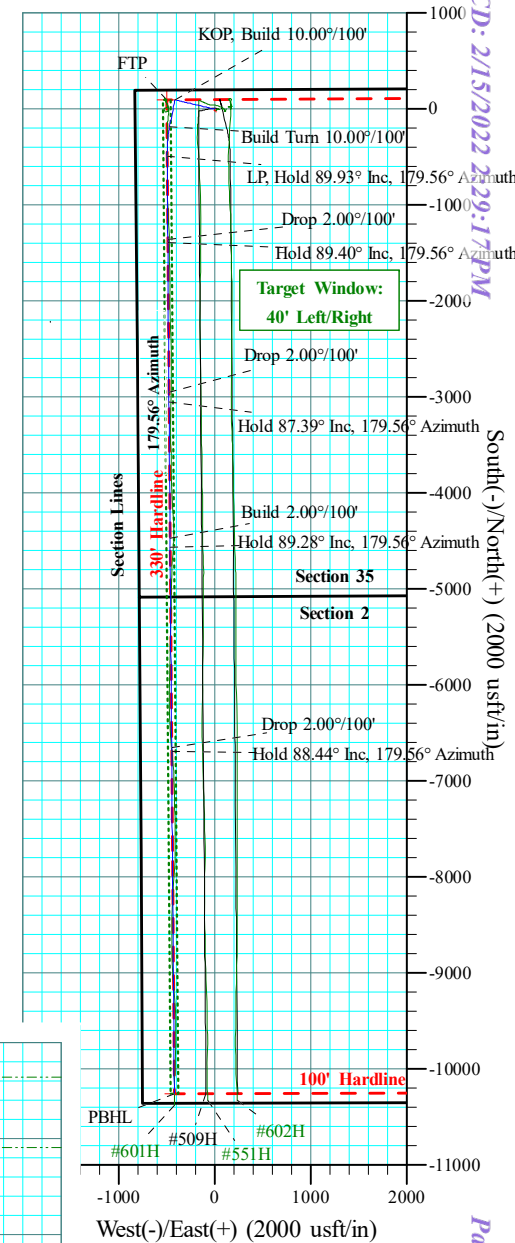
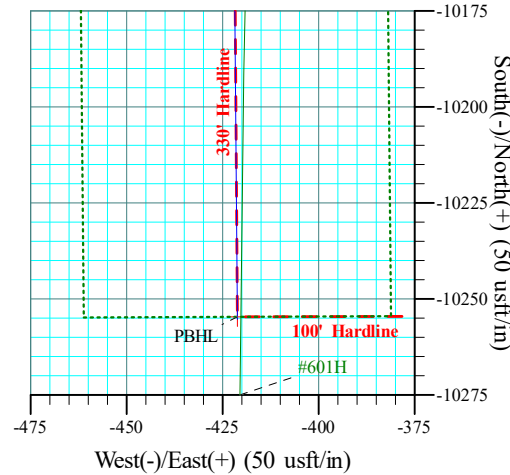


Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.15°

Magnetic Field
Strength: 48029.6nT
Dip Angle: 60.19°
Date: 1/17/2020
Model: MVHD

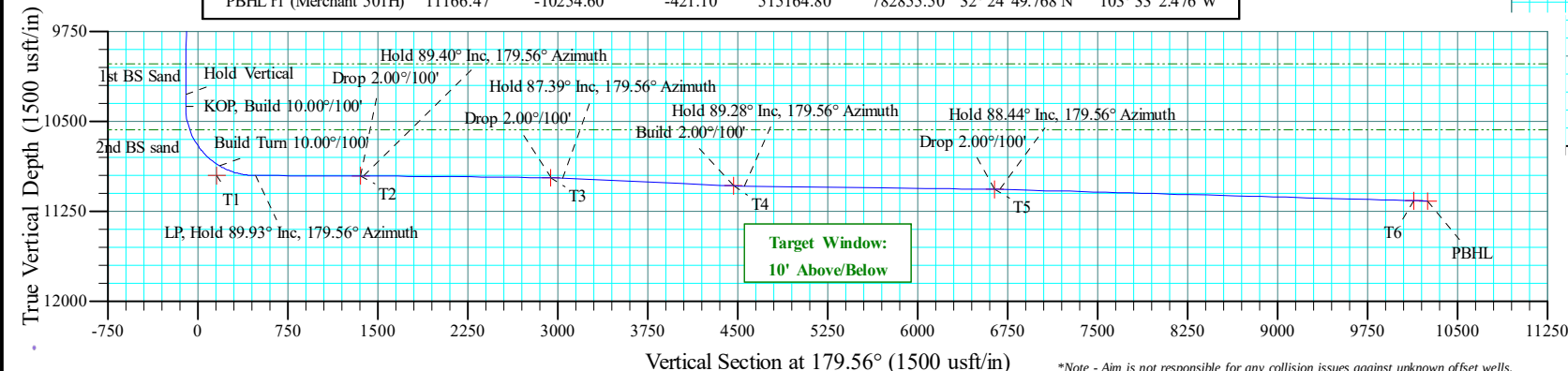
Magnetic North: 6.15° to Grid North

SITE DETAILS: Merchant State Unit 501H	
Site Centre Northing: 525419.40	Easting: 783276.60
Positional Uncertainty: 0.00	Convergence: 0.42
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: 3685'GL+25.5'KB @ 3710.50usft (H&P 389)	



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5264.00	0.00	0.00	5264.00	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	5809.31	5.45	283.26	5808.49	5.95	-25.24	1.00	283.26	-6.14	Hold 5.45° Inc, 283.26° Azimuth
4	9750.18	5.45	283.26	9731.52	91.85	-389.76	0.00	0.00	-94.84	Drop 1.00°/100'
5	10295.49	0.00	0.00	10276.01	97.80	-415.00	1.00	180.00	-100.98	Hold Vertical
6	10395.49	0.00	0.00	10376.01	97.80	-415.00	0.00	0.00	-100.98	KOP, Build 10.00°/100'
7	10995.49	60.00	191.09	10872.21	-183.33	-470.11	10.00	191.09	179.71	Build Turn 10.00°/100'
8	11314.29	89.93	179.56	10954.23	-486.04	-496.12	10.00	-22.24	482.22	LP, Hold 89.93° Inc, 179.56° Azimuth
9	12188.08	89.93	179.56	10955.29	-1359.80	-489.41	0.00	0.00	1356.00	Drop 2.00°/100'
10	12214.62	89.40	179.56	10955.45	-1386.34	-489.20	2.00	-180.00	1382.54	Hold 89.40° Inc, 179.56° Azimuth
11	13775.16	89.40	179.56	10971.81	-2946.75	-477.22	0.00	0.00	2943.00	Drop 2.00°/100'
12	13875.55	87.39	179.56	10974.62	-3047.09	-476.45	2.00	180.00	3043.34	Hold 87.39° Inc, 179.56° Azimuth
13	15296.68	87.39	179.56	11039.30	-4466.71	-465.55	0.00	0.00	4463.00	Build 2.00°/100'
14	15391.10	89.28	179.56	11042.04	-4561.08	-464.82	2.00	0.00	4557.38	Hold 89.28° Inc, 179.56° Azimuth
15	17476.89	89.28	179.56	11068.25	-6646.64	-448.81	0.00	0.00	6643.00	Drop 2.00°/100'
16	17519.10	88.44	179.56	11069.10	-6688.84	-448.48	2.00	-180.00	6685.20	Hold 88.44° Inc, 179.56° Azimuth
17	21086.29	88.44	179.56	11166.47	-10254.60	-421.10	0.00	0.00	10251.06	PBHL

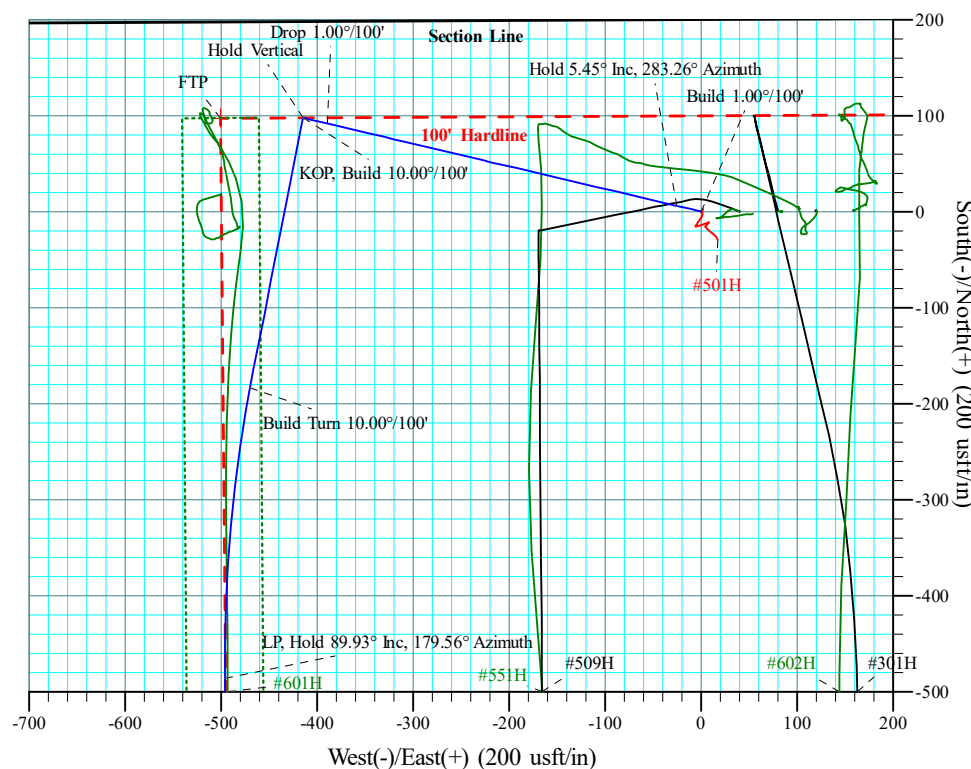
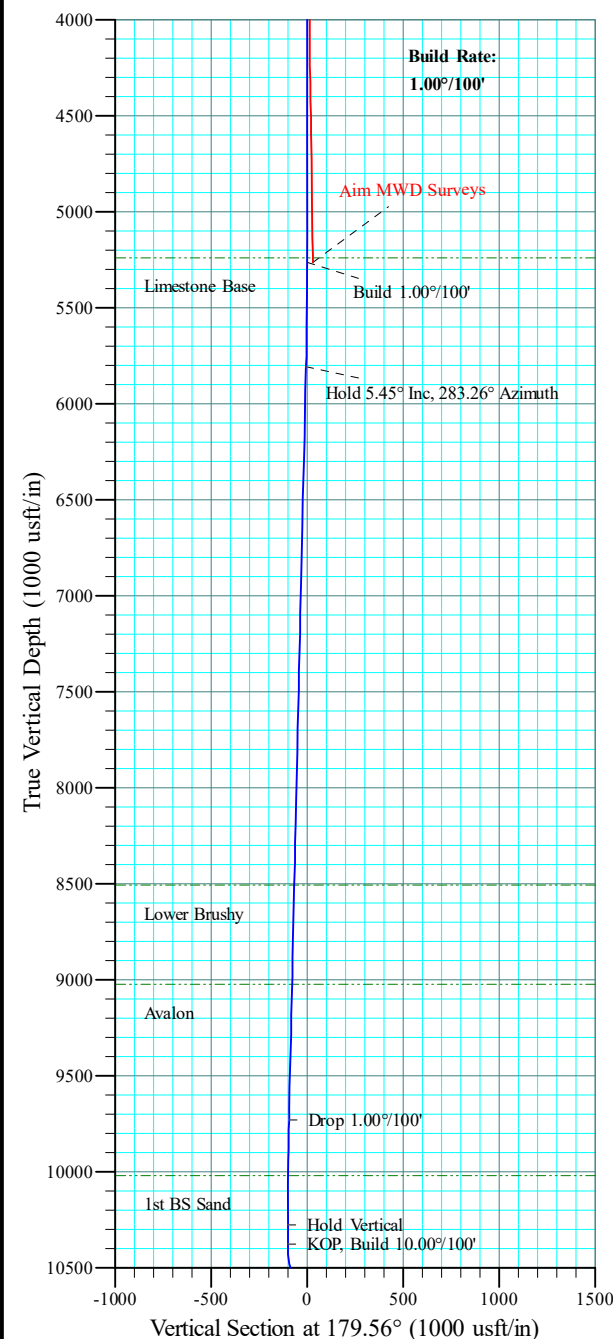
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant 501H)	0.00	97.40	-500.90	525516.80	782775.70	32° 26' 32.205 N	103° 33' 2.522 W
PBHL r1 (Merchant 501H)	11166.47	-10254.60	-421.10	515164.80	782855.50	32° 24' 49.768 N	103° 33' 2.476 W



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



Merchant State Unit 501H
Lea County, New Mexico
Job No. WT-20-003
H&P 389
Plan 1.0



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.15°

Magnetic Field
Strength: 48029.6nT
Dip Angle: 60.19°
Date: 1/17/2020
Model: MVHD

Magnetic North: 6.15° to Grid North

SITE DETAILS: Merchant State Unit 501H

Site Centre Northing: 525419.40
Easting: 783276.60

Positional Uncertainty: 0.00
Convergence: 0.42
Local North: Grid

Depth Reference:
3685'GL+25.5'KB @ 3710.50usft (H&P 389)

SLOTS

Slot Name	+N/-S	+E/-W
301H	0.40	79.80
501H	0.00	0.00
509H	0.20	39.80
551H	0.60	120.00
601H	17.50	-499.90
602H	0.90	159.10

PROJECT DETAILS: Lea County, New Mexico

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

System Datum: Mean Sea Level

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

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant 501H)	0.00	97.40	-500.90	525516.80	782775.70	32° 26' 32.205 N	103° 33' 2.522 W
PBHL r1 (Merchant 501H)	11166.47	-10254.60	-421.10	515164.80	782855.50	32° 24' 49.768 N	103° 33' 2.476 W

Drawn By: IG

Date Created: 1/11/2020

Date Revised: 1/17/2020

File: Advance Energy - Merchant State Unit 501H Plan 1.0 Surface.wpc

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5264.00	0.00	0.00	5264.00	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	5809.31	5.45	283.26	5808.49	5.95	-25.24	1.00	283.26	-6.14	Hold 5.45° Inc, 283.26° Azimuth
4	9750.18	5.45	283.26	9731.52	91.85	-389.76	0.00	0.00	-94.84	Drop 1.00°/100'
5	10295.49	0.00	0.00	10276.01	97.80	-415.00	1.00	180.00	-100.98	Hold Vertical
6	10395.49	0.00	0.00	10376.01	97.80	-415.00	0.00	0.00	-100.98	KOP, Build 10.00°/100'
7	10995.49	60.00	191.09	10872.21	-183.33	-470.11	10.00	191.09	179.71	Build Turn 10.00°/100'
8	11314.29	89.93	179.56	10954.23	-486.04	-496.12	10.00	482.22	482.22	LP, Hold 89.93° Inc, 179.56° Azimuth
9	12188.08	89.93	179.56	10955.29	-1359.80	-489.41	0.00	0.00	1356.00	Drop 2.00°/100'
10	12214.62	89.40	179.56	10955.45	-1386.34	-489.20	2.00	-180.00	1382.54	Hold 89.40° Inc, 179.56° Azimuth
11	13775.16	89.40	179.56	10971.81	-2946.75	-477.22	0.00	0.00	2943.00	Drop 2.00°/100'
12	13875.55	87.39	179.56	10974.62	-3047.09	-476.45	2.00	180.00	3043.34	Hold 87.39° Inc, 179.56° Azimuth
13	15296.68	87.39	179.56	11039.30	-4466.71	-465.55	0.00	0.00	4463.00	Build 2.00°/100'
14	15391.10	89.28	179.56	11042.04	-4561.08	-464.82	2.00	0.00	4557.38	Hold 89.28° Inc, 179.56° Azimuth
15	17476.89	89.28	179.56	11068.25	-6646.64	-448.81	0.00	0.00	6643.00	Drop 2.00°/100'
16	21086.29	88.44	179.56	11069.10	-6688.84	-448.48	2.00	-180.00	6685.20	Hold 88.44° Inc, 179.56° Azimuth
17	21086.29	88.44	179.56	11166.47	-10254.60	-421.10	0.00	0.00	10251.06	PBHL

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

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

Site	Merchant State Unit 501H		
Site Position:		Northing:	525,419.40 usft
From:	Map	Easting:	783,276.60 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 31.205 N
		Longitude:	103° 32' 56.686 W
		Grid Convergence:	0.42 °

Well	#501H - Slot 501H		
Well Position	+N/-S	0.00 usft	Northing: 525,419.40 usft
	+E/-W	0.00 usft	Easting: 783,276.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 26' 31.205 N
		Longitude:	103° 32' 56.686 W
		Ground Level:	3,685.00 usft

Wellbore	Lateral 1r2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	1/17/2020	6.57	60.19	48,029.58703415

Design	Plan 1.0				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.56	

Survey Tool Program	Date	1/17/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	21,086.29	Plan 1.0 (Lateral 1r2)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FTP (Merchant 501H)									
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 Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,676.00	0.00	0.00	1,676.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
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 Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,240.00	0.00	0.00	5,240.00	0.00	0.00	0.00	0.00	0.00	0.00
Limestone Base									
5,264.00	0.00	0.00	5,264.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.00°/100'									
5,300.00	0.36	283.26	5,300.00	0.03	-0.11	-0.03	1.00	1.00	0.00
5,400.00	1.36	283.26	5,399.99	0.37	-1.57	-0.38	1.00	1.00	0.00
5,500.00	2.36	283.26	5,499.93	1.11	-4.73	-1.15	1.00	1.00	0.00
5,600.00	3.36	283.26	5,599.81	2.26	-9.59	-2.33	1.00	1.00	0.00
5,700.00	4.36	283.26	5,699.58	3.80	-16.14	-3.93	1.00	1.00	0.00
5,809.31	5.45	283.26	5,808.49	5.95	-25.24	-6.14	1.00	1.00	0.00
Hold 5.45° Inc, 283.26° Azimuth									
5,900.00	5.45	283.26	5,898.77	7.92	-33.63	-8.18	0.00	0.00	0.00
6,000.00	5.45	283.26	5,998.31	10.10	-42.88	-10.43	0.00	0.00	0.00
6,100.00	5.45	283.26	6,097.86	12.28	-52.13	-12.68	0.00	0.00	0.00
6,200.00	5.45	283.26	6,197.41	14.46	-61.38	-14.94	0.00	0.00	0.00
6,300.00	5.45	283.26	6,296.96	16.64	-70.63	-17.19	0.00	0.00	0.00
6,400.00	5.45	283.26	6,396.50	18.82	-79.88	-19.44	0.00	0.00	0.00
6,500.00	5.45	283.26	6,496.05	21.00	-89.13	-21.69	0.00	0.00	0.00
6,600.00	5.45	283.26	6,595.60	23.18	-98.38	-23.94	0.00	0.00	0.00
6,700.00	5.45	283.26	6,695.15	25.36	-107.63	-26.19	0.00	0.00	0.00
6,800.00	5.45	283.26	6,794.69	27.54	-116.88	-28.44	0.00	0.00	0.00
6,900.00	5.45	283.26	6,894.24	29.72	-126.13	-30.69	0.00	0.00	0.00
7,000.00	5.45	283.26	6,993.79	31.90	-135.38	-32.94	0.00	0.00	0.00
7,100.00	5.45	283.26	7,093.34	34.08	-144.62	-35.19	0.00	0.00	0.00
7,200.00	5.45	283.26	7,192.88	36.26	-153.87	-37.44	0.00	0.00	0.00
7,300.00	5.45	283.26	7,292.43	38.44	-163.12	-39.69	0.00	0.00	0.00
7,400.00	5.45	283.26	7,391.98	40.62	-172.37	-41.94	0.00	0.00	0.00
7,500.00	5.45	283.26	7,491.53	42.80	-181.62	-44.20	0.00	0.00	0.00
7,600.00	5.45	283.26	7,591.07	44.98	-190.87	-46.45	0.00	0.00	0.00
7,700.00	5.45	283.26	7,690.62	47.16	-200.12	-48.70	0.00	0.00	0.00
7,800.00	5.45	283.26	7,790.17	49.34	-209.37	-50.95	0.00	0.00	0.00
7,900.00	5.45	283.26	7,889.72	51.52	-218.62	-53.20	0.00	0.00	0.00
8,000.00	5.45	283.26	7,989.26	53.70	-227.87	-55.45	0.00	0.00	0.00
8,100.00	5.45	283.26	8,088.81	55.88	-237.12	-57.70	0.00	0.00	0.00
8,200.00	5.45	283.26	8,188.36	58.06	-246.37	-59.95	0.00	0.00	0.00
8,300.00	5.45	283.26	8,287.91	60.24	-255.62	-62.20	0.00	0.00	0.00
8,400.00	5.45	283.26	8,387.45	62.42	-264.87	-64.45	0.00	0.00	0.00
8,500.00	5.45	283.26	8,487.00	64.60	-274.12	-66.70	0.00	0.00	0.00
8,521.10	5.45	283.26	8,508.00	65.06	-276.07	-67.18	0.00	0.00	0.00
Lower Brushy									
8,600.00	5.45	283.26	8,586.55	66.78	-283.37	-68.95	0.00	0.00	0.00
8,700.00	5.45	283.26	8,686.09	68.96	-292.62	-71.21	0.00	0.00	0.00

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,800.00	5.45	283.26	8,785.64	71.14	-301.87	-73.46	0.00	0.00	0.00
8,900.00	5.45	283.26	8,885.19	73.32	-311.12	-75.71	0.00	0.00	0.00
9,000.00	5.45	283.26	8,984.74	75.50	-320.37	-77.96	0.00	0.00	0.00
9,040.45	5.45	283.26	9,025.00	76.38	-324.11	-78.87	0.00	0.00	0.00
Avalon									
9,100.00	5.45	283.26	9,084.28	77.68	-329.62	-80.21	0.00	0.00	0.00
9,200.00	5.45	283.26	9,183.83	79.86	-338.87	-82.46	0.00	0.00	0.00
9,300.00	5.45	283.26	9,283.38	82.04	-348.12	-84.71	0.00	0.00	0.00
9,400.00	5.45	283.26	9,382.93	84.22	-357.37	-86.96	0.00	0.00	0.00
9,500.00	5.45	283.26	9,482.47	86.40	-366.62	-89.21	0.00	0.00	0.00
9,600.00	5.45	283.26	9,582.02	88.58	-375.87	-91.46	0.00	0.00	0.00
9,700.00	5.45	283.26	9,681.57	90.76	-385.12	-93.71	0.00	0.00	0.00
9,750.18	5.45	283.26	9,731.52	91.85	-389.76	-94.84	0.00	0.00	0.00
Drop 1.00°/100'									
9,800.00	4.95	283.26	9,781.14	92.89	-394.16	-95.91	1.00	-1.00	0.00
9,900.00	3.95	283.26	9,880.83	94.67	-401.72	-97.75	1.00	-1.00	0.00
10,000.00	2.95	283.26	9,980.65	96.05	-407.59	-99.18	1.00	-1.00	0.00
10,039.40	2.56	283.26	10,020.00	96.49	-409.43	-99.63	1.00	-1.00	0.00
1st BS Sand									
10,100.00	1.95	283.26	10,080.56	97.04	-411.75	-100.19	1.00	-1.00	0.00
10,200.00	0.95	283.26	10,180.52	97.62	-414.23	-100.80	1.00	-1.00	0.00
10,295.49	0.00	0.00	10,276.01	97.80	-415.00	-100.98	1.00	-1.00	0.00
Hold Vertical									
10,300.00	0.00	0.00	10,280.52	97.80	-415.00	-100.98	0.00	0.00	0.00
10,395.49	0.00	0.00	10,376.01	97.80	-415.00	-100.98	0.00	0.00	0.00
KOP, Build 10.00°/100'									
10,400.00	0.45	191.09	10,380.52	97.78	-415.00	-100.97	10.00	10.00	0.00
10,450.00	5.45	191.09	10,430.44	95.26	-415.50	-98.45	10.00	10.00	0.00
10,500.00	10.45	191.09	10,479.94	88.47	-416.83	-91.67	10.00	10.00	0.00
10,550.00	15.45	191.09	10,528.65	77.48	-418.98	-80.69	10.00	10.00	0.00
10,594.46	19.90	191.09	10,571.00	64.24	-421.58	-67.47	10.00	10.00	0.00
2nd BS sand									
10,600.00	20.45	191.09	10,576.20	62.36	-421.95	-65.60	10.00	10.00	0.00
10,650.00	25.45	191.09	10,622.23	43.24	-425.70	-46.50	10.00	10.00	0.00
10,700.00	30.45	191.09	10,666.38	20.24	-430.20	-23.55	10.00	10.00	0.00
10,750.00	35.45	191.09	10,708.33	-6.44	-435.43	3.09	10.00	10.00	0.00
10,800.00	40.45	191.09	10,747.74	-36.60	-441.35	33.21	10.00	10.00	0.00
10,850.00	45.45	191.09	10,784.33	-70.02	-447.90	66.58	10.00	10.00	0.00
10,900.00	50.45	191.09	10,817.81	-106.45	-455.04	102.95	10.00	10.00	0.00
10,950.00	55.45	191.09	10,847.92	-145.59	-462.71	142.04	10.00	10.00	0.00
T1 (Merchant 501H)									
10,995.49	60.00	191.09	10,872.21	-183.33	-470.11	179.71	10.00	10.00	0.00
Build Turn 10.00°/100'									
11,000.00	60.42	190.90	10,874.45	-187.17	-470.86	183.55	10.00	9.26	-4.35
11,050.00	65.06	188.82	10,897.34	-230.95	-478.45	227.27	10.00	9.29	-4.15

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,100.00	69.74	186.89	10,916.55	-276.66	-484.74	272.93	10.00	9.35	-3.85
11,150.00	74.43	185.08	10,931.93	-323.96	-489.69	320.19	10.00	9.39	-3.62
11,200.00	79.14	183.35	10,943.36	-372.49	-493.27	368.69	10.00	9.42	-3.46
11,250.00	83.86	181.68	10,950.74	-421.88	-495.43	418.06	10.00	9.43	-3.35
11,300.00	88.58	180.03	10,954.04	-471.75	-496.17	467.93	10.00	9.44	-3.29
11,314.29	89.93	179.56	10,954.23	-486.04	-496.12	482.22	10.00	9.45	-3.28
LP, Hold 89.93° Inc, 179.56° Azimuth									
11,400.00	89.93	179.56	10,954.33	-571.75	-495.46	567.92	0.00	0.00	0.00
11,500.00	89.93	179.56	10,954.45	-671.74	-494.69	667.92	0.00	0.00	0.00
11,600.00	89.93	179.56	10,954.58	-771.74	-493.92	767.92	0.00	0.00	0.00
11,700.00	89.93	179.56	10,954.70	-871.74	-493.16	867.92	0.00	0.00	0.00
11,800.00	89.93	179.56	10,954.82	-971.73	-492.39	967.92	0.00	0.00	0.00
11,900.00	89.93	179.56	10,954.94	-1,071.73	-491.62	1,067.92	0.00	0.00	0.00
12,000.00	89.93	179.56	10,955.07	-1,171.73	-490.85	1,167.92	0.00	0.00	0.00
12,100.00	89.93	179.56	10,955.19	-1,271.73	-490.08	1,267.92	0.00	0.00	0.00
12,188.08	89.93	179.56	10,955.30	-1,359.80	-489.41	1,356.00	0.00	0.00	0.00
Drop 2.00°/100'									
12,188.56	89.92	179.56	10,955.30	-1,360.28	-489.40	1,356.48	2.00	-2.00	0.00
T2 (Merchant 501H)									
12,200.00	89.69	179.56	10,955.33	-1,371.72	-489.32	1,367.92	2.00	-2.00	0.00
12,214.62	89.40	179.56	10,955.45	-1,386.34	-489.20	1,382.54	2.00	-2.00	0.00
Hold 89.40° Inc, 179.56° Azimuth									
12,300.00	89.40	179.56	10,956.35	-1,471.71	-488.55	1,467.92	0.00	0.00	0.00
12,400.00	89.40	179.56	10,957.39	-1,571.71	-487.78	1,567.91	0.00	0.00	0.00
12,500.00	89.40	179.56	10,958.44	-1,671.70	-487.01	1,667.91	0.00	0.00	0.00
12,600.00	89.40	179.56	10,959.49	-1,771.69	-486.25	1,767.90	0.00	0.00	0.00
12,700.00	89.40	179.56	10,960.54	-1,871.68	-485.48	1,867.90	0.00	0.00	0.00
12,800.00	89.40	179.56	10,961.59	-1,971.67	-484.71	1,967.89	0.00	0.00	0.00
12,900.00	89.40	179.56	10,962.64	-2,071.66	-483.94	2,067.89	0.00	0.00	0.00
13,000.00	89.40	179.56	10,963.69	-2,171.65	-483.17	2,167.88	0.00	0.00	0.00
13,100.00	89.40	179.56	10,964.73	-2,271.65	-482.41	2,267.87	0.00	0.00	0.00
13,200.00	89.40	179.56	10,965.78	-2,371.64	-481.64	2,367.87	0.00	0.00	0.00
13,300.00	89.40	179.56	10,966.83	-2,471.63	-480.87	2,467.86	0.00	0.00	0.00
13,400.00	89.40	179.56	10,967.88	-2,571.62	-480.10	2,567.86	0.00	0.00	0.00
13,500.00	89.40	179.56	10,968.93	-2,671.61	-479.33	2,667.85	0.00	0.00	0.00
13,600.00	89.40	179.56	10,969.98	-2,771.60	-478.57	2,767.85	0.00	0.00	0.00
13,700.00	89.40	179.56	10,971.03	-2,871.60	-477.80	2,867.84	0.00	0.00	0.00
13,774.71	89.40	179.56	10,971.81	-2,946.30	-477.22	2,942.55	0.00	0.00	0.00
T3 (Merchant 501H)									
13,775.16	89.40	179.56	10,971.81	-2,946.75	-477.22	2,943.00	0.00	0.00	0.00
Drop 2.00°/100'									
13,800.00	88.90	179.56	10,972.18	-2,971.59	-477.03	2,967.83	2.00	-2.00	0.00
13,875.55	87.39	179.56	10,974.62	-3,047.09	-476.45	3,043.34	2.00	-2.00	0.00
Hold 87.39° Inc, 179.56° Azimuth									

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,900.00	87.39	179.56	10,975.74	-3,071.52	-476.26	3,067.77	0.00	0.00	0.00
14,000.00	87.39	179.56	10,980.29	-3,171.41	-475.50	3,167.66	0.00	0.00	0.00
14,100.00	87.39	179.56	10,984.84	-3,271.30	-474.73	3,267.56	0.00	0.00	0.00
14,200.00	87.39	179.56	10,989.39	-3,371.20	-473.96	3,367.46	0.00	0.00	0.00
14,300.00	87.39	179.56	10,993.94	-3,471.09	-473.19	3,467.35	0.00	0.00	0.00
14,400.00	87.39	179.56	10,998.49	-3,570.98	-472.43	3,567.25	0.00	0.00	0.00
14,500.00	87.39	179.56	11,003.04	-3,670.88	-471.66	3,667.15	0.00	0.00	0.00
14,600.00	87.39	179.56	11,007.60	-3,770.77	-470.89	3,767.04	0.00	0.00	0.00
14,700.00	87.39	179.56	11,012.15	-3,870.66	-470.13	3,866.94	0.00	0.00	0.00
14,800.00	87.39	179.56	11,016.70	-3,970.56	-469.36	3,966.84	0.00	0.00	0.00
14,900.00	87.39	179.56	11,021.25	-4,070.45	-468.59	4,066.73	0.00	0.00	0.00
15,000.00	87.39	179.56	11,025.80	-4,170.34	-467.82	4,166.63	0.00	0.00	0.00
15,100.00	87.39	179.56	11,030.35	-4,270.24	-467.06	4,266.52	0.00	0.00	0.00
15,200.00	87.39	179.56	11,034.90	-4,370.13	-466.29	4,366.42	0.00	0.00	0.00
15,296.57	87.39	179.56	11,039.30	-4,466.60	-465.55	4,462.89	0.00	0.00	0.00
T4 (Merchant 501H)									
15,296.68	87.39	179.56	11,039.30	-4,466.71	-465.55	4,463.00	0.00	0.00	0.00
Build 2.00°/100'									
15,300.00	87.46	179.56	11,039.45	-4,470.02	-465.52	4,466.32	2.00	2.00	0.00
15,391.10	89.28	179.56	11,042.04	-4,561.09	-464.82	4,557.38	2.00	2.00	0.00
Hold 89.28° Inc, 179.56° Azimuth									
15,400.00	89.28	179.56	11,042.16	-4,569.98	-464.76	4,566.28	0.00	0.00	0.00
15,500.00	89.28	179.56	11,043.41	-4,669.97	-463.99	4,666.27	0.00	0.00	0.00
15,600.00	89.28	179.56	11,044.67	-4,769.96	-463.22	4,766.26	0.00	0.00	0.00
15,700.00	89.28	179.56	11,045.93	-4,869.95	-462.45	4,866.25	0.00	0.00	0.00
15,800.00	89.28	179.56	11,047.18	-4,969.94	-461.68	4,966.24	0.00	0.00	0.00
15,900.00	89.28	179.56	11,048.44	-5,069.93	-460.92	5,066.24	0.00	0.00	0.00
16,000.00	89.28	179.56	11,049.70	-5,169.91	-460.15	5,166.23	0.00	0.00	0.00
16,100.00	89.28	179.56	11,050.95	-5,269.90	-459.38	5,266.22	0.00	0.00	0.00
16,200.00	89.28	179.56	11,052.21	-5,369.89	-458.61	5,366.21	0.00	0.00	0.00
16,300.00	89.28	179.56	11,053.47	-5,469.88	-457.84	5,466.20	0.00	0.00	0.00
16,400.00	89.28	179.56	11,054.72	-5,569.87	-457.08	5,566.20	0.00	0.00	0.00
16,500.00	89.28	179.56	11,055.98	-5,669.86	-456.31	5,666.19	0.00	0.00	0.00
16,600.00	89.28	179.56	11,057.24	-5,769.85	-455.54	5,766.18	0.00	0.00	0.00
16,700.00	89.28	179.56	11,058.49	-5,869.84	-454.77	5,866.17	0.00	0.00	0.00
16,800.00	89.28	179.56	11,059.75	-5,969.83	-454.01	5,966.17	0.00	0.00	0.00
16,900.00	89.28	179.56	11,061.01	-6,069.82	-453.24	6,066.16	0.00	0.00	0.00
17,000.00	89.28	179.56	11,062.26	-6,169.81	-452.47	6,166.15	0.00	0.00	0.00
17,100.00	89.28	179.56	11,063.52	-6,269.80	-451.70	6,266.14	0.00	0.00	0.00
17,200.00	89.28	179.56	11,064.78	-6,369.78	-450.93	6,366.13	0.00	0.00	0.00
17,300.00	89.28	179.56	11,066.03	-6,469.77	-450.17	6,466.13	0.00	0.00	0.00
17,400.00	89.28	179.56	11,067.29	-6,569.76	-449.40	6,566.12	0.00	0.00	0.00
17,476.61	89.28	179.56	11,068.25	-6,646.36	-448.81	6,642.72	0.00	0.00	0.00
T5 (Merchant 501H)									

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
17,476.89	89.28	179.56	11,068.25	-6,646.64	-448.81	6,643.00	0.00	0.00	0.00	
Drop 2.00°/100'										
17,500.00	88.82	179.56	11,068.64	-6,669.75	-448.63	6,666.11	2.00	-2.00	0.00	
17,519.10	88.44	179.56	11,069.10	-6,688.84	-448.48	6,685.20	2.00	-2.00	0.00	
Hold 88.44° Inc, 179.56° Azimuth										
17,600.00	88.44	179.56	11,071.30	-6,769.71	-447.86	6,766.07	0.00	0.00	0.00	
17,700.00	88.44	179.56	11,074.03	-6,869.67	-447.09	6,866.04	0.00	0.00	0.00	
17,800.00	88.44	179.56	11,076.76	-6,969.63	-446.33	6,966.00	0.00	0.00	0.00	
17,900.00	88.44	179.56	11,079.49	-7,069.59	-445.56	7,065.96	0.00	0.00	0.00	
18,000.00	88.44	179.56	11,082.22	-7,169.55	-444.79	7,165.92	0.00	0.00	0.00	
18,100.00	88.44	179.56	11,084.95	-7,269.51	-444.02	7,265.89	0.00	0.00	0.00	
18,200.00	88.44	179.56	11,087.68	-7,369.47	-443.26	7,365.85	0.00	0.00	0.00	
18,300.00	88.44	179.56	11,090.41	-7,469.43	-442.49	7,465.81	0.00	0.00	0.00	
18,400.00	88.44	179.56	11,093.14	-7,569.39	-441.72	7,565.77	0.00	0.00	0.00	
18,500.00	88.44	179.56	11,095.87	-7,669.35	-440.95	7,665.74	0.00	0.00	0.00	
18,600.00	88.44	179.56	11,098.60	-7,769.31	-440.19	7,765.70	0.00	0.00	0.00	
18,700.00	88.44	179.56	11,101.33	-7,869.27	-439.42	7,865.66	0.00	0.00	0.00	
18,800.00	88.44	179.56	11,104.06	-7,969.23	-438.65	7,965.63	0.00	0.00	0.00	
18,900.00	88.44	179.56	11,106.79	-8,069.19	-437.88	8,065.59	0.00	0.00	0.00	
19,000.00	88.44	179.56	11,109.52	-8,169.15	-437.12	8,165.55	0.00	0.00	0.00	
19,100.00	88.44	179.56	11,112.25	-8,269.11	-436.35	8,265.51	0.00	0.00	0.00	
19,200.00	88.44	179.56	11,114.98	-8,369.07	-435.58	8,365.48	0.00	0.00	0.00	
19,300.00	88.44	179.56	11,117.71	-8,469.03	-434.81	8,465.44	0.00	0.00	0.00	
19,400.00	88.44	179.56	11,120.44	-8,568.99	-434.04	8,565.40	0.00	0.00	0.00	
19,500.00	88.44	179.56	11,123.17	-8,668.95	-433.28	8,665.37	0.00	0.00	0.00	
19,600.00	88.44	179.56	11,125.90	-8,768.91	-432.51	8,765.33	0.00	0.00	0.00	
19,700.00	88.44	179.56	11,128.63	-8,868.87	-431.74	8,865.29	0.00	0.00	0.00	
19,800.00	88.44	179.56	11,131.36	-8,968.83	-430.97	8,965.25	0.00	0.00	0.00	
19,900.00	88.44	179.56	11,134.09	-9,068.79	-430.21	9,065.22	0.00	0.00	0.00	
20,000.00	88.44	179.56	11,136.82	-9,168.75	-429.44	9,165.18	0.00	0.00	0.00	
20,100.00	88.44	179.56	11,139.55	-9,268.71	-428.67	9,265.14	0.00	0.00	0.00	
20,200.00	88.44	179.56	11,142.28	-9,368.67	-427.90	9,365.10	0.00	0.00	0.00	
20,300.00	88.44	179.56	11,145.01	-9,468.63	-427.14	9,465.07	0.00	0.00	0.00	
20,400.00	88.44	179.56	11,147.74	-9,568.59	-426.37	9,565.03	0.00	0.00	0.00	
20,500.00	88.44	179.56	11,150.47	-9,668.55	-425.60	9,664.99	0.00	0.00	0.00	
20,600.00	88.44	179.56	11,153.20	-9,768.51	-424.83	9,764.96	0.00	0.00	0.00	
20,700.00	88.44	179.56	11,155.93	-9,868.47	-424.07	9,864.92	0.00	0.00	0.00	
20,800.00	88.44	179.56	11,158.66	-9,968.43	-423.30	9,964.88	0.00	0.00	0.00	
20,900.00	88.44	179.56	11,161.39	-10,068.38	-422.53	10,064.84	0.00	0.00	0.00	
20,972.04	88.44	179.56	11,163.35	-10,140.40	-421.98	10,136.86	0.00	0.00	0.00	
T6 (Merchant 501H)										
21,000.00	88.44	179.56	11,164.11	-10,168.34	-421.76	10,164.81	0.00	0.00	0.00	
21,086.29	88.44	179.56	11,166.47	-10,254.60	-421.10	10,251.06	0.00	0.00	0.00	
PBHL - PBHL r1 (Merchant 501H)										

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDM 5000.1 Aim Database

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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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 (Merchant 501H) - plan misses target center by 510.28usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	97.40	-500.90	525,516.80	782,775.70	32° 26' 32.205 N	103° 33' 2.522 W
PBHL r1 (Merchant 501H) - plan hits target center - Point	0.00	0.00	11,166.47	-10,254.60	-421.10	515,164.80	782,855.50	32° 24' 49.768 N	103° 33' 2.476 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,676.00	1,676.00	Rustler		0.00	
5,240.00	5,240.00	Limestone Base		0.00	
8,521.10	8,508.00	Lower Brushy		0.00	
9,040.45	9,025.00	Avalon		0.00	
10,039.40	10,020.00	1st BS Sand		0.00	
10,594.46	10,571.00	2nd BS sand		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5264	5264	0	0	Build 1.00°/100'
5809	5808	6	-25	Hold 5.45° Inc, 283.26° Azimuth
9750	9732	92	-390	Drop 1.00°/100'
10,295	10,276	98	-415	Hold Vertical
10,395	10,376	98	-415	KOP, Build 10.00°/100'
10,995	10,872	-183	-470	Build Turn 10.00°/100'
11,314	10,954	-486	-496	LP, Hold 89.93° Inc, 179.56° Azimuth
12,188	10,955	-1360	-489	Drop 2.00°/100'
12,215	10,955	-1386	-489	Hold 89.40° Inc, 179.56° Azimuth
13,775	10,972	-2947	-477	Drop 2.00°/100'
13,876	10,975	-3047	-476	Hold 87.39° Inc, 179.56° Azimuth
15,297	11,039	-4467	-466	Build 2.00°/100'
15,391	11,042	-4561	-465	Hold 89.28° Inc, 179.56° Azimuth
17,477	11,068	-6647	-449	Drop 2.00°/100'
17,519	11,069	-6689	-448	Hold 88.44° Inc, 179.56° Azimuth
21,086	11,166	-10,255	-421	PBHL

Advance Energy Partners, LLC

Merchant State Unit 501H
Lea County, New Mexico
Job No. WT-20-003
H&P 389
Plan 1.0 Final PVA



Released to Imaging: 7/22/2024 8:13:13 AM



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.14°

Magnetic Field
Strength: 48018.2nT
Dip Angle: 60.19°
Date: 2/24/2020
Model: MVHD

Magnetic North: 6.14° to Grid North

SITE DETAILS: Merchant State Unit 501H

Site Centre Northing: 525419.40
Easting: 783276.60

Positional Uncertainty: 0.00
Convergence: 0.42
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

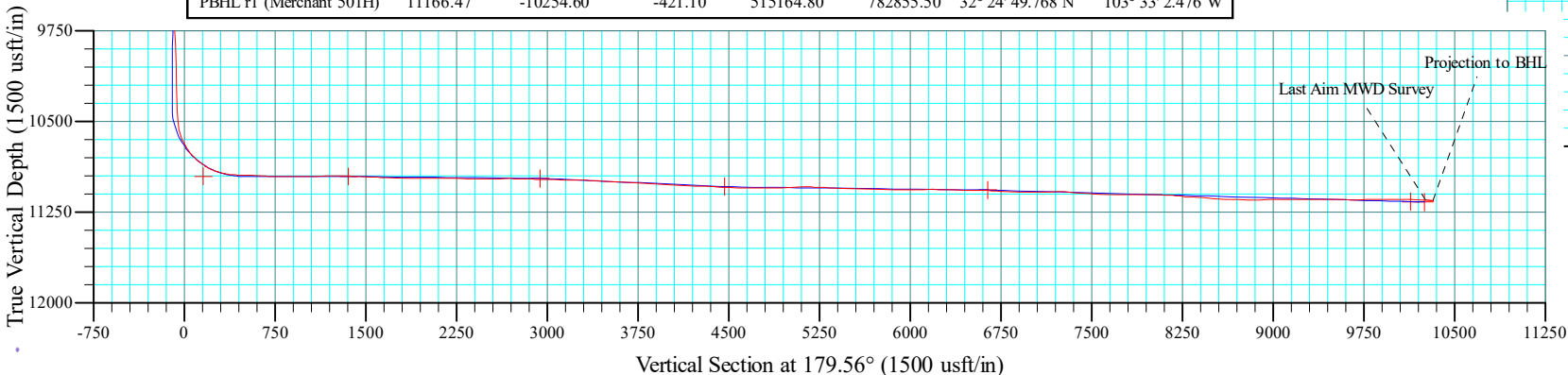
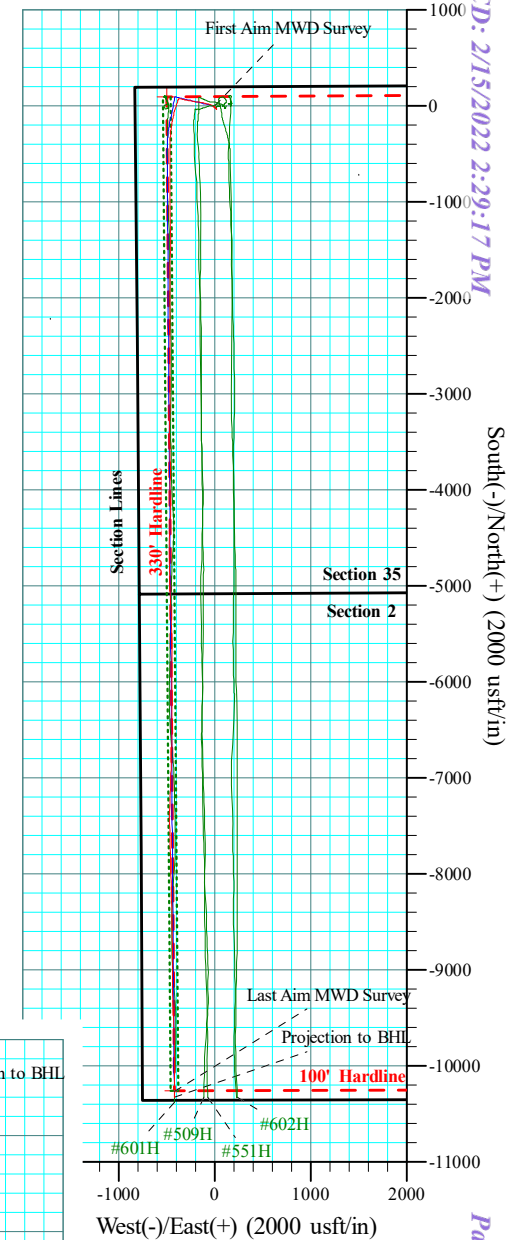
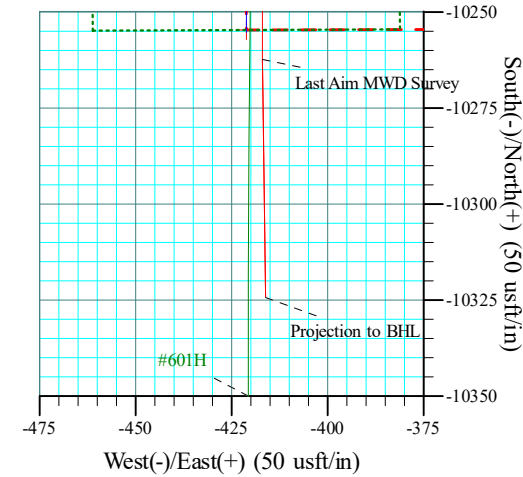
Depth Reference:
3685'GL+25.5'KB @ 3710.50usft (H&P 389)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	21090.00	87.16	179.38	11151.87	-10262.31	-416.81	0.00	0.00	10258.80	Last Aim MWD Survey
2	21152.00	87.16	179.38	11154.94	-10324.23	-416.14	0.00	0.00	10320.73	Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant 501H)	0.00	97.40	-500.90	525516.80	782775.70	32° 26' 32.205 N	103° 33' 2.522 W
PBHL r1 (Merchant 501H)	11166.47	-10254.60	-421.10	515164.80	782855.50	32° 24' 49.768 N	103° 33' 2.476 W



South(-)/North(+) (2000 usft/in)

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Survey Reports

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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	Merchant State Unit 501H		
Site Position:		Northing:	525,419.40 usft
From:	Map	Easting:	783,276.60 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 31.205 N
		Longitude:	103° 32' 56.686 W
		Grid Convergence:	0.42 °

Well	#501H - Slot 501H		
Well Position	+N/-S	0.00 usft	Northing: 525,419.40 usft
	+E/-W	0.00 usft	Easting: 783,276.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 26' 31.205 N
		Longitude:	103° 32' 56.686 W
		Ground Level:	3,685.00 usft

Wellbore	Aim MWD Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	1/13/2020	6.57	60.19	48,030.78124680

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	179.56	

Survey Program	Date	3/4/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
235.00	21,152.00	Aim MWD Surveys (Aim MWD Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
235.00	0.57	26.19	235.00	1.05	0.52	-1.04	0.24	0.24	0.00
First Aim MWD Survey									
424.00	0.26	53.52	423.99	2.15	1.28	-2.14	0.19	-0.16	14.46
613.00	0.18	13.44	612.99	2.69	1.69	-2.68	0.09	-0.04	-21.21
801.00	0.31	278.87	800.99	3.06	1.26	-3.05	0.20	0.07	-50.30
989.00	0.48	171.47	988.99	2.36	0.87	-2.35	0.34	0.09	-57.13
1,176.00	0.70	173.76	1,175.98	0.45	1.11	-0.44	0.12	0.12	1.22
1,270.00	0.70	170.94	1,269.97	-0.69	1.26	0.70	0.04	0.00	-3.00
1,365.00	0.88	191.95	1,364.96	-1.98	1.20	1.99	0.36	0.19	22.12
1,459.00	1.01	188.87	1,458.95	-3.50	0.93	3.51	0.15	0.14	-3.28

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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)
1,549.00	1.32	207.16	1,548.93	-5.21	0.33	5.21	0.53	0.34	20.32
1,638.00	1.27	219.02	1,637.91	-6.89	-0.76	6.88	0.31	-0.06	13.33
1,690.00	1.32	205.22	1,689.89	-7.88	-1.38	7.87	0.61	0.10	-26.54
1,818.00	1.01	217.53	1,817.87	-10.11	-2.69	10.08	0.31	-0.24	9.62
1,907.00	0.79	224.03	1,906.86	-11.17	-3.60	11.14	0.27	-0.25	7.30
1,997.00	0.40	185.10	1,996.85	-11.93	-4.06	11.90	0.60	-0.43	-43.26
2,086.00	0.48	217.09	2,085.85	-12.53	-4.31	12.50	0.29	0.09	35.94
2,176.00	0.53	204.52	2,175.85	-13.21	-4.71	13.18	0.13	0.06	-13.97
2,266.00	0.44	230.62	2,265.84	-13.81	-5.15	13.77	0.26	-0.10	29.00
2,355.00	0.40	229.30	2,354.84	-14.23	-5.65	14.19	0.05	-0.04	-1.48
2,445.00	0.31	230.53	2,444.84	-14.59	-6.07	14.54	0.10	-0.10	1.37
2,535.00	0.40	204.96	2,534.84	-15.03	-6.39	14.98	0.20	0.10	-28.41
2,624.00	0.26	118.74	2,623.84	-15.41	-6.35	15.36	0.52	-0.16	-96.88
2,714.00	0.22	121.11	2,713.83	-15.60	-6.02	15.55	0.05	-0.04	2.63
2,803.00	0.31	102.04	2,802.83	-15.74	-5.64	15.69	0.14	0.10	-21.43
2,893.00	0.35	72.95	2,892.83	-15.71	-5.14	15.67	0.19	0.04	-32.32
2,983.00	0.75	63.72	2,982.83	-15.36	-4.35	15.33	0.45	0.44	-10.26
3,072.00	1.10	72.95	3,071.82	-14.86	-3.01	14.83	0.43	0.39	10.37
3,162.00	1.32	76.90	3,161.80	-14.37	-1.17	14.36	0.26	0.24	4.39
3,251.00	1.49	65.12	3,250.77	-13.65	0.88	13.65	0.38	0.19	-13.24
3,341.00	1.63	66.62	3,340.74	-12.65	3.11	12.67	0.16	0.16	1.67
3,431.00	1.14	75.32	3,430.71	-11.91	5.15	11.95	0.59	-0.54	9.67
3,520.00	1.27	61.52	3,519.69	-11.22	6.88	11.27	0.36	0.15	-15.51
3,610.00	0.31	118.21	3,609.68	-10.86	7.97	10.92	1.26	-1.07	62.99
3,700.00	0.40	228.86	3,699.68	-11.18	7.95	11.24	0.65	0.10	122.94
3,790.00	0.53	214.80	3,789.68	-11.73	7.47	11.79	0.19	0.14	-15.62
3,879.00	0.79	235.54	3,878.67	-12.41	6.73	12.46	0.39	0.29	23.30
3,969.00	0.62	209.09	3,968.66	-13.19	5.98	13.24	0.40	-0.19	-29.39
4,058.00	0.44	210.32	4,057.66	-13.91	5.58	13.95	0.20	-0.20	1.38
4,148.00	0.48	245.65	4,147.66	-14.36	5.06	14.40	0.31	0.04	39.26
4,237.00	0.53	225.61	4,236.65	-14.80	4.42	14.83	0.21	0.06	-22.52
4,327.00	0.53	174.28	4,326.65	-15.51	4.17	15.54	0.51	0.00	-57.03
4,417.00	1.98	135.61	4,416.63	-17.03	5.30	17.07	1.78	1.61	-42.97
4,506.00	2.29	132.62	4,505.57	-19.33	7.68	19.39	0.37	0.35	-3.36
4,596.00	1.71	129.99	4,595.51	-21.42	10.03	21.49	0.65	-0.64	-2.92
4,686.00	1.23	124.54	4,685.48	-22.83	11.86	22.92	0.55	-0.53	-6.06
4,776.00	0.88	130.34	4,775.47	-23.82	13.18	23.92	0.41	-0.39	6.44
4,865.00	1.01	136.40	4,864.45	-24.83	14.24	24.94	0.18	0.15	6.81
5,045.00	0.84	153.10	5,044.43	-27.16	15.93	27.28	0.18	-0.09	9.28
5,135.00	0.70	148.09	5,134.42	-28.21	16.52	28.34	0.17	-0.16	-5.57
5,224.00	0.79	154.77	5,223.42	-29.23	17.07	29.36	0.14	0.10	7.51
5,264.00	0.97	143.87	5,263.41	-29.75	17.39	29.88	0.61	0.45	-27.25
5,396.00	0.48	140.10	5,395.40	-31.08	18.40	31.22	0.37	-0.37	-2.86

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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)	
5,486.00	2.95	324.84	5,485.37	-29.47	17.31	29.61	3.81	2.74	-194.73	
5,575.00	4.62	317.55	5,574.17	-24.96	13.57	25.06	1.95	1.88	-8.19	
5,665.00	5.63	315.00	5,663.81	-19.16	8.00	19.22	1.15	1.12	-2.83	
5,754.00	6.59	310.25	5,752.30	-12.77	1.02	12.78	1.22	1.08	-5.34	
5,844.00	6.73	306.30	5,841.69	-6.31	-7.17	6.26	0.53	0.16	-4.39	
5,934.00	6.15	305.42	5,931.13	-0.40	-15.35	0.28	0.65	-0.64	-0.98	
6,023.00	5.93	304.80	6,019.63	4.99	-23.01	-5.17	0.26	-0.25	-0.70	
6,113.00	7.34	292.23	6,109.03	9.82	-32.15	-10.06	2.24	1.57	-13.97	
6,202.00	8.22	288.72	6,197.21	14.01	-43.44	-14.34	1.12	0.99	-3.94	
6,291.00	8.18	287.58	6,285.30	17.97	-55.50	-18.39	0.19	-0.04	-1.28	
6,381.00	7.96	286.35	6,374.41	21.65	-67.59	-22.17	0.31	-0.24	-1.37	
6,471.00	7.60	285.11	6,463.58	24.96	-79.31	-25.57	0.44	-0.40	-1.38	
6,560.00	7.12	284.41	6,551.85	27.87	-90.34	-28.56	0.55	-0.54	-0.79	
6,650.00	6.81	282.57	6,641.19	30.42	-100.95	-31.19	0.42	-0.34	-2.04	
6,740.00	6.42	280.98	6,730.59	32.53	-111.09	-33.39	0.48	-0.43	-1.77	
6,829.00	6.24	280.81	6,819.04	34.39	-120.73	-35.32	0.20	-0.20	-0.19	
6,919.00	5.80	280.28	6,908.55	36.12	-130.01	-37.12	0.49	-0.49	-0.59	
7,008.00	5.41	278.87	6,997.12	37.57	-138.58	-38.63	0.46	-0.44	-1.58	
7,098.00	7.08	277.64	7,086.58	38.96	-148.27	-40.10	1.86	1.86	-1.37	
7,187.00	7.47	276.77	7,174.87	40.37	-159.45	-41.59	0.46	0.44	-0.98	
7,277.00	6.68	277.38	7,264.18	41.73	-170.45	-43.04	0.88	-0.88	0.68	
7,367.00	6.42	276.50	7,353.59	42.98	-180.64	-44.36	0.31	-0.29	-0.98	
7,456.00	6.15	276.33	7,442.06	44.06	-190.32	-45.52	0.30	-0.30	-0.19	
7,546.00	6.86	280.90	7,531.48	45.61	-200.39	-47.15	0.98	0.79	5.08	
7,636.00	8.22	282.92	7,620.70	48.07	-211.94	-49.69	1.54	1.51	2.24	
7,725.00	7.60	282.48	7,708.85	50.76	-223.89	-52.48	0.70	-0.70	-0.49	
7,815.00	7.25	281.86	7,798.10	53.21	-235.26	-55.02	0.40	-0.39	-0.69	
7,904.00	6.95	280.02	7,886.41	55.31	-246.06	-57.19	0.42	-0.34	-2.07	
7,993.00	6.42	279.31	7,974.81	57.05	-256.27	-59.01	0.60	-0.60	-0.80	
8,083.00	5.85	278.17	8,064.29	58.51	-265.78	-60.55	0.65	-0.63	-1.27	
8,173.00	5.89	278.17	8,153.82	59.82	-274.89	-61.93	0.04	0.04	0.00	
8,263.00	5.54	277.73	8,243.37	61.06	-283.76	-63.24	0.39	-0.39	-0.49	
8,352.00	5.85	280.98	8,331.94	62.50	-292.47	-64.75	0.50	0.35	3.65	
8,442.00	6.51	283.71	8,421.41	64.59	-301.93	-66.90	0.80	0.73	3.03	
8,531.00	6.20	284.15	8,509.86	66.96	-311.49	-69.35	0.35	-0.35	0.49	
8,621.00	5.85	283.27	8,599.37	69.20	-320.67	-71.66	0.40	-0.39	-0.98	
8,710.00	5.49	281.95	8,687.93	71.12	-329.25	-73.65	0.43	-0.40	-1.48	
8,800.00	5.45	280.46	8,777.52	72.79	-337.67	-75.38	0.16	-0.04	-1.66	
8,889.00	5.45	278.87	8,866.12	74.21	-346.00	-76.86	0.17	0.00	-1.79	
8,979.00	4.88	277.12	8,955.75	75.34	-354.02	-78.06	0.66	-0.63	-1.94	
9,069.00	4.04	277.03	9,045.48	76.20	-360.96	-78.97	0.93	-0.93	-0.10	
9,158.00	3.25	278.44	9,134.30	76.96	-366.57	-79.77	0.89	-0.89	1.58	
9,248.00	2.64	275.62	9,224.18	77.53	-371.16	-80.38	0.70	-0.68	-3.13	

Aim Directional Services, LLC

Survey Report

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Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
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Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.1 Aim Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,337.00	2.46	283.80	9,313.09	78.19	-375.05	-81.07	0.46	-0.20	9.19
9,427.00	0.53	247.32	9,403.06	78.49	-377.31	-81.39	2.29	-2.14	-40.53
9,516.00	0.40	179.21	9,492.06	78.02	-377.69	-80.92	0.60	-0.15	-76.53
9,606.00	0.70	208.56	9,582.05	77.22	-377.95	-80.13	0.45	0.33	32.61
9,696.00	1.14	204.96	9,672.04	75.93	-378.59	-78.84	0.49	0.49	-4.00
9,785.00	1.67	190.81	9,761.01	73.85	-379.20	-76.76	0.71	0.60	-15.90
9,875.00	1.80	187.64	9,850.97	71.16	-379.64	-74.08	0.18	0.14	-3.52
9,965.00	2.02	194.06	9,940.92	68.23	-380.21	-71.14	0.34	0.24	7.13
10,054.00	1.89	203.38	10,029.87	65.36	-381.18	-68.28	0.39	-0.15	10.47
10,144.00	1.71	209.09	10,119.83	62.82	-382.42	-65.76	0.28	-0.20	6.34
10,234.00	1.49	213.66	10,209.79	60.67	-383.72	-63.62	0.28	-0.24	5.08
10,324.00	1.36	195.73	10,299.76	58.67	-384.66	-61.62	0.51	-0.14	-19.92
10,414.00	1.14	154.77	10,389.74	56.83	-384.56	-59.78	1.00	-0.24	-45.51
10,503.00	3.78	166.37	10,478.66	53.18	-383.50	-56.12	3.00	2.97	13.03
10,593.00	12.26	202.06	10,567.73	41.41	-386.39	-44.38	10.50	9.42	39.66
10,683.00	24.75	201.27	10,652.91	14.90	-396.86	-17.94	13.88	13.88	-0.88
10,773.00	36.26	198.28	10,730.33	-28.08	-412.09	24.91	12.90	12.79	-3.32
10,862.00	46.86	192.13	10,796.86	-85.00	-427.22	81.72	12.75	11.91	-6.91
10,952.00	53.19	190.98	10,854.65	-152.54	-441.00	149.15	7.10	7.03	-1.28
11,042.00	67.34	187.91	10,899.18	-229.45	-453.64	225.96	16.00	15.72	-3.41
11,131.00	76.44	183.43	10,926.83	-313.52	-461.90	309.96	11.29	10.22	-5.03
11,221.00	85.58	180.26	10,940.88	-402.26	-464.73	398.68	10.73	10.16	-3.52
11,282.00	88.04	180.00	10,944.28	-463.16	-464.87	459.58	4.06	4.03	-0.43
11,372.00	87.34	178.77	10,947.90	-553.08	-463.90	549.50	1.57	-0.78	-1.37
11,461.00	87.65	180.26	10,951.79	-641.99	-463.15	638.42	1.71	0.35	1.67
11,551.00	89.85	180.53	10,953.76	-731.96	-463.77	728.38	2.46	2.44	0.30
11,640.00	89.05	179.65	10,954.61	-820.96	-463.91	817.37	1.34	-0.90	-0.99
11,729.00	89.85	180.88	10,955.47	-909.95	-464.32	906.36	1.65	0.90	1.38
11,819.00	90.86	181.05	10,954.91	-999.93	-465.84	996.33	1.14	1.12	0.19
11,909.00	91.21	179.65	10,953.28	-1,089.92	-466.39	1,086.30	1.60	0.39	-1.56
11,998.00	91.08	178.15	10,951.50	-1,178.88	-464.68	1,175.28	1.69	-0.15	-1.69
12,088.00	89.80	177.89	10,950.81	-1,268.82	-461.57	1,265.24	1.45	-1.42	-0.29
12,178.00	88.66	179.29	10,952.02	-1,358.78	-459.35	1,355.21	2.01	-1.27	1.56
12,267.00	87.56	179.82	10,954.96	-1,447.73	-458.66	1,444.16	1.37	-1.24	0.60
12,357.00	87.65	182.81	10,958.72	-1,537.62	-460.73	1,534.03	3.32	0.10	3.32
12,447.00	86.07	180.96	10,963.65	-1,627.43	-463.68	1,623.82	2.70	-1.76	-2.06
12,536.00	88.84	180.96	10,967.60	-1,716.32	-465.17	1,712.69	3.11	3.11	0.00
12,626.00	88.70	178.86	10,969.53	-1,806.29	-465.03	1,802.67	2.34	-0.16	-2.33
12,715.00	89.85	179.73	10,970.66	-1,895.27	-463.94	1,891.66	1.62	1.29	0.98
12,805.00	90.07	181.93	10,970.72	-1,985.26	-465.24	1,981.63	2.46	0.24	2.44
12,895.00	89.80	181.40	10,970.83	-2,075.22	-467.85	2,071.57	0.66	-0.30	-0.59
12,984.00	90.29	180.79	10,970.76	-2,164.20	-469.56	2,160.53	0.88	0.55	-0.69
13,074.00	88.88	178.50	10,971.41	-2,254.19	-469.00	2,250.52	2.99	-1.57	-2.54
13,163.00	89.36	180.17	10,972.77	-2,343.17	-467.97	2,339.51	1.95	0.54	1.88

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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)
13,253.00	89.14	179.73	10,973.95	-2,433.16	-467.89	2,429.50	0.55	-0.24	-0.49
13,342.00	90.77	180.09	10,974.02	-2,522.16	-467.75	2,518.49	1.88	1.83	0.40
13,432.00	90.95	179.21	10,972.67	-2,612.15	-467.20	2,608.48	1.00	0.20	-0.98
13,522.00	89.63	178.94	10,972.22	-2,702.13	-465.74	2,698.48	1.50	-1.47	-0.30
13,611.00	87.82	180.26	10,974.20	-2,791.10	-465.12	2,787.45	2.52	-2.03	1.48
13,701.00	87.38	179.73	10,977.96	-2,881.02	-465.11	2,877.37	0.76	-0.49	-0.59
13,790.00	89.63	182.37	10,980.29	-2,969.96	-466.75	2,966.29	3.90	2.53	2.97
13,880.00	89.14	181.23	10,981.25	-3,059.91	-469.57	3,056.22	1.38	-0.54	-1.27
13,969.00	88.18	178.86	10,983.33	-3,148.88	-469.64	3,145.18	2.87	-1.08	-2.66
14,059.00	89.49	180.79	10,985.16	-3,238.86	-469.37	3,235.16	2.59	1.46	2.14
14,149.00	88.44	181.05	10,986.79	-3,328.83	-470.81	3,325.11	1.20	-1.17	0.29
14,238.00	85.36	179.91	10,991.60	-3,417.68	-471.56	3,413.96	3.69	-3.46	-1.28
14,328.00	87.16	179.38	10,997.47	-3,507.49	-471.00	3,503.77	2.08	2.00	-0.59
14,417.00	87.43	178.24	11,001.67	-3,596.37	-469.16	3,592.66	1.31	0.30	-1.28
14,506.00	86.51	176.75	11,006.38	-3,685.15	-465.27	3,681.47	1.97	-1.03	-1.67
14,596.00	86.86	178.77	11,011.58	-3,774.93	-461.76	3,771.27	2.27	0.39	2.24
14,685.00	87.03	181.40	11,016.33	-3,863.79	-461.89	3,860.13	2.96	0.19	2.96
14,775.00	86.24	180.00	11,021.61	-3,953.63	-462.99	3,949.96	1.78	-0.88	-1.56
14,865.00	86.95	179.03	11,026.96	-4,043.47	-462.23	4,039.80	1.33	0.79	-1.08
14,955.00	87.82	178.77	11,031.06	-4,133.35	-460.50	4,129.70	1.01	0.97	-0.29
15,044.00	88.35	181.32	11,034.04	-4,222.30	-460.57	4,218.64	2.92	0.60	2.87
15,134.00	87.25	182.37	11,037.49	-4,312.18	-463.47	4,308.50	1.69	-1.22	1.17
15,223.00	86.42	182.55	11,042.41	-4,400.96	-467.28	4,397.24	0.95	-0.93	0.20
15,313.00	88.35	182.28	11,046.51	-4,490.79	-471.07	4,487.04	2.17	2.14	-0.30
15,403.00	88.62	181.58	11,048.89	-4,580.70	-474.10	4,576.93	0.83	0.30	-0.78
15,493.00	88.35	178.77	11,051.27	-4,670.66	-474.38	4,666.88	3.14	-0.30	-3.12
15,582.00	90.20	179.21	11,052.40	-4,759.64	-472.81	4,755.86	2.14	2.08	0.49
15,671.00	91.56	179.12	11,051.03	-4,848.61	-471.51	4,844.85	1.53	1.53	-0.10
15,761.00	92.18	177.71	11,048.09	-4,938.53	-469.02	4,934.78	1.71	0.69	-1.57
15,851.00	92.13	177.71	11,044.71	-5,028.39	-465.43	5,024.67	0.06	-0.06	0.00
15,940.00	91.12	177.71	11,042.18	-5,117.29	-461.87	5,113.59	1.13	-1.13	0.00
16,030.00	87.65	177.45	11,043.15	-5,207.19	-458.08	5,203.51	3.87	-3.86	-0.29
16,119.00	87.69	178.59	11,046.77	-5,296.06	-455.00	5,292.41	1.28	0.04	1.28
16,209.00	86.68	177.54	11,051.19	-5,385.90	-451.97	5,382.27	1.62	-1.12	-1.17
16,299.00	88.18	177.80	11,055.22	-5,475.73	-448.31	5,472.12	1.69	1.67	0.29
16,388.00	89.01	180.88	11,057.41	-5,564.68	-447.29	5,561.09	3.58	0.93	3.46
16,477.00	89.32	180.35	11,058.70	-5,653.67	-448.24	5,650.06	0.69	0.35	-0.60
16,567.00	88.04	179.29	11,060.78	-5,743.64	-447.96	5,740.03	1.85	-1.42	-1.18
16,657.00	87.78	178.94	11,064.06	-5,833.57	-446.57	5,829.97	0.48	-0.29	-0.39
16,746.00	89.63	179.82	11,066.07	-5,922.54	-445.61	5,918.94	2.30	2.08	0.99
16,836.00	91.60	180.26	11,065.11	-6,012.53	-445.67	6,008.93	2.24	2.19	0.49
16,925.00	91.08	181.14	11,063.02	-6,101.50	-446.76	6,097.89	1.15	-0.58	0.99
17,015.00	89.63	181.23	11,062.47	-6,191.47	-448.62	6,187.84	1.61	-1.61	0.10

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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)
17,105.00	87.91	180.44	11,064.40	-6,281.44	-449.93	6,277.80	2.10	-1.91	-0.88
17,194.00	87.34	179.56	11,068.09	-6,370.36	-449.93	6,366.72	1.18	-0.64	-0.99
17,284.00	87.87	179.73	11,071.85	-6,460.28	-449.38	6,456.64	0.62	0.59	0.19
17,383.00	91.38	179.73	11,072.50	-6,559.26	-448.91	6,555.62	3.55	3.55	0.00
17,472.00	88.13	180.70	11,072.88	-6,648.25	-449.24	6,644.60	3.81	-3.65	1.09
17,562.00	86.11	181.40	11,077.40	-6,738.11	-450.89	6,734.45	2.38	-2.24	0.78
17,651.00	87.96	181.67	11,082.00	-6,826.96	-453.27	6,823.28	2.10	2.08	0.30
17,741.00	88.04	181.23	11,085.14	-6,916.87	-455.55	6,913.17	0.50	0.09	-0.49
17,830.00	90.46	182.28	11,086.31	-7,005.82	-458.27	7,002.09	2.96	2.72	1.18
17,920.00	90.95	182.46	11,085.20	-7,095.73	-461.99	7,091.98	0.58	0.54	0.20
18,010.00	92.22	182.11	11,082.71	-7,185.62	-465.58	7,181.84	1.46	1.41	-0.39
18,099.00	87.25	181.84	11,083.12	-7,274.54	-468.65	7,270.73	5.59	-5.58	-0.30
18,188.00	85.45	181.05	11,088.79	-7,363.33	-470.89	7,359.50	2.21	-2.02	-0.89
18,278.00	85.89	179.47	11,095.58	-7,453.07	-471.29	7,449.23	1.82	0.49	-1.76
18,367.00	88.13	178.06	11,100.23	-7,541.92	-469.38	7,538.09	2.97	2.52	-1.58
18,456.00	87.78	178.24	11,103.40	-7,630.82	-466.51	7,627.01	0.44	-0.39	0.20
18,545.00	90.37	178.50	11,104.84	-7,719.76	-463.97	7,715.97	2.92	2.91	0.29
18,635.00	89.67	178.06	11,104.81	-7,809.72	-461.27	7,805.95	0.92	-0.78	-0.49
18,725.00	88.88	177.98	11,105.95	-7,899.66	-458.16	7,895.91	0.88	-0.88	-0.09
18,814.00	90.33	179.38	11,106.56	-7,988.63	-456.11	7,984.89	2.26	1.63	1.57
18,904.00	88.97	179.38	11,107.11	-8,078.62	-455.14	8,074.88	1.51	-1.51	0.00
18,994.00	85.45	179.29	11,111.49	-8,168.49	-454.10	8,164.76	3.91	-3.91	-0.10
19,084.00	83.47	178.59	11,120.18	-8,258.05	-452.44	8,254.33	2.33	-2.20	-0.78
19,173.00	86.68	178.06	11,127.82	-8,346.67	-449.85	8,342.97	3.66	3.61	-0.60
19,263.00	86.81	178.15	11,132.93	-8,436.48	-446.88	8,432.80	0.18	0.14	0.10
19,353.00	86.11	178.68	11,138.48	-8,526.27	-444.39	8,522.61	0.97	-0.78	0.59
19,442.00	86.90	178.77	11,143.91	-8,615.08	-442.42	8,611.43	0.89	0.89	0.10
19,532.00	88.57	178.77	11,147.47	-8,704.99	-440.49	8,701.35	1.86	1.86	0.00
19,621.00	89.49	179.38	11,148.97	-8,793.96	-439.05	8,790.33	1.24	1.03	0.69
19,711.00	90.77	179.47	11,148.77	-8,883.96	-438.15	8,880.33	1.43	1.42	0.10
19,800.00	90.55	180.17	11,147.74	-8,972.95	-437.87	8,969.32	0.82	-0.25	0.79
19,890.00	90.55	180.26	11,146.88	-9,062.94	-438.20	9,059.31	0.10	0.00	0.10
19,979.00	91.38	180.44	11,145.38	-9,151.93	-438.75	9,148.29	0.95	0.93	0.20
20,069.00	90.29	178.59	11,144.07	-9,241.91	-437.99	9,238.28	2.39	-1.21	-2.06
20,159.00	89.32	178.15	11,144.38	-9,331.87	-435.43	9,328.25	1.18	-1.08	-0.49
20,248.00	88.48	178.15	11,146.08	-9,420.81	-432.55	9,417.21	0.94	-0.94	0.00
20,338.00	90.95	178.15	11,146.53	-9,510.75	-429.65	9,507.17	2.74	2.74	0.00
20,428.00	88.04	177.62	11,147.32	-9,600.68	-426.33	9,597.12	3.29	-3.23	-0.59
20,517.00	89.23	177.89	11,149.44	-9,689.58	-422.84	9,686.05	1.37	1.34	0.30
20,607.00	92.84	179.29	11,147.82	-9,779.53	-420.63	9,776.01	4.30	4.01	1.56
20,696.00	90.07	179.03	11,145.56	-9,868.48	-419.32	9,864.97	3.13	-3.11	-0.29
20,786.00	91.43	179.38	11,144.38	-9,958.46	-418.07	9,954.96	1.56	1.51	0.39
20,876.00	88.66	179.91	11,144.31	-10,048.45	-417.52	10,044.95	3.13	-3.08	0.59

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 501H
Project:	Lea County, New Mexico	TVD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Site:	Merchant State Unit 501H	MD Reference:	3685'GL+25.5'KB @ 3710.50usft (H&P 389)
Well:	#501H	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)	
20,965.00	88.09	180.09	11,146.83	-10,137.41	-417.52	10,133.91	0.67	-0.64	0.20	
21,054.00	87.56	179.47	11,150.21	-10,226.35	-417.18	10,222.84	0.92	-0.60	-0.70	
21,090.00	87.16	179.38	11,151.87	-10,262.31	-416.81	10,258.80	1.14	-1.11	-0.25	
Last Aim MWD Survey										
21,152.00	87.16	179.38	11,154.94	-10,324.23	-416.14	10,320.73	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	
235.00	235.00	1.05	0.52	First Aim MWD Survey	
21,090.00	11,151.87	-10,262.31	-416.81	Last Aim MWD Survey	
21,152.00	11,154.94	-10,324.23	-416.14	Projection to BHL	



BHA Reports

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #1 - Surface 17.5" (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	8.00	Date In	2020-01-10 21:30	Downhole Hours	14.42
Lobe/Stage	7/8, 4.0	Depth In (ft)	145.00	Drilling/Circulating Hours	10.17
Bend Angle	1.50	Date Out	2020-01-11 11:55	Drilling Hours	9.17
Speed (rev/gal)	0.17	Depth Out (ft)	1753.00	Circulating Hours	1.00
Wear Pad OD (in)	8.330	Distance Slid (ft)	0.00	Sliding Hours	0.00
Incident	No	Distance Rotated (ft)	1608.00	Rotating Hours	9.17
Motor Results		% Distance Sliding	0.00%	% Hours Sliding	0.00%
Average Total ROP (ft/h)	175.42	% Distance Rotating	100.00%	% Hours Rotating	100.00%

Bit Details		POOH Reason/Notes			
OD (in)	17.500	Total Depth/Casing Point: N/A			
Vendor	BAKER				
S/N	5308832				
Nozzles	9-12's	Incident Notes			
Total Flow Area (in²)	0.994				

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

Bit Distances		Comments			
Bit To Bend: 6.10 ft, Survey: 63.00 ft		Directional: Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:0			

Mud Properties		Parameters			
Type	Water Based	Flow Rate (gpm)	550.00 - 840.00	Motor RPM	60.00 - 60.00
WT	8.50	On Bottom Pressure (psi)	1200.00 - 2400.00	Surface RPM	30.00 - 60.00
VIS	35.00	Off Bottom Pressure (psi)	800.00 - 1600.00	Rotating WOB (klbs)	20.00 - 20.00
PV	0.00	Stall Pressure (psi)	0.00	Sliding WOB (klbs)	0.00 - 0.00
YP	0.00	Stalls	0	Temp (°F)	84.00 - 84.00
		NPT	0.0		

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: T606KS, Style: PDC, Gauge Length (in): 3.00, Size (in): 17.50	BAKER	5308832	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 7/8, 4.0 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4	AIM	800-40-010 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		30.01	31.51
Stabilizer Description: 17" IB STAB	GTI	GT801168	6 5/8" Reg Box	6 5/8" Reg Pin	2.813	8.020		8.02	39.53
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	42.98
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	74.11
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	105.13
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	109.03
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1522.69





Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #2 - Intermediate 12.25" (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	8.00	Date In	2020-01-14 14:15	Downhole Hours	19.50
Lobe/Stage	7/8, 5.9	Depth In (ft)	1753.00	Drilling/Circulating Hours	14.50
Bend Angle	1.50	Date Out	2020-01-15 09:45	Drilling Hours	12.50
Speed (rev/gal)	0.16	Depth Out (ft)	4436.00	Circulating Hours	2.00
Wear Pad OD (in)	8.320	Distance Slid (ft)	32.00	Sliding Hours	0.67
Incident	No	Distance Rotated (ft)	2655.00	Rotating Hours	11.83
Motor Results		% Distance Sliding	1.19%	% Hours Sliding	5.33%
Average Total ROP (ft/h)	214.96	% Distance Rotating	98.81%	% Hours Rotating	94.67%

Bit Details

OD (in)	12.250
Vendor	BAKER
S/N	5301295
Nozzles	6-12'S
Total Flow Area (in²)	0.663

POOH Reason/Notes

Penetration Rate: POOH FOR ROP, BIT RUNG OUT & DBR

MWD

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

Directional: BIT DBR

MWD:

Bit Distances

Bit To Bend: 6.00 ft, Survey: 70.00 ft

Comments

Directional: Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:2

Mud Properties

Type	Brine
WT	10.00
VIS	50.00
PV	0.00
YP	0.00

Parameters

Flow Rate (gpm)	840.00 - 850.00	Motor RPM	56.00 - 60.00
On Bottom Pressure (psi)	2400.00 - 3500.00	Surface RPM	60.00 - 70.00
Off Bottom Pressure (psi)	1600.00 - 2700.00	Rotating WOB (klbs)	20.00 - 20.00
Stall Pressure (psi)	0.00	Sliding WOB (klbs)	20.00 - 20.00
Stalls	0	Temp (°F)	95.00 - 95.00
NPT	0.0		

Items (Directional)

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506WS, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5301295	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1529.70





Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #3 - Intermediate 12.25" (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	8.00	Date In	2020-01-15 10:30
Lobe/Stage	7/8, 5.9	Depth In (ft)	4436.00
Bend Angle	1.50	Date Out	2020-01-16 03:00
Speed (rev/gal)	0.16	Depth Out (ft)	5334.00
Wear Pad OD (in)	8.320	Distance Slid (ft)	25.00
Incident	No	Distance Rotated (ft)	873.00
Motor Results		% Distance Sliding	2.78%
Average Total ROP (ft/h)	122.45	% Distance Rotating	97.22%
Average Slide ROP (ft/h)	100.00		
Average Rotating ROP (ft/h)	123.25		

BHA Objective
DRILL INTERMEDIATE

Bit Details		POOH Reason/Notes
OD (in)	12.250	Total Depth/Casing Point
Vendor	BAKER	
S/N	5299142	
Nozzles	6-12'S	
Total Flow Area (in²)	0.663	

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

Bit Distances	Comments
Bit To Bend: 6.00 ft, Survey: 70.00 ft	Directional: Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:1

Mud Properties		Parameters	
Type	Brine	Flow Rate (gpm)	840.00 - 850.00
WT	10.10	On Bottom Pressure (psi)	3450.00 - 3500.00
VIS	27.00	Off Bottom Pressure (psi)	2700.00 - 3000.00
PV	0.00	Stall Pressure (psi)	0.00
YP	0.00	Stalls	0
		NPT	0.0

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5299142	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1529.70





Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #4 - Intermediate 8.5" (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2020-01-21 04:00	Downhole Hours	53.00
Lobe/Stage	7/8, 8.5	Depth In (ft)	5334.00	Drilling/Circulating Hours	37.58
Bend Angle	1.50	Date Out	2020-01-23 09:00	Drilling Hours	35.58
Speed (rev/gal)	0.26	Depth Out (ft)	10467.00	Circulating Hours	2.00
Wear Pad OD (in)	7.375	Distance Slid (ft)	190.00	Sliding Hours	2.33
Incident	No	Distance Rotated (ft)	4958.00	Rotating Hours	33.25
Motor Results		% Distance Sliding	3.69%	% Hours Sliding	6.56%
Average Total ROP (ft/h)	144.67	% Distance Rotating	96.31%	% Hours Rotating	93.44%
Average Slide ROP (ft/h)	81.43	BHA Objective			
Average Rotating ROP (ft/h)	149.11	DRILL 8.5" INTERMEDIATE TO KOP			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: Pooh to P/U Curve tools.	
Vendor	ULTERRA		
S/N	49480		
Nozzles	1-14, 2-15's, & 3-16's		
Total Flow Area (in²)	1.085		

MWD		Incident Notes	
Max Downhole Temp (°F)	N/A	Directional: Motor drained as expected with 0.125" Bearing squat.	
		MWD:	

Bit Distances		Comments	
Bit To Bend:	5.30 ft,	Directional: FLOW RATE: 350-750 MAX DIFF: 1910 psi MAX TQ: 18,710 ft/lbs. BIT RUNS: 1	
Survey:	68.00 ft,		
Gamma:	53.00 ft		

Mud Properties		Parameters	
Type	Brine	Flow Rate (gpm)	625.00 - 705.00
WT	10.00	Motor RPM	156.00 - 195.00
VIS	38.00	On Bottom Pressure (psi)	2200.00 - 3000.00
PV	6.00	Off Bottom Pressure (psi)	1900.00 - 2400.00
YP	2.00	Rotating WOB (klbs)	40.00 - 45.00
		Stall Pressure (psi)	0.00
		Sliding WOB (klbs)	20.00 - 25.00
		Stalls	0
		Temp (°F)	125.00 - 175.00
		NPT	0.0

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: RPS616, Style: PDC, Gauge Length (in): 5.00, Size (in): 8.50	ULTERRA	49480	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8, 8.5 FXD 1.5° w/ 8.25" NBS, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-006	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Stabilizer Description: 8.25" STAB	DTI	DR43605	4 1/2" IF Box	4 1/2" IF Pin	2.813	6.688		5.19	42.34
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	46.02
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	74.78
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	103.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.06
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1520.72





Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #5 - Curve 8.5" (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.75	Date In	2020-01-23 09:00
Lobe/Stage	7/8, 5.0	Depth In (ft)	10482.00
Bend Angle	2.12	Date Out	2020-01-24 10:45
Speed (rev/gal)	0.28	Depth Out (ft)	11274.00
Wear Pad OD (in)	7.000	Distance Slid (ft)	644.00
Incident	No	Distance Rotated (ft)	148.00
Motor Results		% Distance Sliding	81.31%
Average Total ROP (ft/h)	102.19	% Distance Rotating	18.69%
Average Slide ROP (ft/h)	107.33		
Average Rotating ROP (ft/h)	84.57		

Bit Details		BHA Objective
OD (in)	8.500	Drill Curve
Vendor	ULTERRA	

S/N	51467	POOH Reason/Notes
Nozzles	6-16's	Change Bottom Hole Assembly: Landed Curve / POOH to skid
Total Flow Area (in²)	1.178	

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: Motor drained as expected / slack in bit box with minimum squat.
		MWD:

Bit Distances		Comments
Bit To Bend (Bit to Bend): 4.05 ft, Gamma (Bit to Gamma): 38.00 ft, Survey (Bit to Survey): 53.00 ft		Directional: Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit: 2

Mud Properties		Parameters
Type	Brine	Flow Rate (gpm)
WT	10.00	On Bottom Pressure (psi)
VIS	28.00	Off Bottom Pressure (psi)
PV	2.00	Stall Pressure (psi)
YP	1.00	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: CF611, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	ULTERRA	51467	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 FXD 2.12° w/ True Slick, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.02	27.02
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	30.70
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	59.46
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	88.19
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrig54 Box	4 1/2" IF Pin	2.938	6.750		3.55	91.74
Drill Pipe Description: (10) Stands) 5.5" Drill Pipe, Style: Slick	ED		EverDrig54 Box	EverDrig54 Pin	4.000	5.500		896.15	987.89
HWDP Description: (15 Stands) HWDP, Style: Slick	ED		EverDrig54 Box	EverDrig54 Pin	3.500	5.500		1413.66	2401.55





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Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

BHA #6 - BHA #6 (Lateral 8.5') (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2020-02-23 00:30
Lobe/Stage	7/8, 8.5	Depth In (ft)	11274.00
Bend Angle	1.75	Date Out	2020-02-28 12:30
Speed (rev/gal)	0.26	Depth Out (ft)	17368.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	1097.00
Incident	No	Distance Rotated (ft)	5032.00
Motor Results		% Distance Sliding	17.90%
Average Total ROP (ft/h)	67.41	% Distance Rotating	82.10%
Average Slide ROP (ft/h)	36.57		
Average Rotating ROP (ft/h)	82.60		

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

Bit Details	
OD (in)	8.500
Vendor	NOV
S/N	A264172
Nozzles	6 x 22
Total Flow Area (in²)	2.227

POOH Reason/Notes	
Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor	

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: Once on surface motor drained fine with a 1/2 bearing squat. Bit was run out and a 1/16 under gauge.
		MWD:

Bit Distances	Comments
Bit To Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft	Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0

Mud Properties	Parameters
Type	Oil Based
WT	9.50
VIS	58.00
PV	16.00
YP	7.00
Flow Rate (gpm)	700.00 - 715.00
On Bottom Pressure (psi)	2500.00 - 4950.00
Off Bottom Pressure (psi)	2100.00 - 4200.00
Stall Pressure (psi)	0.00
Stalls	0
NPT	0.0
Motor RPM	185.00 - 185.00
Surface RPM	30.00 - 60.00
Rotating WOB (klbs)	35.00 - 60.00
Sliding WOB (klbs)	40.00 - 55.00
Temp (°F)	84.00 - 84.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X-O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98





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Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #7 - BHA #7 (8.5" Lateral) (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2020-02-28 12:30
Lobe/Stage	7/8, 8.5	Depth In (ft)	17368.00
Bend Angle	1.75	Date Out	2020-03-01 03:15
Speed (rev/gal)	0.26	Depth Out (ft)	18403.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	148.00
Incident	No	Distance Rotated (ft)	887.00
Motor Results		% Distance Sliding	14.30%
Average Total ROP (ft/h)	62.73	% Distance Rotating	85.70%
Average Slide ROP (ft/h)	21.40		
Average Rotating ROP (ft/h)	92.56		

Bit Details		BHA Objective
OD (in)	8.500	Drill Lateral to TD
Vendor	NOV	

S/N	A255306	POOH Reason/Notes
Nozzles	6 x 22	Penetration Rate: Loss of ROP. POOH for bit
Total Flow Area (in²)	2.227	

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

Bit Distances		Comments
Bit To Bend (Bit to Bend): 5.32 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs,

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.50	On Bottom Pressure (psi)
VIS	0.00	Off Bottom Pressure (psi)
PV	0.00	Stall Pressure (psi)
YP	0.00	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: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A255306	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.24
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.16
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.09
Crossover Sub Description: X-O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.64
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.32
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.91
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.51
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.16





Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #8 - 8.5" Lateral (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2020-03-01 03:15
Lobe/Stage	7/8, 8.5	Depth In (ft)	18403.00
Bend Angle	1.75	Date Out	2020-03-04 17:00
Speed (rev/gal)	0.26	Depth Out (ft)	21152.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	329.00
Incident	No	Distance Rotated (ft)	2421.00
Motor Results		% Distance Sliding	11.96%
Average Total ROP (ft/h)	56.80	% Distance Rotating	88.04%
Average Slide ROP (ft/h)	20.04		
Average Rotating ROP (ft/h)	75.66		

Bit Details		BHA Objective
OD (in)	8.500	Drill lateral to TD
Vendor	Hughes	

S/N	5308825	POOH Reason/Notes
Nozzles	6 x 22	Total Depth/Casing Point
Total Flow Area (in²)	2.227	

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

Bit Distances		Comments
Bit To Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.70	On Bottom Pressure (psi)
VIS	0.00	Off Bottom Pressure (psi)
PV	0.00	Stall Pressure (psi)
YP	0.00	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: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Hughes	5308825	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.26	37.26
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.26
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.18
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.11
Crossover Sub Description: X-O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.66
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.34
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.93
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.53
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.18





Mud Motor Reports

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Mud Motor Report - BHA 1 (Surface 17.5")				
Motor Details		Date/Depth/Distances		Hours
S/N	800-40-010 AIM	Date In	2020-01-10 21:30	Downhole Hours14.42
Size (in)	8.0	Depth In (ft)	145.00	Drilling/Circulating Hours10.17
Lobe/Stage	7/8, 4.00	Date Out	2020-01-11 11:55	
Bend Angle	1.5	Depth Out (ft)	1753.00	Circulating Hours1.00
Speed (rev/gal)	0.17	Total Drilled (ft)	1608.00	Drilling Hours9.17
Wear Pad OD (in)	8.330	Distance Slid (ft)	0.00	Sliding Hours0.00
Manufacturer	N/A	Distance Rotated (ft)	1608.00	Rotating Hours9.17
Motor Results		% Distance Sliding	0.00%	% Hours Rotating100.00%
Motor Incident	No	% Distance Rotating	100.00%	% Hours Sliding0.00%
Average Total ROP (ft/h)	175.42	BHA Parameters		
Average Slide ROP (ft/h)	0.00	Flow Rate (gpm)	550.00 - 840.00	Motor RPM60.00 - 60.00
Average Rotating ROP (ft/h)	175.42	Stalls	0	Surface RPM30.00 - 60.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)20.00 - 20.00
OD (in)	17.500	On Bottom Pressure (psi)	1200.00 - 2400.00	Sliding WOB (klbs)0.00 - 0.00
Vendor	BAKER	Off Bottom Pressure (psi)	800.00 - 1600.00	Temp (°F)84.00 - 84.00
S/N	5308832	NPT	0.0	
Nozzles	9-12's	BHA Objective		
Total Flow Area (in²)	0.994	Drill Surface		
Bit Type	PDC			
Bit Distances				
Bend: 6.10 ft, Survey: 63.00 ft				
Mud Properties				
Type	Water Based			
WT	8.50			
VIS	35.00			
PV	0.00			
YP	0.00			
POOH Reason/Notes				
Total Depth/Casing Point: N/A				
Incident Notes				
Directional: N/A				
MWD:				
Comments				
Directional: Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:0				
MWD:				



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 2 (Intermediate 12.25")

Motor Details		Date/Depth/Distances	Hours
S/N	BDT 800-003	Date In	2020-01-14 14:15
Size (in)	8.0	Depth In (ft)	1753.00
Lobe/Stage	7/8, 5.90	Date Out	2020-01-15 09:45
Bend Angle	1.5	Depth Out (ft)	4436.00
Speed (rev/gal)	0.16	Total Drilled (ft)	2687.00
Wear Pad OD (in)	8.320	Distance Slid (ft)	32.00
Manufacturer	N/A	Distance Rotated (ft)	2655.00
Motor Results		% Distance Sliding	1.19%
Motor Incident	No	% Distance Rotating	98.81%
Average Total ROP (ft/h)	214.96	BHA Parameters	
Average Slide ROP (ft/h)	48.00	Flow Rate (gpm)	840.00 - 850.00
Average Rotating ROP (ft/h)	224.37	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	12.250	On Bottom Pressure (psi)	2400.00 - 3500.00
Vendor	BAKER	Off Bottom Pressure (psi)	1600.00 - 2700.00
S/N	5301295	NPT	0.0
Nozzles	6-12'S	BHA Objective	
Total Flow Area (in²)	0.663	DRILL INTERMEDIATE	
Bit Type	PDC		
Bit Distances			
Bend: 6.00 ft, Survey: 70.00 ft			
Mud Properties			
Type	Brine		
WT	10.00		
VIS	50.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Penetration Rate: POOH FOR ROP, BIT RUNG OUT & DBR			
Incident Notes			
Directional: BIT DBR			
MWD:			
Comments			
Directional: Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:2			
MWD:			



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 3 (Intermediate 12.25")

Motor Details		Date/Depth/Distances		Hours	
S/N	BDT 800-003	Date In	2020-01-15 10:30	Downhole Hours	16.50
Size (in)	8.0	Depth In (ft)	4436.00	Drilling/Circulating Hours	8.00
Lobe/Stage	7/8, 5.90	Date Out	2020-01-16 03:00		
Bend Angle	1.5	Depth Out (ft)	5334.00	Circulating Hours	0.67
Speed (rev/gal)	0.16	Total Drilled (ft)	898.00	Drilling Hours	7.33
Wear Pad OD (in)	8.320	Distance Slid (ft)	25.00	Sliding Hours	0.25
Manufacturer	N/A	Distance Rotated (ft)	873.00	Rotating Hours	7.08
Motor Results		% Distance Sliding	2.78%	% Hours Rotating	96.59%
Motor Incident	No	% Distance Rotating	97.22%	% Hours Sliding	3.41%
Average Total ROP (ft/h)	122.45	BHA Parameters			
Average Slide ROP (ft/h)	100.00	Flow Rate (gpm)	840.00 - 850.00	Motor RPM	120.00 - 136.00
Average Rotating ROP (ft/h)	123.25	Stalls	0	Surface RPM	40.00 - 70.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	20.00 - 40.00
OD (in)	12.250	On Bottom Pressure (psi)	3450.00 - 3500.00	Sliding WOB (klbs)	25.00 - 25.00
Vendor	BAKER	Off Bottom Pressure (psi)	2700.00 - 3000.00	Temp (°F)	120.00 - 120.00
S/N	5299142	NPT	0.0		
Nozzles	6-12'S	BHA Objective			
Total Flow Area (in²)	0.663	DRILL INTERMEDIATE			
Bit Type	PDC				
Bit Distances					
Bend: 6.00 ft, Survey: 70.00 ft					
Mud Properties					
Type	Brine				
WT	10.10				
VIS	27.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Total Depth/Casing Point					
Incident Notes					
Directional:					
MWD:					
Comments					
Directional: Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:1					
MWD:					



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 4 (Intermediate 8.5")

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-006	Date In	2020-01-21 04:00	Downhole Hours	53.00
Size (in)	7.0	Depth In (ft)	5334.00	Drilling/Circulating Hours	37.58
Lobe/Stage	7/8, 8.50	Date Out	2020-01-23 09:00		
Bend Angle	1.5	Depth Out (ft)	10467.00	Circulating Hours	2.00
Speed (rev/gal)	0.26	Total Drilled (ft)	5148.00	Drilling Hours	35.58
Wear Pad OD (in)	7.375	Distance Slid (ft)	190.00	Sliding Hours	2.33
Manufacturer	N/A	Distance Rotated (ft)	4958.00	Rotating Hours	33.25
Motor Results		% Distance Sliding	3.69%	% Hours Rotating	93.44%
Motor Incident		% Distance Rotating	96.31%	% Hours Sliding	6.56%
Average Total ROP (ft/h)	144.67	BHA Parameters			
Average Slide ROP (ft/h)	81.43	Flow Rate (gpm)	625.00 - 705.00	Motor RPM	156.00 - 195.00
Average Rotating ROP (ft/h)	149.11	Stalls	0	Surface RPM	30.00 - 40.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	40.00 - 45.00
OD (in)	8.500	On Bottom Pressure (psi)	2200.00 - 3000.00	Sliding WOB (klbs)	20.00 - 25.00
Vendor	ULTERRA	Off Bottom Pressure (psi)	1900.00 - 2400.00	Temp (°F)	125.00 - 175.00
S/N	49480	NPT	0.0		
Nozzles	1-14, 2-15's, & 3-16's	BHA Objective			
Total Flow Area (in²)	1.085	DRILL 8.5" INTERMEDIATE TO KOP			
Bit Type	PDC				
Bit Distances					
Bend: 5.30 ft, Survey: 68.00 ft, Gamma: 53.00 ft					
Mud Properties					
Type	Brine				
WT	10.00				
VIS	38.00				
PV	6.00				
YP	2.00				
POOH Reason/Notes					
Change Bottom Hole Assembly: Pooh to P/U Curve tools.					
Incident Notes					
Directional: Motor drained as expected with 0.125" Bearing squat.					
MWD:					
Comments					
Directional: FLOW RATE: 350-750 MAX DIFF: 1910 psi MAX TQ: 18,710 ft/lbs. BIT RUNS: 1					
MWD:					



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 5 (Curve 8.5")

Motor Details		Date/Depth/Distances		Hours	
S/N	CDM650-017	Date In	2020-01-23 09:00	Downhole Hours	25.75
Size (in)	6.75	Depth In (ft)	10482.00	Drilling/Circulating Hours	9.75
Lobe/Stage	7/8, 5.00	Date Out	2020-01-24 10:45		
Bend Angle	2.12	Depth Out (ft)	11274.00	Circulating Hours	2.00
Speed (rev/gal)	0.28	Total Drilled (ft)	792.00	Drilling Hours	7.75
Wear Pad OD (in)	7.000	Distance Slid (ft)	644.00	Sliding Hours	6.00
Manufacturer	N/A	Distance Rotated (ft)	148.00	Rotating Hours	1.75
Motor Results		% Distance Sliding	81.31%	% Hours Rotating	22.58%
Motor Incident	No	% Distance Rotating	18.69%	% Hours Sliding	77.42%
Average Total ROP (ft/h)	102.19	BHA Parameters			
Average Slide ROP (ft/h)	107.33	Flow Rate (gpm)	600.00 - 600.00	Motor RPM	172.00 - 172.00
Average Rotating ROP (ft/h)	84.57	Stalls	1	Surface RPM	30.00 - 30.00
Bit Details		Stall Pressure (psi)	1099.97	Rotating WOB (klbs)	40.00 - 40.00
OD (in)	8.500	On Bottom Pressure (psi)	2500.00 - 2700.00	Sliding WOB (klbs)	45.00 - 50.00
Vendor	ULTERRA	Off Bottom Pressure (psi)	2000.00 - 2000.00	Temp (°F)	100.00 - 115.00
S/N	51467	NPT	0.0		
Nozzles	6-16's	BHA Objective			
Total Flow Area (in²)	1.178	Drill Curve			
Bit Type	PDC				
Bit Distances					
Bend (Bit to Bend): 4.05 ft, Gamma (Bit to Gamma): 38.00 ft, Survey (Bit to Survey): 53.00 ft					
Mud Properties					
Type	Brine				
WT	10.00				
VIS	28.00				
PV	2.00				
YP	1.00				
POOH Reason/Notes					
Change Bottom Hole Assembly: Landed Curve / POOH to skid					
Incident Notes					
Directional: Motor drained as expected / slack in bit box with minimum squat.					
MWD:					
Comments					
Directional: Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit: 2					
MWD:					



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 6 (BHA #6 (Lateral 8.5'))

Motor Details		Date/Depth/Distances	Hours
S/N	700-40-018	Date In	2020-02-23 00:30
Size (in)	7.0	Depth In (ft)	11274.00
Lobe/Stage	7/8, 8.50	Date Out	2020-02-28 12:30
Bend Angle	1.75	Depth Out (ft)	17368.00
Speed (rev/gal)	0.26	Total Drilled (ft)	6129.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	1097.00
Manufacturer	N/A	Distance Rotated (ft)	5032.00
Motor Results		% Distance Sliding	17.90%
Motor Incident	No	% Distance Rotating	82.10%
Average Total ROP (ft/h)	67.41	BHA Parameters	
Average Slide ROP (ft/h)	36.57	Flow Rate (gpm)	700.00 - 715.00
Average Rotating ROP (ft/h)	82.60	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	2500.00 - 4950.00
Vendor	NOV	Off Bottom Pressure (psi)	2100.00 - 4200.00
S/N	A264172	NPT	0.0
Nozzles	6 x 22	BHA Objective	
Total Flow Area (in²)	2.227	Drill 8.5" Lateral	
Bit Type	PDC		
Bit Distances			
Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft			
Mud Properties			
Type	Oil Based		
WT	9.50		
VIS	58.00		
PV	16.00		
YP	7.00		
POOH Reason/Notes			
Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor			
Incident Notes			
Directional: Once on surface motor drained fine with a 1/2 bearing squat. Bit was run out and a 1/16 under gauge.			
MWD:			
Comments			
Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0			
MWD:			



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 7 (BHA #7 (8.5" Lateral))

Motor Details		Date/Depth/Distances	Hours
S/N	700-40-026	Date In	2020-02-28 12:30
Size (in)	7.0	Depth In (ft)	17368.00
Lobe/Stage	7/8, 8.50	Date Out	2020-03-01 03:15
Bend Angle	1.75	Depth Out (ft)	18403.00
Speed (rev/gal)	0.26	Total Drilled (ft)	1035.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	148.00
Manufacturer	N/A	Distance Rotated (ft)	887.00
Motor Results		% Distance Sliding	14.30%
Motor Incident	No	% Distance Rotating	85.70%
Average Total ROP (ft/h)	62.73	BHA Parameters	
Average Slide ROP (ft/h)	21.40	Flow Rate (gpm)	600.00 - 600.00
Average Rotating ROP (ft/h)	92.56	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	3800.00 - 4100.00
Vendor	NOV	Off Bottom Pressure (psi)	3500.00 - 3500.00
S/N	A255306	NPT	0.0
Nozzles	6 x 22	BHA Objective	
Total Flow Area (in²)	2.227	Drill Lateral to TD	
Bit Type	PDC		
Bit Distances			
Bend (Bit to Bend): 5.32 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft			
Mud Properties			
Type	Oil Based		
WT	9.50		
VIS	0.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Penetration Rate: Loss of ROP. POOH for bit			
Incident Notes			
Directional: Bit rung out			
MWD:			
Comments			
Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs,			
MWD:			



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 8 (8.5" Lateral)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-002	Date In	2020-03-01 03:15	Downhole Hours	85.75
Size (in)	7.0	Depth In (ft)	18403.00	Drilling/Circulating Hours	52.92
Lobe/Stage	7/8, 8.50	Date Out	2020-03-04 17:00		
Bend Angle	1.75	Depth Out (ft)	21152.00	Circulating Hours	4.50
Speed (rev/gal)	0.26	Total Drilled (ft)	2750.00	Drilling Hours	48.42
Wear Pad OD (in)	7.250	Distance Slid (ft)	329.00	Sliding Hours	16.42
Manufacturer	N/A	Distance Rotated (ft)	2421.00	Rotating Hours	32.00
Motor Results		% Distance Sliding	11.96%	% Hours Rotating	66.09%
Motor Incident	No	% Distance Rotating	88.04%	% Hours Sliding	33.91%
Average Total ROP (ft/h)	56.80	BHA Parameters			
Average Slide ROP (ft/h)	20.04	Flow Rate (gpm)	710.00 - 750.00	Motor RPM	182.00 - 195.00
Average Rotating ROP (ft/h)	75.66	Stalls	0	Surface RPM	35.00 - 35.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	55.00 - 55.00
OD (in)	8.500	On Bottom Pressure (psi)	3800.00 - 5700.00	Sliding WOB (klbs)	55.00 - 55.00
Vendor	Hughes	Off Bottom Pressure (psi)	3500.00 - 5000.00	Temp (°F)	-0.00 - -0.00
S/N	5308825	NPT	0.0		
Nozzles	6 x 22	BHA Objective			
Total Flow Area (in²)	2.227	Drill lateral to TD			
Bit Type	PDC				
Bit Distances					
Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft					
Mud Properties					
Type	Oil Based				
WT	9.70				
VIS	0.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Total Depth/Casing Point					
Incident Notes					
Directional:					
MWD:					
Comments					
Directional: Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0					
MWD:					



Slide/Rotate Reports

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	01-10	21:30	22:30	01-10	1.0	145.00	298.00	153.00	153.00	N/A	550.00	30.0	20.00	1200.00	800.00	
Rotate	01-10	22:35	23:10	01-10	0.58	298.00	487.00	189.00	324.00	N/A	700.00	45.0	20.00	2000.00	1000.00	
Rotate	01-10	23:15	23:45	01-10	0.5	487.00	676.00	189.00	378.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	00:00	00:50	01-11	0.83	676.00	864.00	188.00	225.60	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	01:05	01:55	01-11	0.83	864.00	1052.00	188.00	225.60	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	02:05	03:05	01-11	1.0	1052.00	1239.00	187.00	187.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	03:10	03:25	01-11	0.25	1239.00	1333.00	94.00	376.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	03:30	04:55	01-11	1.42	1333.00	1428.00	95.00	67.06	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	05:00	05:40	01-11	0.67	1428.00	1522.00	94.00	141.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	05:45	06:35	01-11	0.83	1522.00	1612.00	90.00	108.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	06:40	07:10	01-11	0.5	1612.00	1701.00	89.00	178.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-11	07:15	08:00	01-11	0.75	1701.00	1753.00	52.00	69.33	N/A	840.00	60.0	20.00	2400.00	1600.00	



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

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	01-14	15:40	16:45	01-14	1.08	1753.00	1888.00	135.00	124.62	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-14	16:50	17:05	01-14	0.25	1888.00	1977.00	89.00	356.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-14	17:10	17:25	01-14	0.25	1977.00	2067.00	90.00	360.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-14	17:30	17:45	01-14	0.25	2067.00	2156.00	89.00	356.00	N/A	840.00	60.0	20.00	2400.00	1600.00	
Rotate	01-14	17:50	18:05	01-14	0.25	2156.00	2246.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	18:10	18:30	01-14	0.33	2246.00	2336.00	90.00	270.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	18:35	18:50	01-14	0.25	2336.00	2425.00	89.00	356.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	18:55	19:10	01-14	0.25	2425.00	2515.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	19:15	19:30	01-14	0.25	2515.00	2605.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	19:35	19:50	01-14	0.25	2605.00	2694.00	89.00	356.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	19:55	20:10	01-14	0.25	2694.00	2784.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	20:15	20:35	01-14	0.33	2784.00	2873.00	89.00	267.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	20:40	20:55	01-14	0.25	2873.00	2967.00	94.00	376.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	21:00	21:25	01-14	0.42	2963.00	3053.00	90.00	216.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	21:30	21:45	01-14	0.25	3053.00	3142.00	89.00	356.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	21:50	22:15	01-14	0.42	3142.00	3232.00	90.00	216.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	22:20	22:40	01-14	0.33	3232.00	3321.00	89.00	267.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	22:45	23:00	01-14	0.25	3321.00	3411.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	23:05	23:20	01-14	0.25	3411.00	3413.00	2.00	8.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Slide	01-14	23:20	23:35	01-14	0.25	3413.00	3425.00	12.00	48.00	270.0	850.00	N/A	20.00	3100.00	2700.00	
Rotate	01-14	23:35	23:40	01-14	0.08	3425.00	3501.00	76.00	912.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-14	23:45	00:00	01-15	0.25	3501.00	3532.00	31.00	124.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	00:00	00:20	01-15	0.33	3532.00	3590.00	58.00	174.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	00:25	00:30	01-15	0.08	3590.00	3600.00	10.00	120.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Slide	01-15	00:30	00:55	01-15	0.42	3600.00	3620.00	20.00	48.00	240.0	850.00	N/A	20.00	3100.00	2700.00	
Rotate	01-15	00:55	01:05	01-15	0.17	3620.00	3680.00	60.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	01:10	01:35	01-15	0.42	3680.00	3770.00	90.00	216.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	01:40	02:05	01-15	0.42	3770.00	3860.00	90.00	216.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	02:10	02:40	01-15	0.5	3860.00	3949.00	89.00	178.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	02:45	03:20	01-15	0.58	3949.00	4039.00	90.00	154.29	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	03:25	03:40	01-15	0.25	4039.00	4128.00	89.00	356.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	03:45	04:00	01-15	0.25	4128.00	4218.00	90.00	360.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	04:05	04:30	01-15	0.42	4218.00	4307.00	89.00	213.60	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	04:35	05:40	01-15	1.08	4307.00	4397.00	90.00	83.08	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	05:45	06:35	01-15	0.83	4397.00	4436.00	39.00	46.80	N/A	840.00	70.0	20.00	3500.00	2700.00	



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #3 (Intermediate 12.25")

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	01-15	15:10	15:30	01-15	0.33	4436.00	4487.00	51.00	153.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	15:35	16:20	01-15	0.75	4487.00	4576.00	89.00	118.67	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	16:25	16:30	01-15	0.08	4576.00	4581.00	5.00	60.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Slide	01-15	16:30	16:45	01-15	0.25	4581.00	4606.00	25.00	100.00	315.0	850.00	N/A	25.00	3450.00	3000.00	
Rotate	01-15	16:45	17:15	01-15	0.5	4606.00	4666.00	60.00	120.00	N/A	840.00	70.0	20.00	3500.00	2700.00	
Rotate	01-15	17:20	17:55	01-15	0.58	4666.00	4756.00	90.00	154.29	N/A	840.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	18:00	18:35	01-15	0.58	4756.00	4846.00	90.00	154.29	N/A	850.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	18:40	19:10	01-15	0.5	4846.00	4935.00	89.00	178.00	N/A	850.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	19:15	21:25	01-15	2.17	4935.00	5115.00	180.00	83.08	N/A	850.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	21:30	22:15	01-15	0.75	5115.00	5205.00	90.00	120.00	N/A	850.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	22:20	22:55	01-15	0.58	5205.00	5294.00	89.00	152.57	N/A	850.00	40.0	40.00	3500.00	2700.00	
Rotate	01-15	23:00	23:15	01-15	0.25	5294.00	5334.00	40.00	160.00	N/A	850.00	40.0	40.00	3500.00	2700.00	



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	01-21	09:35	10:15	01-21	0.67	5334.00	5398.00	64.00	96.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	10:15	10:30	01-21	0.25	5398.00	5418.00	20.00	80.00	330.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	10:30	10:45	01-21	0.25	5418.00	5464.00	46.00	184.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	10:50	11:05	01-21	0.25	5464.00	5484.00	20.00	80.00	300.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	11:05	11:25	01-21	0.33	5484.00	5554.00	70.00	210.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	11:30	11:40	01-21	0.17	5554.00	5564.00	10.00	60.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	11:40	11:50	01-21	0.17	5564.00	5584.00	20.00	120.00	300.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	11:50	12:10	01-21	0.33	5584.00	5643.00	59.00	177.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	12:25	12:45	01-21	0.33	5643.00	5733.00	90.00	270.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	12:50	13:05	01-21	0.25	5733.00	5753.00	20.00	80.00	330.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	13:05	13:20	01-21	0.25	5753.00	5822.00	69.00	276.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	13:25	13:50	01-21	0.42	5822.00	5912.00	90.00	216.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	13:55	14:15	01-21	0.33	5912.00	6002.00	90.00	270.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	14:20	14:25	01-21	0.08	6002.00	6021.00	19.00	228.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	14:25	14:30	01-21	0.08	6021.00	6041.00	20.00	240.00	330.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	14:30	14:40	01-21	0.17	6041.00	6091.00	50.00	300.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	14:45	15:00	01-21	0.25	6091.00	6111.00	20.00	80.00	330.0	705.00	N/A	25.00	2600.00	2100.00	
Rotate	01-21	15:00	15:15	01-21	0.25	6111.00	6181.00	70.00	280.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	15:45	16:00	01-21	0.25	6181.00	6270.00	89.00	356.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	16:05	16:20	01-21	0.25	6270.00	6359.00	89.00	356.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	16:25	16:45	01-21	0.33	6359.00	6449.00	90.00	270.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	16:50	17:10	01-21	0.33	6449.00	6539.00	90.00	270.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	17:15	17:35	01-21	0.33	6539.00	6628.00	89.00	267.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	17:40	17:55	01-21	0.25	6628.00	6718.00	90.00	360.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	18:00	18:15	01-21	0.25	6718.00	6808.00	90.00	360.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	18:20	18:40	01-21	0.33	6808.00	6897.00	89.00	267.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	18:45	19:00	01-21	0.25	6897.00	6987.00	90.00	360.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	19:05	19:30	01-21	0.42	6987.00	7076.00	89.00	213.60	N/A	705.00	40.0	40.00	2600.00	2100.00	
Rotate	01-21	19:35	19:40	01-21	0.08	7076.00	7080.00	4.00	48.00	N/A	705.00	40.0	40.00	2600.00	2100.00	
Slide	01-21	19:40	19:55	01-21	0.25	7080.00	7105.00	25.00	100.00	20.0	678.00	N/A	25.00	2500.00	2200.00	
Rotate	01-21	19:55	20:20	01-21	0.42	7105.00	7166.00	61.00	146.40	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	20:25	20:45	01-21	0.33	7166.00	7255.00	89.00	267.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	20:50	21:20	01-21	0.5	7255.00	7345.00	90.00	180.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	21:25	22:00	01-21	0.58	7345.00	7435.00	90.00	154.29	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	22:05	22:35	01-21	0.5	7435.00	7524.00	89.00	178.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	22:40	22:45	01-21	0.08	7524.00	7532.00	8.00	96.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Slide	01-21	22:45	23:05	01-21	0.33	7532.00	7557.00	25.00	75.00	40.0	678.00	N/A	25.00	2500.00	2200.00	
Rotate	01-21	23:05	23:25	01-21	0.33	7557.00	7614.00	57.00	171.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-21	23:30	00:05	01-22	0.58	7614.00	7704.00	90.00	154.29	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	00:10	00:40	01-22	0.5	7704.00	7793.00	89.00	178.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	00:45	01:15	01-22	0.5	7793.00	7883.00	90.00	180.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	01:20	01:50	01-22	0.5	7883.00	7972.00	89.00	178.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	01:55	02:30	01-22	0.58	7972.00	8061.00	89.00	152.57	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	02:35	03:05	01-22	0.5	8061.00	8151.00	90.00	180.00	N/A	678.00	40.0	40.00	2800.00	2200.00	
Rotate	01-22	03:10	03:45	01-22	0.58	8151.00	8241.00	90.00	154.29	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	03:50	04:35	01-22	0.75	8241.00	8331.00	90.00	120.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	04:40	04:45	01-22	0.08	8331.00	8337.00	6.00	72.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Slide	01-22	04:45	05:15	01-22	0.5	8337.00	8357.00	20.00	40.00	40.0	625.00	N/A	20.00	2200.00	1900.00	
Rotate	01-22	05:15	05:40	01-22	0.42	8357.00	8420.00	63.00	151.20	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	05:45	06:20	01-22	0.58	8420.00	8510.00	90.00	154.29	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	06:25	07:25	01-22	1.0	8510.00	8599.00	89.00	89.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	07:30	08:20	01-22	0.83	8599.00	8689.00	90.00	108.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	08:25	09:15	01-22	0.83	8689.00	8778.00	89.00	106.80	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	09:20	10:15	01-22	0.92	8778.00	8868.00	90.00	98.18	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	10:20	11:20	01-22	1.0	8868.00	8957.00	89.00	89.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	11:25	12:30	01-22	1.08	8957.00	9047.00	90.00	83.08	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	12:35	13:20	01-22	0.75	9047.00	9137.00	90.00	120.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	13:35	14:15	01-22	0.67	9137.00	9226.00	89.00	133.50	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	14:20	15:10	01-22	0.83	9226.00	9316.00	90.00	108.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	15:15	16:00	01-22	0.75	9316.00	9405.00	89.00	118.67	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	16:20	17:10	01-22	0.83	9405.00	9495.00	90.00	108.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	17:25	17:55	01-22	0.5	9495.00	9584.00	89.00	178.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	18:00	18:40	01-22	0.67	9584.00	9674.00	90.00	135.00	N/A	625.00	40.0	40.00	2400.00	1900.00	
Rotate	01-22	18:45	19:30	01-22	0.75	9674.00	9764.00	90.00	120.00	N/A	625.00	40.0	40.00	2400.00	1900.00	

Rotate	01-22	19:35	20:20	01-22	0.75	9764.00	9853.00	89.00	118.67	N/A	625.00	40.0	40.00	2400.00	1900.00
Rotate	01-22	20:25	21:10	01-22	0.75	9853.00	9943.00	90.00	120.00	N/A	625.00	40.0	40.00	2400.00	1900.00
Rotate	01-22	21:15	22:10	01-22	0.92	9943.00	10033.00	90.00	98.18	N/A	625.00	40.0	40.00	2400.00	1900.00
Rotate	01-22	22:15	23:05	01-22	0.83	10033.00	10122.00	89.00	106.80	N/A	625.00	40.0	40.00	2400.00	1900.00
Rotate	01-22	23:10	00:00	01-23	0.83	10122.00	10212.00	90.00	108.00	N/A	625.00	40.0	40.00	2400.00	1900.00
Rotate	01-23	00:05	01:05	01-23	1.0	10212.00	10302.00	90.00	90.00	N/A	700.00	30.0	45.00	3000.00	2400.00
Rotate	01-23	01:10	02:00	01-23	0.83	10302.00	10392.00	90.00	108.00	N/A	700.00	30.0	45.00	3000.00	2400.00
Rotate	01-23	02:05	03:00	01-23	0.92	10392.00	10482.00	90.00	98.18	N/A	700.00	30.0	45.00	3000.00	2400.00



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	01-23	16:15	16:30	01-23	0.25	10482.00	10490.00	8.00	32.00	N/A	600.00	30.0	40.00	2500.00	2000.00	
Slide	01-23	16:30	17:05	01-23	0.58	10490.00	10556.00	66.00	113.14	190.0		N/A				
Slide	01-23	17:15	18:10	01-23	0.92	10556.00	10646.00	90.00	98.18	0.0	600.00	N/A	45.00	2600.00	2000.00	
Slide	01-23	18:15	19:00	01-23	0.75	10646.00	10736.00	90.00	120.00	0.0	600.00	N/A	45.00	2600.00	2000.00	
Slide	01-23	19:05	19:55	01-23	0.83	10736.00	10826.00	90.00	108.00	345.0	600.00	N/A	45.00	2600.00	2000.00	
Rotate	01-23	20:00	20:10	01-23	0.17	10826.00	10836.00	10.00	60.00	N/A	600.00	30.0	40.00	2500.00	2000.00	
Slide	01-23	20:10	21:00	01-23	0.83	10836.00	10915.00	79.00	94.80	345.0		N/A				
Rotate	01-23	21:05	21:20	01-23	0.25	10915.00	10940.00	25.00	100.00	N/A	600.00	30.0	40.00	2500.00	2000.00	
Slide	01-23	21:20	21:55	01-23	0.58	10940.00	11005.00	65.00	111.43	350.0	600.00	N/A	50.00	2700.00	2000.00	
Slide	01-23	22:00	22:50	01-23	0.83	11005.00	11095.00	90.00	108.00	345.0	600.00	N/A	50.00	2700.00	2000.00	
Rotate	01-23	22:55	23:15	01-23	0.33	11095.00	11130.00	35.00	105.00	N/A	600.00	30.0	40.00	2500.00	2000.00	
Slide	01-23	23:15	23:40	01-23	0.42	11130.00	11184.00	54.00	129.60	350.0	600.00	N/A	50.00	2700.00	2000.00	
Rotate	01-23	23:45	00:10	01-24	0.42	11184.00	11220.00	36.00	86.40	N/A	600.00	30.0	40.00	2500.00	2000.00	
Slide	01-24	00:10	00:25	01-24	0.25	11220.00	11240.00	20.00	80.00	25.0	600.00	N/A	50.00	2700.00	2000.00	
Rotate	01-24	00:25	00:45	01-24	0.33	11240.00	11274.00	34.00	102.00	N/A	600.00	30.0	40.00	2500.00	2000.00	



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #6 (BHA #6 (Lateral 8.5'))

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	02-23	23:00	23:45	02-23	0.75	11274.00	11344.00	70.00	93.33	N/A	700.00	40.0	35.00	2700.00	2100.00	
Rotate	02-23	23:50	00:45	02-24	0.92	11344.00	11434.00	90.00	98.18	N/A	700.00	40.0	35.00	2700.00	2100.00	
Rotate	02-24	00:50	00:55	02-24	0.08	11434.00	11442.00	8.00	96.00	N/A	700.00	40.0	35.00	2700.00	2100.00	
Slide	02-24	00:55	01:35	02-24	0.67	11442.00	11472.00	30.00	45.00	65.0	700.00	N/A	40.00	2500.00	2100.00	
Rotate	02-24	01:35	02:05	02-24	0.5	11472.00	11523.00	51.00	102.00	N/A	700.00	50.0	35.00	2700.00	2100.00	
Rotate	02-24	02:10	02:15	02-24	0.08	11523.00	11535.00	12.00	144.00	N/A	700.00	50.0	35.00	2700.00	2100.00	
Slide	02-24	02:15	02:45	02-24	0.5	11535.00	11555.00	20.00	40.00	30.0	700.00	N/A	40.00	2500.00	2100.00	
Rotate	02-24	02:45	03:15	02-24	0.5	11555.00	11613.00	58.00	116.00	N/A	700.00	50.0	35.00	2700.00	2100.00	
Rotate	02-24	03:20	04:15	02-24	0.92	11613.00	11702.00	89.00	97.09	N/A	700.00	50.0	40.00	2700.00	2100.00	
Rotate	02-24	04:20	04:25	02-24	0.08	11702.00	11708.00	6.00	72.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	04:50	05:15	02-24	0.42	11708.00	11733.00	25.00	60.00	50.0	700.00	N/A	40.00	4100.00	3800.00	
Rotate	02-24	05:15	05:30	02-24	0.25	11733.00	11772.00	39.00	156.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	05:50	06:05	02-24	0.25	11772.00	11791.00	19.00	76.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	06:10	07:00	02-24	0.83	11791.00	11881.00	90.00	108.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	07:05	07:55	02-24	0.83	11881.00	11971.00	90.00	108.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	08:00	09:05	02-24	1.08	11971.00	12060.00	89.00	82.15	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	09:10	09:15	02-24	0.08	12060.00	12070.00	10.00	120.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	09:15	09:55	02-24	0.67	12070.00	12095.00	25.00	37.50	100.0	700.00	N/A	40.00	4100.00	3800.00	
Rotate	02-24	09:55	10:25	02-24	0.5	12095.00	12150.00	55.00	110.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	10:30	10:35	02-24	0.08	12150.00	12160.00	10.00	120.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	10:35	11:00	02-24	0.42	12160.00	12185.00	25.00	60.00	100.0	700.00	N/A	40.00	4100.00	3800.00	
Rotate	02-24	11:00	11:40	02-24	0.67	12185.00	12240.00	55.00	82.50	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	11:45	11:55	02-24	0.17	12240.00	12254.00	14.00	84.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	11:55	12:35	02-24	0.67	12254.00	12284.00	30.00	45.00	70.0	700.00	N/A	40.00	4100.00	3800.00	
Rotate	02-24	12:35	13:00	02-24	0.42	12284.00	12329.00	45.00	108.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	13:05	13:15	02-24	0.17	12329.00	12342.00	13.00	78.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	13:15	13:45	02-24	0.5	12342.00	12368.00	26.00	52.00	70.0	700.00	N/A	40.00	4100.00	3800.00	
Rotate	02-24	13:45	14:20	02-24	0.58	12368.00	12419.00	51.00	87.43	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	14:25	15:20	02-24	0.92	12419.00	12509.00	90.00	98.18	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	15:25	16:00	02-24	0.58	12509.00	12544.00	35.00	60.00	30.0	700.00	N/A	50.00	4200.00	3800.00	
Rotate	02-24	16:00	16:40	02-24	0.67	12509.00	12598.00	89.00	133.50	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	16:45	17:40	02-24	0.92	12598.00	12688.00	90.00	98.18	N/A	700.00	50.0	40.00	4450.00	3800.00	
Slide	02-24	17:45	18:25	02-24	0.67	12688.00	12723.00	35.00	52.50	50.0	700.00	N/A	50.00	4200.00	3800.00	
Rotate	02-24	18:25	18:55	02-24	0.5	12723.00	12777.00	54.00	108.00	N/A	700.00	50.0	40.00	4450.00	3800.00	
Rotate	02-24	19:00	19:05	02-24	0.08	12777.00	12785.00	8.00	96.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Slide	02-24	19:05	19:45	02-24	0.67	12785.00	12810.00	25.00	37.50	70.0	700.00	N/A	50.00	4250.00	3950.00	
Rotate	02-24	19:45	20:25	02-24	0.67	12810.00	12867.00	57.00	85.50	N/A	700.00	50.0	50.00	4450.00	3950.00	
Rotate	02-24	20:30	21:30	02-24	1.0	12867.00	12957.00	90.00	90.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Rotate	02-24	21:35	21:45	02-24	0.17	12957.00	12963.00	6.00	36.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Slide	02-24	21:45	22:25	02-24	0.67	12963.00	12983.00	20.00	30.00	0.0	700.00	N/A	50.00	4250.00	3950.00	
Rotate	02-24	22:25	23:15	02-24	0.83	12983.00	13046.00	63.00	75.60	N/A	700.00	50.0	50.00	4450.00	3950.00	
Rotate	02-24	23:20	00:35	02-25	1.25	13046.00	13136.00	90.00	72.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Rotate	02-25	01:00	01:05	02-25	0.08	13136.00	13140.00	4.00	48.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Slide	02-25	01:05	02:10	02-25	1.08	13140.00	13180.00	40.00	36.92	50.0	700.00	N/A	50.00	4250.00	3950.00	
Rotate	02-25	02:10	02:35	02-25	0.42	13180.00	13225.00	45.00	108.00	N/A	700.00	50.0	50.00	4450.00	3950.00	
Rotate	02-25	02:40	03:15	02-25	0.58	13225.00	13315.00	90.00	154.29	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	03:20	03:25	02-25	0.08	13315.00	13320.00	5.00	60.00	N/A	712.00	50.0	50.00	4850.00	3950.00	
Slide	02-25	03:25	04:05	02-25	0.67	13320.00	13345.00	25.00	37.50	40.0	700.00	N/A	50.00	4250.00	3950.00	
Rotate	02-25	04:05	04:40	02-25	0.58	13345.00	13404.00	59.00	101.14	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	04:50	05:50	02-25	1.0	13404.00	13494.00	90.00	90.00	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	06:05	06:15	02-25	0.17	13494.00	13504.00	10.00	60.00	N/A	712.00	50.0	50.00	4850.00	3950.00	
Slide	02-25	06:15	07:05	02-25	0.83	13504.00	13544.00	40.00	48.00	90.0	700.00	N/A	50.00	4250.00	3950.00	
Rotate	02-25	07:05	07:45	02-25	0.67	13544.00	13584.00	40.00	60.00	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	07:50	09:00	02-25	1.17	13584.00	13673.00	89.00	76.29	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	09:05	09:15	02-25	0.17	13673.00	13683.00	10.00	60.00	N/A	712.00	50.0	50.00	4850.00	3950.00	
Slide	02-25	09:15	10:00	02-25	0.75	13683.00	13705.00	22.00	29.33	50.0		N/A				
Rotate	02-25	10:00	11:15	02-25	1.25	13705.00	13763.00	58.00	46.40	N/A	712.00	50.0	50.00	4850.00	3950.00	
Rotate	02-25	11:20	11:25	02-25	0.08	13763.00	13768.00	5.00	60.00	N/A	715.00	30.0	50.00	4450.00	3850.00	
Slide	02-25	11:25	12:30	02-25	1.08	13768.00	13798.00	30.00	27.69	60.0	715.00	N/A	55.00	4200.00	3850.00	
Rotate	02-25	12:30	13:25	02-25	0.92	13798.00	13852.00	54.00	58.91	N/A						
Rotate	02-25	13:30	15:00	02-25	1.5	13852.00	13942.00	90.00	60.00	N/A	715.00	50.0	50.00	4350.00	3850.00	
Rotate	02-25	15:05	16:25	02-25	1.33	13942.00	14031.00	89.00	66.75	N/A	715.00	50.0	50.00	4350.00	3850.00	
Rotate	02-25	16:30	16:35	02-25	0.08	14031.00	14035.00	4.00	48.00	N/A	715.00	50.0	50.00	4350.00	3850.00	
Slide	02-25	16:35	17:35	02-25	1.0	14035.00	14066.00	31.00	31.00	90.0	715.00	N/A	55.00	4200.00	3850.00	

Rotate	02-25	17:35	18:30	02-25	0.92	14066.00	14121.00	55.00	60.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-25	18:35	18:55	02-25	0.33	14121.00	14145.00	24.00	72.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-25	18:55	20:00	02-25	1.08	14145.00	14175.00	30.00	27.69	150.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-25	20:00	20:35	02-25	0.58	14175.00	14211.00	36.00	61.71	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-25	20:40	22:00	02-25	1.33	14211.00	14300.00	89.00	66.75	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-25	22:05	22:10	02-25	0.08	14300.00	14305.00	5.00	60.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-25	22:10	23:00	02-25	0.83	14305.00	14335.00	30.00	36.00	30.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-25	23:00	23:50	02-25	0.83	14335.00	14390.00	55.00	66.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-25	23:55	00:55	02-26	1.0	14390.00	14479.00	89.00	89.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	01:00	02:10	02-26	1.17	14479.00	14568.00	89.00	76.29	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	02:15	03:35	02-26	1.33	14568.00	14608.00	40.00	30.00	60.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	03:35	04:30	02-26	0.92	14608.00	14658.00	50.00	54.55	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	04:40	04:45	02-26	0.08	14658.00	14662.00	4.00	48.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	04:45	06:10	02-26	1.42	14662.00	14697.00	35.00	24.71	80.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	06:10	06:45	02-26	0.58	14697.00	14747.00	50.00	85.71	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	06:50	07:50	02-26	1.0	14747.00	14828.00	81.00	81.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	09:30	09:35	02-26	0.08	14828.00	14837.00	9.00	108.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	09:40	09:50	02-26	0.17	14837.00	14847.00	10.00	60.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	09:50	10:55	02-26	1.08	14847.00	14882.00	35.00	32.31	60.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	10:55	11:40	02-26	0.75	14882.00	14927.00	45.00	60.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	11:45	11:55	02-26	0.17	14927.00	14940.00	13.00	78.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	11:55	12:55	02-26	1.0	14940.00	14972.00	32.00	32.00	60.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	12:55	13:25	02-26	0.5	14972.00	15017.00	45.00	90.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	13:30	13:40	02-26	0.17	15017.00	15030.00	13.00	78.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	13:40	14:25	02-26	0.75	15030.00	15066.00	36.00	48.00	60.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	14:25	14:50	02-26	0.42	15066.00	15106.00	40.00	96.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	14:55	15:55	02-26	1.0	15106.00	15196.00	90.00	90.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	16:00	16:10	02-26	0.17	15196.00	15209.00	13.00	78.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	16:10	16:55	02-26	0.75	15209.00	15229.00	20.00	26.67	20.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	16:55	17:30	02-26	0.58	15229.00	15285.00	56.00	96.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	17:35	18:30	02-26	0.92	15285.00	15320.00	35.00	38.18	20.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	18:30	19:00	02-26	0.5	15320.00	15375.00	55.00	110.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	19:10	20:20	02-26	1.17	15375.00	15465.00	90.00	77.14	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	20:25	20:35	02-26	0.17	15465.00	15471.00	6.00	36.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	20:35	21:15	02-26	0.67	15471.00	15496.00	25.00	37.50	20.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	21:15	21:50	02-26	0.58	15496.00	15555.00	59.00	101.14	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	21:55	22:05	02-26	0.17	15555.00	15560.00	5.00	30.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-26	22:05	22:50	02-26	0.75	15560.00	15595.00	35.00	46.67	30.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-26	22:50	23:20	02-26	0.5	15595.00	15644.00	49.00	98.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-26	23:25	00:00	02-27	0.58	15644.00	15690.00	46.00	78.86	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	00:00	00:30	02-27	0.5	15690.00	15733.00	43.00	86.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	00:35	01:25	02-27	0.83	15733.00	15823.00	90.00	108.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	01:30	01:40	02-27	0.17	15823.00	15827.00	4.00	24.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	01:40	02:50	02-27	1.17	15827.00	15852.00	25.00	21.43	135.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	02:50	03:30	02-27	0.67	15852.00	15913.00	61.00	91.50	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	03:35	05:10	02-27	1.58	15913.00	16002.00	89.00	56.21	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	05:15	05:25	02-27	0.17	16002.00	16005.00	3.00	18.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	05:25	06:00	02-27	0.58	16005.00	16030.00	25.00	42.86	120.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	06:00	06:40	02-27	0.67	16030.00	16092.00	62.00	93.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	06:45	06:50	02-27	0.08	16092.00	16098.00	6.00	72.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	06:50	07:35	02-27	0.75	16098.00	16128.00	30.00	40.00	70.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	07:35	08:15	02-27	0.67	16128.00	16181.00	53.00	79.50	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	08:20	09:20	02-27	1.0	16181.00	16271.00	90.00	90.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	09:25	10:20	02-27	0.92	16271.00	16306.00	35.00	38.18	50.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	10:20	11:00	02-27	0.67	16306.00	16361.00	55.00	82.50	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	11:05	11:50	02-27	0.75	16361.00	16391.00	30.00	40.00	60.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	11:50	12:35	02-27	0.75	16391.00	16450.00	59.00	78.67	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	12:40	13:35	02-27	0.92	16450.00	16539.00	89.00	97.09	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	13:40	14:35	02-27	0.92	16539.00	16629.00	90.00	98.18	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	14:40	15:35	02-27	0.92	16629.00	16659.00	30.00	32.73	45.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	15:35	16:05	02-27	0.5	16659.00	16719.00	60.00	120.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	16:10	17:05	02-27	0.92	16719.00	16749.00	30.00	32.73	30.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	17:05	17:50	02-27	0.75	16749.00	16808.00	59.00	78.67	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	17:55	18:00	02-27	0.08	16808.00	16815.00	7.00	84.00	N/A	715.00	50.0	50.00	4350.00	3850.00
Slide	02-27	18:00	18:40	02-27	0.67	16815.00	16840.00	25.00	37.50	45.0	715.00	N/A	55.00	4200.00	3850.00
Rotate	02-27	18:40	19:15	02-27	0.58	16840.00	16898.00	58.00	99.43	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	19:20	20:25	02-27	1.08	16898.00	16987.00	89.00	82.15	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	20:30	21:40	02-27	1.17	16987.00	17077.00	90.00	77.14	N/A	715.00	50.0	50.00	4350.00	3850.00
Rotate	02-27	21:45	22:35	02-27	0.83	17077.00	17167.00	90.00	108.00	N/A					
Rotate	02-27	22:40	22:50	02-27	0.17	17167.00	17172.00	5.00	30.00	N/A	715.00	60.0	60.00	4950.00	4200.00
Slide	02-27	22:50	23:45	02-27	0.92	17172.00	17202.00	30.00	32.73	30.0	715.00	N/A	55.00	4600.00	4200.00
Rotate	02-27	23:45	00:00	02-28	0.25	17202.00	17241.00	39.00	156.00	N/A	715.00	60.0	60.00	4950.00	4200.00
Rotate	02-28	00:00	00:15	02-28	0.25	17241.00	17256.00	15.00	60.00	N/A	715.00	60.0	60.00	4950.00	4200.00
Rotate	02-28	00:25	01:25	02-28	1.0	17256.00	17346.00	90.00	90.00	N/A	715.00	60.0	60.00	4950.00	4200.00
Rotate	02-28	01:30</													



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #7 (BHA #7 (8.5" 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	02-28	23:15	00:00	02-29	0.75	17368.00	17405.00	37.00	49.33	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	00:00	00:15	02-29	0.25	17405.00	17445.00	40.00	160.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	00:20	00:35	02-29	0.25	17445.00	17450.00	5.00	20.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	00:35	01:10	02-29	0.58	17450.00	17475.00	25.00	42.86	160.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	01:10	01:20	02-29	0.17	17475.00	17534.00	59.00	354.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	01:25	02:15	02-29	0.83	17534.00	17624.00	90.00	108.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	02:20	02:30	02-29	0.17	17624.00	17629.00	5.00	30.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	02:30	03:10	02-29	0.67	17629.00	17659.00	30.00	45.00	0.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	03:10	03:30	02-29	0.33	17659.00	17713.00	54.00	162.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	03:35	04:15	02-29	0.67	17713.00	17803.00	90.00	135.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	04:20	04:25	02-29	0.08	17803.00	17808.00	5.00	60.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	04:25	04:50	02-29	0.42	17808.00	17828.00	20.00	48.00	0.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	04:50	05:20	02-29	0.5	17828.00	17892.00	64.00	128.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	05:25	06:20	02-29	0.92	17892.00	17982.00	90.00	98.18	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	06:25	07:25	02-29	1.0	17982.00	18072.00	90.00	90.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	07:30	10:25	02-29	2.92	18072.00	18105.00	33.00	11.31	180.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	10:25	11:05	02-29	0.67	18105.00	18161.00	56.00	84.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	11:20	11:55	02-29	0.58	18161.00	18230.00	69.00	118.29	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	11:55	12:30	02-29	0.58	18230.00	18241.00	11.00	18.86	330.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	12:30	12:45	02-29	0.25	18241.00	18250.00	9.00	36.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Rotate	02-29	12:50	13:00	02-29	0.17	18250.00	18264.00	14.00	84.00	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	13:00	13:55	02-29	0.92	18264.00	18278.00	14.00	15.27	310.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	13:55	14:30	02-29	0.58	18278.00	18340.00	62.00	106.29	N/A	600.00	60.0	60.00	4100.00	3500.00	
Slide	02-29	14:35	15:25	02-29	0.83	18340.00	18355.00	15.00	18.00	20.0	600.00	N/A	55.00	3800.00	3500.00	
Rotate	02-29	15:25	16:50	02-29	1.42	18355.00	18403.00	48.00	33.88	N/A	600.00	60.0	60.00	4100.00	3500.00	



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #8 (8.5" 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	03-01	13:30	13:40	03-01	0.17	18403.00	18429.00	26.00	156.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	13:45	14:40	03-01	0.92	18429.00	18518.00	89.00	97.09	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-01	15:05	15:45	03-01	0.67	18518.00	18533.00	15.00	22.50	45.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-01	15:45	16:30	03-01	0.75	18533.00	18607.00	74.00	98.67	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	16:35	17:20	03-01	0.75	18607.00	18697.00	90.00	120.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	17:25	17:55	03-01	0.5	18697.00	18787.00	90.00	180.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	18:00	18:30	03-01	0.5	18787.00	18876.00	89.00	178.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	18:35	18:45	03-01	0.17	18876.00	18885.00	9.00	54.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-01	18:45	19:25	03-01	0.67	18885.00	18908.00	23.00	34.50	200.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-01	19:25	19:50	03-01	0.42	18908.00	18966.00	58.00	139.20	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	20:05	20:10	03-01	0.08	18966.00	18975.00	9.00	108.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-01	20:10	20:55	03-01	0.75	18975.00	19000.00	25.00	33.33	200.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-01	20:55	21:15	03-01	0.33	19000.00	19056.00	56.00	168.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	21:20	21:40	03-01	0.33	19056.00	19084.00	28.00	84.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-01	21:40	22:45	03-01	1.08	19084.00	19114.00	30.00	27.69	340.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-01	22:45	22:55	03-01	0.17	19114.00	19146.00	32.00	192.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-01	23:00	23:55	03-01	0.92	19146.00	19235.00	89.00	97.09	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	00:00	01:05	03-02	1.08	19235.00	19325.00	90.00	83.08	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	01:10	01:30	03-02	0.33	19325.00	19335.00	10.00	30.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	01:30	01:45	03-02	0.25	19335.00	19350.00	15.00	60.00	0.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	01:45	02:30	03-02	0.75	19350.00	19415.00	65.00	86.67	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	02:35	02:45	03-02	0.17	19415.00	19425.00	10.00	60.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	02:45	03:55	03-02	1.17	19425.00	19455.00	30.00	25.71	0.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	03:55	04:25	03-02	0.5	19455.00	19505.00	50.00	100.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	04:30	04:55	03-02	0.42	19504.00	19515.00	11.00	26.40	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	04:55	05:50	03-02	0.92	19515.00	19545.00	30.00	32.73	0.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	05:50	06:10	03-02	0.33	19545.00	19594.00	49.00	147.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	06:15	07:10	03-02	0.92	19594.00	19604.00	10.00	10.91	0.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	07:10	07:55	03-02	0.75	19604.00	19683.00	79.00	105.33	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	08:00	08:10	03-02	0.17	19683.00	19694.00	11.00	66.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	08:10	08:40	03-02	0.5	19694.00	19711.00	17.00	34.00	20.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	08:40	09:25	03-02	0.75	19711.00	19773.00	62.00	82.67	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	09:30	10:55	03-02	1.42	19773.00	19862.00	89.00	62.82	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	11:00	12:35	03-02	1.58	19862.00	19952.00	90.00	56.84	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	12:40	13:30	03-02	0.83	19952.00	20006.00	54.00	64.80	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	13:30	14:30	03-02	1.0	20006.00	20023.00	17.00	17.00	200.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	14:30	14:55	03-02	0.42	20023.00	20041.00	18.00	43.20	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	15:00	15:15	03-02	0.25	20041.00	20059.00	18.00	72.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	15:15	15:55	03-02	0.67	20059.00	20069.00	10.00	15.00	180.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	15:55	16:45	03-02	0.83	20069.00	20131.00	62.00	74.40	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	16:50	17:35	03-02	0.75	20131.00	20139.00	8.00	10.67	160.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	17:35	19:05	03-02	1.5	20139.00	20221.00	82.00	54.67	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	19:10	19:55	03-02	0.75	20221.00	20264.00	43.00	57.33	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-02	19:55	20:50	03-02	0.92	20264.00	20284.00	20.00	21.82	20.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-02	20:50	21:05	03-02	0.25	20284.00	20310.00	26.00	104.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	21:10	22:45	03-02	1.58	20310.00	20400.00	90.00	56.84	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-02	22:50	00:00	03-03	1.17	20400.00	20466.00	66.00	56.57	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	00:00	00:20	03-03	0.33	20466.00	20490.00	24.00	72.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	00:25	00:35	03-03	0.17	20490.00	20495.00	5.00	30.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-03	00:35	02:55	03-03	2.33	20495.00	20525.00	30.00	12.86	45.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-03	02:55	03:30	03-03	0.58	20525.00	20579.00	54.00	92.57	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	03:35	05:00	03-03	1.42	20579.00	20669.00	90.00	63.53	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	05:05	05:20	03-03	0.25	20669.00	20675.00	6.00	24.00	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-03	05:20	07:00	03-03	1.67	20675.00	20699.00	24.00	14.40	180.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-03	07:00	08:05	03-03	1.08	20699.00	20758.00	59.00	54.46	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	08:10	09:45	03-03	1.58	20758.00	20848.00	90.00	56.84	N/A	750.00	35.0	55.00	5700.00	5000.00	
Slide	03-03	09:50	12:00	03-03	2.17	20848.00	20873.00	25.00	11.54	180.0	710.00	N/A	55.00	3800.00	3500.00	
Rotate	03-03	12:00	13:25	03-03	1.42	20873.00	20938.00	65.00	45.88	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	13:30	14:55	03-03	1.42	20938.00	21027.00	89.00	62.82	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	15:00	16:25	03-03	1.42	21027.00	21116.00	89.00	62.82	N/A	750.00	35.0	55.00	5700.00	5000.00	
Rotate	03-03	16:30	17:00	03-03	0.5	21116.00	21152.00	36.00	72.00	N/A	750.00	35.0	55.00	5700.00	5000.00	



Daily Reports

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Jan 09 00:00 - 23:59 (Day 1 of 25) Billing: \$10,600.00 (\$187,594.25 total)

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

Personnel	
Name	Position
Advance Directional	Directional Driller
Joel Johnson	Directional Driller
Robert Olivarez	MWD Engineer

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	01-09	00:00	00:00	01-10			Standby while Rig Move & Rigging Up

MWD Activities								
No Activities								

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Friday, Jan 10 00:00 - 23:59 (Day 2 of 25) Billing: \$11,587.50 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	145.00	Downhole Hours	2.50	Rotating WOB (klbs)	20.00 - 20.00
Bit Depth (ft)	676.00	Drilling Hours	2.08	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	676.00	Hours Circulating	0.00	Rotating SPM	170.00 - 261.00
Total Distance (ft)	531.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	531.00	Hours Rotating	2.08	Motor RPM	60.00 - 60.00
Distance Slid (ft)	0.00			Surface RPM	30.00 - 60.00
Inclination In	0.57			Flow Rate (gpm)	550.00 - 840.00
Inclination Out	0.18			On Bottom Pressure (psi)	1200.00 - 2400.00
Azimuth In	26.19	% Hours Rotating	100%	Off Bottom Pressure (psi)	800.00 - 1600.00
Azimuth Out	13.44	% Hours Sliding	0%		
AVG Total ROP (ft/h)	254.88	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	254.88	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel	
Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #1 - Surface 17.5" Date In: Jan 10, 2020, 21:30 Date Out: Jan 11, 2020, 11:55

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:0
Vendor	BAKER	Lobe/Stage	7/8, 4.0	
S/N	5308832	Bend Angle	1.5	
Nozzles	9-12's	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.330	POOH Reason Total Depth/Casing Point: N/A
Drilling Hours for Day	2.08	Bit Distances		
Total Drilled for Day (ft)	531.00	Bend: 6.10 ft, Survey: 63.00 ft		
Drilling Hours for BHA	9.17			
Total Drilled for BHA (ft)	1608.00			

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: T606KS, Style: PDC, Gauge Length (in): 3.00, Size (in): 17.50	BAKER	5308832	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 7/8, 4.0 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4	AIM	800-40-010 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		30.01	31.51
Stabilizer Description: 17" IB STAB	GTI	GT801168	6 5/8" Reg Box	6 5/8" Reg Pin	2.813	8.020		8.02	39.53
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	42.98
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	74.11
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	105.13
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	109.03
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1522.69

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	01-09	00:00	00:00	01-10			Standby while Rig Move & Rigging Up	
Standby	15	01-10	00:00	17:40	01-10			Standby while Rigging Up	
Change BHA	6	01-10	17:40	19:15	01-10			P/U BHA # 1	
Rig Repair	14	01-10	19:15	21:00	01-10			C/O Dies on ST80	

Change BHA	6	01-10	21:00	21:30	01-10			Finish M/U BHA 1
Rotary Drill	1	01-10	21:30	22:30	01-10	145.00	298.00	Pressure On (psi): 1200.00, Pressure Off (psi): 800.00, Weight On Bit (klbs): 20.00, Surface RPM: 30, Surface Torque (ft lbf): 17000.00, Flow Rate (gpm): 550.00, Strokes Per Minute: 170.00
Survey	46	01-10	22:30	22:35	01-10	298.00	298.00	Inclination (°): 0.570, Azimuth (°): 26.190, TVD (ft): 235.00, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 235.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-10	22:35	23:10	01-10	298.00	487.00	Pressure On (psi): 2000.00, Pressure Off (psi): 1000.00, Weight On Bit (klbs): 20.00, Surface RPM: 45, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	01-10	23:10	23:15	01-10	487.00	487.00	Inclination (°): 0.260, Azimuth (°): 53.520, TVD (ft): 423.99, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 424.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-10	23:15	23:45	01-10	487.00	676.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-10	23:45	00:00	01-11	676.00	676.00	Inclination (°): 0.180, Azimuth (°): 13.440, TVD (ft): 612.99, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 613.00, Bit To Sensor (ft): 63.00
Recycled 3x								

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Saturday, Jan 11 00:00 - 23:59 (Day 3 of 25)

Billing: N/A (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	676.00	Downhole Hours	11.92	Rotating WOB (klbs)	20.00 - 20.00
Bit Depth (ft)	1753.00	Drilling Hours	7.08	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	1753.00	Hours Circulating	1.00	Rotating SPM	261.00 - 261.00
Total Distance (ft)	1077.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	1077.00	Hours Rotating	7.08	Motor RPM	60.00 - 60.00
Distance Slid (ft)	0.00			Surface RPM	60.00 - 60.00
Inclination In	0.31			Flow Rate (gpm)	840.00 - 840.00
Inclination Out	1.32			On Bottom Pressure (psi)	2400.00 - 2400.00
Azimuth In	278.87	% Hours Rotating	100%	Off Bottom Pressure (psi)	1600.00 - 1600.00
Azimuth Out	205.22	% Hours Sliding	0%		
AVG Total ROP (ft/h)	152.05	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	152.05	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #1 - Surface 17.5"

Date In: Jan 10, 2020, 21:30 Date Out: Jan 11, 2020, 11:55

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 900 psi, Max Torque: 14,930 ft-lbs, BIT Runs:0
Vendor	BAKER	Lobe/Stage	7/8, 4.0	
S/N	5308832	Bend Angle	1.5	
Nozzles	9-12's	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.994	Wear Pad OD (in)	8.330	POOH Reason Total Depth/Casing Point: N/A
Drilling Hours for Day	7.08	Bit Distances		
Total Drilled for Day (ft)	1077.00	Bend: 6.10 ft, Survey: 63.00 ft		
Drilling Hours for BHA	9.17			
Total Drilled for BHA (ft)	1608.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: T606KS, Style: PDC, Gauge Length (in): 3.00, Size (in): 17.50	BAKER	5308832	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 7/8, 4.0 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 4	AIM	800-40-010 AIM	6 5/8" Reg Box	6 5/8" Reg Box		8.000		30.01	31.51
Stabilizer Description: 17" IB STAB	GTI	GT801168	6 5/8" Reg Box	6 5/8" Reg Pin	2.813	8.020		8.02	39.53
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	42.98
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	74.11
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	105.13
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	109.03
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1522.69

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Survey	46	01-10	23:45	00:00	01-11	676.00	676.00	Inclination (°): 0.180, Azimuth (°): 13.440, TVD (ft): 612.99, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 613.00, Bit To Sensor (ft): 63.00 Recycled 3x

Rotary Drill	1	01-11	00:00	00:50	01-11	676.00	864.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	00:50	01:05	01-11	864.00	864.00	Inclination (°): 0.310, Azimuth (°): 278.870, TVD (ft): 800.99, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 801.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	01:05	01:55	01-11	864.00	1052.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	01:55	02:05	01-11	1052.00	1052.00	Inclination (°): 0.480, Azimuth (°): 171.470, TVD (ft): 988.99, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 989.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	02:05	03:05	01-11	1052.00	1239.00	Recycled Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	03:05	03:10	01-11	1239.00	1239.00	Inclination (°): 0.700, Azimuth (°): 173.760, TVD (ft): 1175.98, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 1176.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	03:10	03:25	01-11	1239.00	1333.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	03:25	03:30	01-11	1333.00	1333.00	Inclination (°): 0.700, Azimuth (°): 170.940, TVD (ft): 1269.97, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 1270.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	03:30	04:55	01-11	1333.00	1428.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	04:55	05:00	01-11	1428.00	1428.00	Inclination (°): 0.880, Azimuth (°): 191.950, TVD (ft): 1364.96, Dogleg (°/100 ft): 0.36, Sensor Depth (ft): 1365.00, Bit To Sensor (ft): 63.00, Temperature (°F): 84.00
Rotary Drill	1	01-11	05:00	05:40	01-11	1428.00	1522.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	05:40	05:45	01-11	1522.00	1522.00	Inclination (°): 1.010, Azimuth (°): 188.870, TVD (ft): 1458.95, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 1459.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	05:45	06:35	01-11	1522.00	1612.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	06:35	06:40	01-11	1612.00	1612.00	Inclination (°): 1.320, Azimuth (°): 207.160, TVD (ft): 1548.93, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 1549.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	06:40	07:10	01-11	1612.00	1701.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-11	07:10	07:15	01-11	1701.00	1701.00	Inclination (°): 1.270, Azimuth (°): 219.020, TVD (ft): 1637.91, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 1638.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	01-11	07:15	08:00	01-11	1701.00	1753.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Circulating	3	01-11	08:00	09:00	01-11			CIRCULATE & CONDITION @ TD
Survey	46	01-11	09:00	09:05	01-11	1753.00	1753.00	Inclination (°): 1.320, Azimuth (°): 205.220, TVD (ft): 1689.89, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 1690.00, Bit To Sensor (ft): 63.00
Pooh	7	01-11	09:05	11:15	01-11			POOH for TD / CASING POINT
Change BHA	6	01-11	11:15	11:55	01-11			L/D MWD TOOL, STAB, & R/B BHA
Standby	15	01-11	11:55	21:30	01-11			Standby while CASING OPS
MWD Activities								
No Activities								



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Tuesday, Jan 14 00:00 - 23:59 (Day 4 of 25)

Billing: \$12,173.75 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1753.00	Downhole Hours	9.75	Rotating WOB (klbs)	20.00 - 20.00
Bit Depth (ft)	3532.00	Drilling Hours	6.75	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	3532.00	Hours Circulating	0.58	Rotating SPM	261.00 - 261.00
Total Distance (ft)	1783.00	Hours Sliding	0.25	Sliding SPM	264.00 - 264.00
Distance Rotated (ft)	1771.00	Hours Rotating	6.50	Motor RPM	56.00 - 60.00
Distance Slid (ft)	12.00			Surface RPM	60.00 - 70.00
Inclination In	1.01			Flow Rate (gpm)	840.00 - 850.00
Inclination Out	1.14			On Bottom Pressure (psi)	2400.00 - 3500.00
Azimuth In	217.53	% Hours Rotating	96%	Off Bottom Pressure (psi)	1600.00 - 2700.00
Azimuth Out	75.32	% Hours Sliding	4%		
AVG Total ROP (ft/h)	264.15	% Distance Sliding	1%		
AVG Rotating ROP (ft/h)	272.46	% Distance Rotating	99%		
AVG Sliding ROP (ft/h)	48.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #2 - Intermediate 12.25"

Date In: Jan 14, 2020, 14:15 Date Out: Jan 15, 2020, 9:45

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:2
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5301295	Bend Angle	1.5	
Nozzles	6-12'S	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.320	
Drilling Hours for Day	6.75	Bit Distances		
Total Drilled for Day (ft)	1779.00	Bend: 6.00 ft, Survey: 70.00 ft		POOH Reason
Drilling Hours for BHA	12.50			
Total Drilled for BHA (ft)	2683.00			
				Penetration Rate: POOH FOR ROP, BIT RUNG OUT & DBR

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506WS, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5301295	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1529.70

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	01-14	00:00	12:45	01-14			Skid Rig from 301H
Change BHA	6	01-14	12:45	14:15	01-14			P/U BHA # 2
TIH	8	01-14	14:15	15:05	01-14			TIH W/ BHA #2
Drilling Cement	17	01-14	15:05	15:40	01-14	1753.00	1753.00	Drilling Cement and Float Equipment

Rotary Drill	1	01-14	15:40	16:45	01-14	1753.00	1888.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	16:45	16:50	01-14	1888.00	1888.00	Inclination (°): 1.010, Azimuth (°): 217.530, TVD (ft): 1817.87, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 1818.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	16:50	17:05	01-14	1888.00	1977.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	17:05	17:10	01-14	1977.00	1977.00	Inclination (°): 0.790, Azimuth (°): 224.030, TVD (ft): 1906.86, Dogleg (°/100 ft): 0.27, Sensor Depth (ft): 1907.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	17:10	17:25	01-14	1977.00	2067.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	17:25	17:30	01-14	2067.00	2067.00	Inclination (°): 0.400, Azimuth (°): 185.100, TVD (ft): 1996.85, Dogleg (°/100 ft): 0.60, Sensor Depth (ft): 1997.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	17:30	17:45	01-14	2067.00	2156.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1600.00, Weight On Bit (klbs): 20.00, Surface RPM: 60, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	17:45	17:50	01-14	2156.00	2156.00	Inclination (°): 0.480, Azimuth (°): 217.090, TVD (ft): 2085.85, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 2086.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	17:50	18:05	01-14	2156.00	2246.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	18:05	18:10	01-14	2246.00	2246.00	Inclination (°): 0.530, Azimuth (°): 204.520, TVD (ft): 2175.84, Dogleg (°/100 ft): 0.13, Sensor Depth (ft): 2176.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	18:10	18:30	01-14	2246.00	2336.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	18:30	18:35	01-14	2336.00	2336.00	Inclination (°): 0.440, Azimuth (°): 230.620, TVD (ft): 2265.84, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 2266.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	18:35	18:50	01-14	2336.00	2425.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	18:50	18:55	01-14	2425.00	2425.00	Inclination (°): 0.400, Azimuth (°): 229.300, TVD (ft): 2354.84, Dogleg (°/100 ft): 0.05, Sensor Depth (ft): 2355.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	18:55	19:10	01-14	2425.00	2515.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	19:10	19:15	01-14	2515.00	2515.00	Inclination (°): 0.310, Azimuth (°): 230.530, TVD (ft): 2444.84, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 2445.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	19:15	19:30	01-14	2515.00	2605.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	19:30	19:35	01-14	2605.00	2605.00	Inclination (°): 0.400, Azimuth (°): 204.960, TVD (ft): 2534.84, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 2535.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	19:35	19:50	01-14	2605.00	2694.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	19:50	19:55	01-14	2694.00	2694.00	Inclination (°): 0.260, Azimuth (°): 118.740, TVD (ft): 2623.83, Dogleg (°/100 ft): 0.52, Sensor Depth (ft): 2624.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	19:55	20:10	01-14	2694.00	2784.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	20:10	20:15	01-14	2784.00	2784.00	Inclination (°): 0.220, Azimuth (°): 121.110, TVD (ft): 2713.83, Dogleg (°/100 ft): 0.05, Sensor Depth (ft): 2714.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	20:15	20:35	01-14	2784.00	2873.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	20:35	20:40	01-14	2873.00	2873.00	Inclination (°): 0.310, Azimuth (°): 102.040, TVD (ft): 2802.83, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 2803.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	20:40	20:55	01-14	2873.00	2967.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	20:55	21:00	01-14	2963.00	2963.00	Inclination (°): 0.350, Azimuth (°): 72.950, TVD (ft): 2892.83, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 2893.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	21:00	21:25	01-14	2963.00	3053.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	21:25	21:30	01-14	3053.00	3053.00	Inclination (°): 0.750, Azimuth (°): 63.720, TVD (ft): 2982.83, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 2983.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	21:30	21:45	01-14	3053.00	3142.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	21:45	21:50	01-14	3142.00	3142.00	Inclination (°): 1.100, Azimuth (°): 72.950, TVD (ft): 3071.82, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 3072.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	21:50	22:15	01-14	3142.00	3232.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	22:15	22:20	01-14	3232.00	3232.00	Inclination (°): 1.320, Azimuth (°): 76.900, TVD (ft): 3161.80, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 3162.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	22:20	22:40	01-14	3232.00	3321.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	22:40	22:45	01-14	3321.00	3321.00	Inclination (°): 1.490, Azimuth (°): 65.120, TVD (ft): 3250.77, Dogleg (°/100 ft): 0.38, Sensor Depth (ft): 3251.00, Bit To Sensor (ft): 70.00

Rotary Drill	1	01-14	22:45	23:00	01-14	3321.00	3411.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	23:00	23:05	01-14	3411.00	3411.00	Inclination (°): 1.630, Azimuth (°): 66.620, TVD (ft): 3340.74, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 3341.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	23:05	23:20	01-14	3411.00	3413.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Slide Drill	2	01-14	23:20	23:35	01-14	3413.00	3425.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264, Toolface: 270, Toolface Type: magnetic
Rotary Drill	1	01-14	23:35	23:40	01-14	3425.00	3501.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-14	23:40	23:45	01-14	3501.00	3501.00	Inclination (°): 1.140, Azimuth (°): 75.320, TVD (ft): 3430.71, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 3431.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-14	23:45	00:00	01-15	3501.00	3532.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Jan 15 00:00 - 23:59 (Day 5 of 25)

Billing: \$5,600.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	3532.00	Downhole Hours	23.25	Rotating WOB (klbs)	20.00 - 40.00
Bit Depth (ft)	5334.00	Drilling Hours	13.08	Sliding WOB (klbs)	20.00 - 25.00
Bottom Hole Depth (ft)	5334.00	Hours Circulating	2.08	Rotating SPM	261.00 - 264.00
Total Distance (ft)	1802.00	Hours Sliding	0.67	Sliding SPM	264.00 - 264.00
Distance Rotated (ft)	1757.00	Hours Rotating	12.42	Motor RPM	56.00 - 136.00
Distance Slid (ft)	45.00			Surface RPM	40.00 - 70.00
Inclination In	1.27			Flow Rate (gpm)	840.00 - 850.00
Inclination Out	0.97			On Bottom Pressure (psi)	3100.00 - 3500.00
Azimuth In	61.52	% Hours Rotating	95%	Off Bottom Pressure (psi)	2700.00 - 3000.00
Azimuth Out	143.87	% Hours Sliding	5%		
AVG Total ROP (ft/h)	137.48	% Distance Sliding	2%		
AVG Rotating ROP (ft/h)	141.16	% Distance Rotating	98%		
AVG Sliding ROP (ft/h)	67.50				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #2 - Intermediate 12.25"

Date In: Jan 14, 2020, 14:15 Date Out: Jan 15, 2020, 9:45

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:2
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5301295	Bend Angle	1.5	
Nozzles	6-12'S	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.320	
Drilling Hours for Day	5.75	Bit Distances		
Total Drilled for Day (ft)	904.00	Bend: 6.00 ft, Survey: 70.00 ft		POOH Reason Penetration Rate: POOH FOR ROP, BIT RUNG OUT & DBR
Drilling Hours for BHA	12.50			
Total Drilled for BHA (ft)	2683.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506WS, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5301295	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrig54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrig54 Box	EverDrig54 Pin	3.875	6.688		1413.66	1529.70

MWD Items

No Items

BHA #3 - Intermediate 12.25"

Date In: Jan 15, 2020, 10:30 Date Out: Jan 16, 2020, 3:00

Bit Details		Motor Details		Directional Comments	
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:1	
Vendor	BAKER	Lobe/Stage	7/8, 5.9		
S/N	5299142	Bend Angle	1.5		
Nozzles	6-12'S	Speed (rev/gal)	0.16	MWD Comments	
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.320		
Drilling Hours for Day	7.33	Bit Distances		POOH Reason	
Total Drilled for Day (ft)	898.00	Bend: 6.00 ft, Survey: 70.00 ft			
Drilling Hours for BHA	7.33				
Total Drilled for BHA (ft)	898.00				
				Total Depth/Casing Point	

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5299142	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1529.70

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	01-14	23:45	00:00	01-15	3501.00	3532.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Rotary Drill	1	01-15	00:00	00:20	01-15	3532.00	3590.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	00:20	00:25	01-15	3590.00	3590.00	Inclination (°): 1.270, Azimuth (°): 61.520, TVD (ft): 3519.69, Dogleg (°/100 ft): 0.36, Sensor Depth (ft): 3520.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	00:25	00:30	01-15	3590.00	3600.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Slide Drill	2	01-15	00:30	00:55	01-15	3600.00	3620.00	Pressure On (psi): 3100.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264, Toolface: 240, Toolface Type: magnetic
Rotary Drill	1	01-15	00:55	01:05	01-15	3620.00	3680.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	01:05	01:10	01-15	3680.00	3680.00	Inclination (°): 0.310, Azimuth (°): 118.210, TVD (ft): 3609.68, Dogleg (°/100 ft): 1.26, Sensor Depth (ft): 3610.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	01:10	01:35	01-15	3680.00	3770.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	01:35	01:40	01-15	3770.00	3770.00	Inclination (°): 0.400, Azimuth (°): 228.860, TVD (ft): 3699.68, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 3700.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	01:40	02:05	01-15	3770.00	3860.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	02:05	02:10	01-15	3860.00	3860.00	Inclination (°): 0.530, Azimuth (°): 214.800, TVD (ft): 3789.68, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 3790.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	02:10	02:40	01-15	3860.00	3949.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	02:40	02:45	01-15	3949.00	3949.00	Inclination (°): 0.790, Azimuth (°): 235.540, TVD (ft): 3878.67, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 3879.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	02:45	03:20	01-15	3949.00	4039.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	03:20	03:25	01-15	4039.00	4039.00	Inclination (°): 0.620, Azimuth (°): 209.090, TVD (ft): 3968.66, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 3969.00, Bit To Sensor (ft): 70.00

Rotary Drill	1	01-15	03:25	03:40	01-15	4039.00	4128.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	03:40	03:45	01-15	4128.00	4128.00	Inclination (°): 0.440, Azimuth (°): 210.320, TVD (ft): 4057.66, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 4058.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	03:45	04:00	01-15	4128.00	4218.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	04:00	04:05	01-15	4218.00	4218.00	Inclination (°): 0.480, Azimuth (°): 245.650, TVD (ft): 4147.66, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 4148.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	04:05	04:30	01-15	4218.00	4307.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	04:30	04:35	01-15	4307.00	4307.00	Inclination (°): 0.530, Azimuth (°): 225.610, TVD (ft): 4236.65, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 4237.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	04:35	05:40	01-15	4307.00	4397.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	05:40	05:45	01-15	4397.00	4397.00	Inclination (°): 0.530, Azimuth (°): 174.280, TVD (ft): 4326.65, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 4327.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	05:45	06:35	01-15	4397.00	4436.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Circulating	3	01-15	06:35	07:05	01-15			CIRC TO POOH FOR ROP
Reaming	4	01-15	07:05	08:00	01-15			Reaming
Pooh	7	01-15	08:00	09:45	01-15			POOH for ROP
Change BHA	6	01-15	09:45	10:30	01-15			P/U BHA # 3
TIH	8	01-15	10:30	12:10	01-15			TIH W/ BHA #3
Rig Repair	14	01-15	12:10	15:00	01-15			TROUBLESHOOT TOP DRIVE
TIH	8	01-15	15:00	15:10	01-15			TIH W/ BHA #3
Rotary Drill	1	01-15	15:10	15:30	01-15	4436.00	4487.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	15:30	15:35	01-15	4487.00	4487.00	Inclination (°): 1.980, Azimuth (°): 135.610, TVD (ft): 4416.63, Dogleg (°/100 ft): 1.78, Sensor Depth (ft): 4417.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	15:35	16:20	01-15	4487.00	4576.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	16:20	16:25	01-15	4576.00	4576.00	Inclination (°): 2.290, Azimuth (°): 132.620, TVD (ft): 4505.57, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 4506.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	16:25	16:30	01-15	4576.00	4581.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Slide Drill	2	01-15	16:30	16:45	01-15	4581.00	4606.00	Pressure On (psi): 3450.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264, Toolface: 315, Toolface Type: magnetic
Rotary Drill	1	01-15	16:45	17:15	01-15	4606.00	4666.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 20.00, Surface RPM: 70, Surface Torque (ft lbf): 20000.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	17:15	17:20	01-15	4666.00	4666.00	Inclination (°): 1.710, Azimuth (°): 129.990, TVD (ft): 4595.51, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 4596.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	17:20	17:55	01-15	4666.00	4756.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 840.00, Strokes Per Minute: 261.00
Survey	46	01-15	17:55	18:00	01-15	4756.00	4756.00	Inclination (°): 1.230, Azimuth (°): 124.540, TVD (ft): 4685.48, Dogleg (°/100 ft): 0.55, Sensor Depth (ft): 4686.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	18:00	18:35	01-15	4756.00	4846.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	01-15	18:35	18:40	01-15	4846.00	4846.00	Inclination (°): 0.880, Azimuth (°): 130.340, TVD (ft): 4775.47, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 4776.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	18:40	19:10	01-15	4846.00	4935.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	01-15	19:10	19:15	01-15	4935.00	4935.00	Inclination (°): 1.010, Azimuth (°): 136.400, TVD (ft): 4864.45, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 4865.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	19:15	21:25	01-15	4935.00	5115.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	01-15	21:25	21:30	01-15	5115.00	5115.00	Inclination (°): 0.840, Azimuth (°): 153.100, TVD (ft): 5044.43, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 5045.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	21:30	22:15	01-15	5115.00	5205.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	01-15	22:15	22:20	01-15	5205.00	5205.00	Inclination (°): 0.700, Azimuth (°): 148.090, TVD (ft): 5134.42, Dogleg (°/100 ft): 0.17, Sensor Depth (ft): 5135.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	22:20	22:55	01-15	5205.00	5294.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	01-15	22:55	23:00	01-15	5294.00	5294.00	Inclination (°): 0.790, Azimuth (°): 154.770, TVD (ft): 5223.42, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 5224.00, Bit To Sensor (ft): 70.00
Rotary Drill	1	01-15	23:00	23:15	01-15	5294.00	5334.00	Pressure On (psi): 3500.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 14500.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00

Survey	46	01-15	23:15	23:20	01-15	5334.00	5334.00	Inclination (°): 0.970, Azimuth (°): 143.870, TVD (ft): 5263.47, Dogleg (%/100 ft): 0.61, Sensor Depth (ft): 5264.00, Bit To Sensor (ft): 70.00
Circulating	3	01-15	23:20	00:00	01-16			Circulate

MWD Activities								
No Activities								

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Jan 16 00:00 - 23:59 (Day 6 of 25)

Billing: N/A (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	3.00	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	120.00 - 136.00
Distance Slid (ft)	0.00			Surface RPM	
Inclination In				Flow Rate (gpm)	
Inclination Out				On Bottom Pressure (psi)	
Azimuth In		% Hours Rotating		Off Bottom Pressure (psi)	
Azimuth Out		% Hours Sliding			
AVG Total ROP (ft/h)	0.00	% Distance Sliding			
AVG Rotating ROP (ft/h)	0.00	% Distance Rotating			
AVG Sliding ROP (ft/h)	0.00				

Personnel	
Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #3 - Intermediate 12.25"

Date In: Jan 15, 2020, 10:30 Date Out: Jan 16, 2020, 3:00

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400-900, Max Diff: 1390 psi, Max Torque: 21,870 ft-lbs, BIT Runs:1
Vendor	BAKER	Lobe/Stage	7/8, 5.9	
S/N	5299142	Bend Angle	1.5	
Nozzles	6-12'S	Speed (rev/gal)	0.16	MWD Comments
Total Flow Area (in²)	0.663	Wear Pad OD (in)	8.320	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Bend: 6.00 ft, Survey: 70.00 ft		POOH Reason Total Depth/Casing Point
Drilling Hours for BHA	7.33			
Total Drilled for BHA (ft)	898.00			

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: D506TWX, Style: PDC, Gauge Length (in): 3.00, Size (in): 12.25	BAKER	5299142	6 5/8" Reg Pin			12.250		1.00	1.00
Mud Motor Description: 7/8, 5.9 FXD 1.5° w/ 12" NBS, Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	BUTCH'S	BDT 800-003	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.52	38.52
Stabilizer Description: 12" IB STAB	GTI	GT801176	6 5/8" Reg Box	6 5/8" Reg Pin	2.875	8.010		8.02	46.54
UBHO Sub Description: 8" UBHO SUB, Type: NM	GTI	GT 8066774	6 5/8" Reg Box	6 5/8" Reg Pin	3.500	8.050		3.45	49.99
Drill Collar Description: 8" MWD NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-285	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.050		31.13	81.12
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	GTI	GT 80-30-208	6 5/8" Reg Box	6 5/8" Reg Pin	3.313	8.010		31.02	112.14
Crossover Sub Description: X-O SUB, Type: Steel	BD	BD 15381	EverDrlg54 Box	6 5/8" Reg Pin	2.875	8.250		3.90	116.04
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1529.70

MWD Items									
No Items									

Directional Activities									
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details	
Circulating	3	01-15	23:20	00:00	01-16			Circulate	
Pooh	7	01-16	00:00	02:15	01-16			POOH TD Section	
Change BHA	6	01-16	02:15	03:00	01-16			L/D MWD Tool, L/D Stab & UBHO. Rack Back	
Standby	15	01-16	03:00	06:00	01-16			Standby while Casing	

MWD Activities									
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No Activities

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Monday, Jan 20 00:00 - 23:59 (Day 7 of 25) Billing: N/A (\$187,594.25 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
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	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	01-20	00:00	22:00	01-20			Standby
Standby	15	01-20	22:00	04:00	01-21			Standby- Skid from #301H. N/U BOPs & Test. Rig Up

MWD Activities
No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Tuesday, Jan 21 00:00 - 23:59 (Day 8 of 25)

Billing: \$10,952.50 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5334.00	Downhole Hours	20.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	7614.00	Drilling Hours	11.25	Sliding WOB (klbs)	25.00 - 25.00
Bottom Hole Depth (ft)	7614.00	Hours Circulating	1.00	Rotating SPM	211.00 - 218.00
Total Distance (ft)	2280.00	Hours Sliding	1.83	Sliding SPM	210.00 - 218.00
Distance Rotated (ft)	2110.00	Hours Rotating	9.42	Motor RPM	156.00 - 195.00
Distance Slid (ft)	170.00			Surface RPM	40.00 - 40.00
Inclination In	0.48			Flow Rate (gpm)	678.00 - 705.00
Inclination Out	6.86			On Bottom Pressure (psi)	2500.00 - 2800.00
Azimuth In	140.10	% Hours Rotating	84%	Off Bottom Pressure (psi)	2100.00 - 2200.00
Azimuth Out	280.90	% Hours Sliding	16%		
AVG Total ROP (ft/h)	200.28	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	220.00	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	92.73				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #4 - Intermediate 8.5"

Date In: Jan 21, 2020, 4:00 Date Out: Jan 23, 2020, 9:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	FLOW RATE: 350-750 MAX DIFF: 1910 psi MAX TQ: 18,710 ft/lbs. BIT RUNS: 1
Vendor	ULTERRA	Lobe/Stage	7/8, 8.5	
S/N	49480	Bend Angle	1.5	
Nozzles	1-14, 2-15's, & 3-16's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	1.085	Wear Pad OD (in)	7.375	
Drilling Hours for Day	11.25	Bit Distances		
Total Drilled for Day (ft)	2280.00	Bend: 5.30 ft, Survey: 68.00 ft, Gamma: 53.00 ft		POOH Reason
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5133.00			
				Change Bottom Hole Assembly: Pooh to P/U Curve tools.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: RPS616, Style: PDC, Gauge Length (in): 5.00, Size (in): 8.50	ULTERRA	49480	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8, 8.5 FXD 1.5° w/ 8.25" NBS, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-006	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Stabilizer Description: 8.25" STAB	DTI	DR43605	4 1/2" IF Box	4 1/2" IF Pin	2.813	6.688		5.19	42.34
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	46.02
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	74.78
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	103.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.06
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1520.72

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	01-20	22:00	04:00	01-21			Standby- Skid from #301H. N/U BOPs & Test. Rig Up
Change BHA	6	01-21	04:00	05:00	01-21			P/U BHA # 4
Other	16	01-21	05:00	05:15	01-21			TEST MWD TOOL
TIH	8	01-21	05:15	06:45	01-21			TIH W/ BHA #4
Circulating	3	01-21	06:45	07:15	01-21			DRILL OUT DV TOOL

Other	16	01-21	07:15	07:45	01-21			TEST CASING
Other	16	01-21	07:45	08:15	01-21			SLIP & CUT
Rig Service - In Hole	19	01-21	08:15	08:45	01-21			RIG SERVICE
TIH	8	01-21	08:45	09:05	01-21			TIH W/ BHA #4
Circulating	3	01-21	09:05	09:35	01-21			DRILL CEMENT & FLOAT EQUIP
Rotary Drill	1	01-21	09:35	10:15	01-21	5334.00	5398.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Slide Drill	2	01-21	10:15	10:30	01-21	5398.00	5418.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 330, Toolface Type: magnetic
Rotary Drill	1	01-21	10:30	10:45	01-21	5418.00	5464.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	10:45	10:50	01-21	5464.00	5464.00	Inclination (°): 0.480, Azimuth (°): 140.100, TVD (ft): 5395.40, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 5396.00, Bit To Sensor (ft): 68.00
Slide Drill	2	01-21	10:50	11:05	01-21	5464.00	5484.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	01-21	11:05	11:25	01-21	5484.00	5554.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	11:25	11:30	01-21	5554.00	5554.00	Inclination (°): 2.950, Azimuth (°): 324.840, TVD (ft): 5485.37, Dogleg (°/100 ft): 3.81, Sensor Depth (ft): 5486.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	11:30	11:40	01-21	5554.00	5564.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Slide Drill	2	01-21	11:40	11:50	01-21	5564.00	5584.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 300, Toolface Type: magnetic
Rotary Drill	1	01-21	11:50	12:10	01-21	5584.00	5643.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	12:10	12:25	01-21	5643.00	5643.00	Inclination (°): 4.620, Azimuth (°): 317.550, TVD (ft): 5574.17, Dogleg (°/100 ft): 1.95, Sensor Depth (ft): 5575.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	12:25	12:45	01-21	5643.00	5733.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	12:45	12:50	01-21	5733.00	5733.00	Inclination (°): 5.630, Azimuth (°): 315.000, TVD (ft): 5663.81, Dogleg (°/100 ft): 1.15, Sensor Depth (ft): 5665.00, Bit To Sensor (ft): 68.00
Slide Drill	2	01-21	12:50	13:05	01-21	5733.00	5753.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 330, Toolface Type: gravity
Rotary Drill	1	01-21	13:05	13:20	01-21	5753.00	5822.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	13:20	13:25	01-21	5822.00	5822.00	Inclination (°): 6.590, Azimuth (°): 310.250, TVD (ft): 5752.30, Dogleg (°/100 ft): 1.22, Sensor Depth (ft): 5754.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	13:25	13:50	01-21	5822.00	5912.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	13:50	13:55	01-21	5912.00	5912.00	Inclination (°): 6.730, Azimuth (°): 306.300, TVD (ft): 5841.69, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 5844.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	13:55	14:15	01-21	5912.00	6002.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	14:15	14:20	01-21	6002.00	6002.00	Inclination (°): 6.150, Azimuth (°): 305.420, TVD (ft): 5931.13, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 5934.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	14:20	14:25	01-21	6002.00	6021.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Slide Drill	2	01-21	14:25	14:30	01-21	6021.00	6041.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 330, Toolface Type: gravity
Rotary Drill	1	01-21	14:30	14:40	01-21	6041.00	6091.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	14:40	14:45	01-21	6091.00	6091.00	Inclination (°): 5.930, Azimuth (°): 304.800, TVD (ft): 6019.63, Dogleg (°/100 ft): 0.26, Sensor Depth (ft): 6023.00, Bit To Sensor (ft): 68.00
Slide Drill	2	01-21	14:45	15:00	01-21	6091.00	6111.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218, Toolface: 330, Toolface Type: gravity
Rotary Drill	1	01-21	15:00	15:15	01-21	6111.00	6181.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	15:15	15:45	01-21	6181.00	6181.00	Inclination (°): 7.340, Azimuth (°): 292.230, TVD (ft): 6109.03, Dogleg (°/100 ft): 2.24, Sensor Depth (ft): 6113.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	15:45	16:00	01-21	6181.00	6270.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	16:00	16:05	01-21	6270.00	6270.00	Inclination (°): 8.220, Azimuth (°): 288.720, TVD (ft): 6197.21, Dogleg (°/100 ft): 1.12, Sensor Depth (ft): 6202.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	16:05	16:20	01-21	6270.00	6359.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00

Survey	46	01-21	16:20	16:25	01-21	6359.00	6359.00	Inclination (°): 8.180, Azimuth (°): 287.580, TVD (ft): 6285.30, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 6291.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	16:25	16:45	01-21	6359.00	6449.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	16:45	16:50	01-21	6449.00	6449.00	Inclination (°): 7.960, Azimuth (°): 286.350, TVD (ft): 6374.41, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 6381.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	16:50	17:10	01-21	6449.00	6539.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	17:10	17:15	01-21	6539.00	6539.00	Inclination (°): 7.600, Azimuth (°): 285.110, TVD (ft): 6463.58, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 6471.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	17:15	17:35	01-21	6539.00	6628.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	17:35	17:40	01-21	6628.00	6628.00	Inclination (°): 7.120, Azimuth (°): 284.410, TVD (ft): 6551.85, Dogleg (°/100 ft): 0.55, Sensor Depth (ft): 6560.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	17:40	17:55	01-21	6628.00	6718.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	17:55	18:00	01-21	6718.00	6718.00	Inclination (°): 6.810, Azimuth (°): 282.570, TVD (ft): 6641.18, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 6650.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	18:00	18:15	01-21	6718.00	6808.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	18:15	18:20	01-21	6808.00	6808.00	Inclination (°): 6.420, Azimuth (°): 280.980, TVD (ft): 6730.59, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 6740.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	18:20	18:40	01-21	6808.00	6897.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	18:40	18:45	01-21	6897.00	6897.00	Inclination (°): 6.240, Azimuth (°): 280.810, TVD (ft): 6819.04, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 6829.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	18:45	19:00	01-21	6897.00	6987.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	19:00	19:05	01-21	6987.00	6987.00	Inclination (°): 5.800, Azimuth (°): 280.280, TVD (ft): 6908.55, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 6919.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	19:05	19:30	01-21	6987.00	7076.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Survey	46	01-21	19:30	19:35	01-21	7076.00	7076.00	Inclination (°): 5.410, Azimuth (°): 278.870, TVD (ft): 6997.12, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 7008.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	19:35	19:40	01-21	7076.00	7080.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 218.00
Slide Drill	2	01-21	19:40	19:55	01-21	7080.00	7105.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 210, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	01-21	19:55	20:20	01-21	7105.00	7166.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	20:20	20:25	01-21	7166.00	7166.00	Inclination (°): 7.080, Azimuth (°): 277.640, TVD (ft): 7086.58, Dogleg (°/100 ft): 1.86, Sensor Depth (ft): 7098.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	20:25	20:45	01-21	7166.00	7255.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	20:45	20:50	01-21	7255.00	7255.00	Inclination (°): 7.470, Azimuth (°): 276.770, TVD (ft): 7174.87, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 7187.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	20:50	21:20	01-21	7255.00	7345.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	21:20	21:25	01-21	7345.00	7345.00	Inclination (°): 6.680, Azimuth (°): 277.380, TVD (ft): 7264.18, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 7277.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	21:25	22:00	01-21	7345.00	7435.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	22:00	22:05	01-21	7435.00	7435.00	Inclination (°): 6.420, Azimuth (°): 276.500, TVD (ft): 7353.59, Dogleg (°/100 ft): 0.31, Sensor Depth (ft): 7367.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	22:05	22:35	01-21	7435.00	7524.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	22:35	22:40	01-21	7524.00	7524.00	Inclination (°): 6.150, Azimuth (°): 276.330, TVD (ft): 7442.06, Dogleg (°/100 ft): 0.30, Sensor Depth (ft): 7456.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	22:40	22:45	01-21	7524.00	7532.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Slide Drill	2	01-21	22:45	23:05	01-21	7532.00	7557.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 210, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	01-21	23:05	23:25	01-21	7557.00	7614.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-21	23:25	23:30	01-21	7614.00	7614.00	Inclination (°): 6.860, Azimuth (°): 280.900, TVD (ft): 7531.48, Dogleg (°/100 ft): 0.98, Sensor Depth (ft): 7546.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-21	23:30	00:05	01-22	7614.00	7704.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Jan 22 00:00 - 23:59 (Day 9 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	7614.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	10212.00	Drilling Hours	21.58	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	10212.00	Hours Circulating	0.00	Rotating SPM	194.00 - 211.00
Total Distance (ft)	2598.00	Hours Sliding	0.50	Sliding SPM	194.00 - 194.00
Distance Rotated (ft)	2578.00	Hours Rotating	21.08	Motor RPM	156.00 - 195.00
Distance Slid (ft)	20.00			Surface RPM	40.00 - 40.00
Inclination In	8.22			Flow Rate (gpm)	625.00 - 678.00
Inclination Out	1.89			On Bottom Pressure (psi)	2200.00 - 2800.00
Azimuth In	282.92	% Hours Rotating	98%	Off Bottom Pressure (psi)	1900.00 - 2200.00
Azimuth Out	203.38	% Hours Sliding	2%		
AVG Total ROP (ft/h)	120.37	% Distance Sliding	1%		
AVG Rotating ROP (ft/h)	122.28	% Distance Rotating	99%		
AVG Sliding ROP (ft/h)	40.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #4 - Intermediate 8.5"

Date In: Jan 21, 2020, 4:00 Date Out: Jan 23, 2020, 9:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	FLOW RATE: 350-750 MAX DIFF: 1910 psi MAX TQ: 18,710 ft/lbs. BIT RUNS: 1
Vendor	ULTERRA	Lobe/Stage	7/8, 8.5	
S/N	49480	Bend Angle	1.5	
Nozzles	1-14, 2-15's, & 3-16's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	1.085	Wear Pad OD (in)	7.375	
Drilling Hours for Day	21.58	Bit Distances		
Total Drilled for Day (ft)	2598.00	Bend: 5.30 ft, Survey: 68.00 ft, Gamma: 53.00 ft		POOH Reason Change Bottom Hole Assembly: PooH to P/U Curve tools.
Drilling Hours for BHA	35.58			
Total Drilled for BHA (ft)	5133.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: RPS616, Style: PDC, Gauge Length (in): 5.00, Size (in): 8.50	ULTERRA	49480	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8, 8.5 FXD 1.5° w/ 8.25" NBS, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-006	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Stabilizer Description: 8.25" STAB	DTI	DR43605	4 1/2" IF Box	4 1/2" IF Pin	2.813	6.688		5.19	42.34
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	46.02
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	74.78
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	103.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.06
HWDP Description: 15 STANDS 5.5" HWDP, Style: Slick	BD		EverDrlg54 Box	EverDrlg54 Pin	3.875	6.688		1413.66	1520.72

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	01-21	23:30	00:05	01-22	7614.00	7704.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	00:05	00:10	01-22	7704.00	7704.00	Inclination (°): 8.220, Azimuth (°): 282.920, TVD (ft): 7620.70, Dogleg (°/100 ft): 1.54, Sensor Depth (ft): 7636.00, Bit To Sensor (ft): 68.00

Rotary Drill	1	01-22	00:10	00:40	01-22	7704.00	7793.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	00:40	00:45	01-22	7793.00	7793.00	Inclination (°): 7.600, Azimuth (°): 282.480, TVD (ft): 7708.85, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 7725.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	00:45	01:15	01-22	7793.00	7883.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	01:15	01:20	01-22	7883.00	7883.00	Inclination (°): 7.250, Azimuth (°): 281.860, TVD (ft): 7798.10, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 7815.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	01:20	01:50	01-22	7883.00	7972.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	01:50	01:55	01-22	7972.00	7972.00	Inclination (°): 6.950, Azimuth (°): 280.020, TVD (ft): 7886.41, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 7904.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	01:55	02:30	01-22	7972.00	8061.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	02:30	02:35	01-22	8061.00	8061.00	Inclination (°): 6.420, Azimuth (°): 279.310, TVD (ft): 7974.81, Dogleg (°/100 ft): 0.60, Sensor Depth (ft): 7993.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	02:35	03:05	01-22	8061.00	8151.00	Pressure On (psi): 2800.00, Pressure Off (psi): 2200.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 12000.00, Flow Rate (gpm): 678.00, Strokes Per Minute: 211.00
Survey	46	01-22	03:05	03:10	01-22	8151.00	8151.00	Inclination (°): 5.850, Azimuth (°): 278.170, TVD (ft): 8064.29, Dogleg (°/100 ft): 0.65, Sensor Depth (ft): 8083.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	03:10	03:45	01-22	8151.00	8241.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	03:45	03:50	01-22	8241.00	8241.00	Inclination (°): 5.890, Azimuth (°): 278.170, TVD (ft): 8153.82, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 8173.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	03:50	04:35	01-22	8241.00	8331.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	04:35	04:40	01-22	8331.00	8331.00	Inclination (°): 5.540, Azimuth (°): 277.730, TVD (ft): 8243.37, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 8263.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	04:40	04:45	01-22	8331.00	8337.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Slide Drill	2	01-22	04:45	05:15	01-22	8337.00	8357.00	Pressure On (psi): 2200.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	01-22	05:15	05:40	01-22	8357.00	8420.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	05:40	05:45	01-22	8420.00	8420.00	Inclination (°): 5.850, Azimuth (°): 280.980, TVD (ft): 8331.93, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 8352.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	05:45	06:20	01-22	8420.00	8510.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	06:20	06:25	01-22	8510.00	8510.00	Inclination (°): 6.510, Azimuth (°): 283.710, TVD (ft): 8421.41, Dogleg (°/100 ft): 0.80, Sensor Depth (ft): 8442.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	06:25	07:25	01-22	8510.00	8599.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	07:25	07:30	01-22	8599.00	8599.00	Inclination (°): 6.200, Azimuth (°): 284.150, TVD (ft): 8509.86, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 8531.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	07:30	08:20	01-22	8599.00	8689.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	08:20	08:25	01-22	8689.00	8689.00	Inclination (°): 5.850, Azimuth (°): 283.270, TVD (ft): 8599.37, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 8621.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	08:25	09:15	01-22	8689.00	8778.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	09:15	09:20	01-22	8778.00	8778.00	Inclination (°): 5.490, Azimuth (°): 281.950, TVD (ft): 8687.93, Dogleg (°/100 ft): 0.43, Sensor Depth (ft): 8710.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	09:20	10:15	01-22	8778.00	8868.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	10:15	10:20	01-22	8868.00	8868.00	Inclination (°): 5.450, Azimuth (°): 280.460, TVD (ft): 8777.52, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 8800.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	10:20	11:20	01-22	8868.00	8957.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	11:20	11:25	01-22	8957.00	8957.00	Inclination (°): 5.450, Azimuth (°): 278.870, TVD (ft): 8866.12, Dogleg (°/100 ft): 0.17, Sensor Depth (ft): 8889.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	11:25	12:30	01-22	8957.00	9047.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	12:30	12:35	01-22	9047.00	9047.00	Inclination (°): 4.880, Azimuth (°): 277.120, TVD (ft): 8955.75, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 8979.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	12:35	13:20	01-22	9047.00	9137.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	13:20	13:35	01-22	9137.00	9137.00	Inclination (°): 4.040, Azimuth (°): 277.030, TVD (ft): 9045.48, Dogleg (°/100 ft): 0.93, Sensor Depth (ft): 9069.00, Bit To Sensor (ft): 68.00

Rotary Drill	1	01-22	13:35	14:15	01-22	9137.00	9226.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	14:15	14:20	01-22	9226.00	9226.00	Inclination (°): 3.250, Azimuth (°): 278.440, TVD (ft): 9134.30, Dogleg (°/100 ft): 0.89, Sensor Depth (ft): 9158.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	14:20	15:10	01-22	9226.00	9316.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	15:10	15:15	01-22	9316.00	9316.00	Inclination (°): 2.640, Azimuth (°): 275.620, TVD (ft): 9224.18, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 9248.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	15:15	16:00	01-22	9316.00	9405.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Rig Service - In Hole	19	01-22	16:00	16:15	01-22			Rig Service
Survey	46	01-22	16:15	16:20	01-22	9405.00	9405.00	Inclination (°): 2.460, Azimuth (°): 283.800, TVD (ft): 9313.09, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 9337.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	16:20	17:10	01-22	9405.00	9495.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	17:10	17:25	01-22	9495.00	9495.00	Inclination (°): 0.530, Azimuth (°): 247.320, TVD (ft): 9403.06, Dogleg (°/100 ft): 2.29, Sensor Depth (ft): 9427.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	17:25	17:55	01-22	9495.00	9584.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	17:55	18:00	01-22	9584.00	9584.00	Inclination (°): 0.400, Azimuth (°): 179.210, TVD (ft): 9492.06, Dogleg (°/100 ft): 0.60, Sensor Depth (ft): 9516.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	18:00	18:40	01-22	9584.00	9674.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	18:40	18:45	01-22	9674.00	9674.00	Inclination (°): 0.700, Azimuth (°): 208.560, TVD (ft): 9582.05, Dogleg (°/100 ft): 0.45, Sensor Depth (ft): 9606.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	18:45	19:30	01-22	9674.00	9764.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	19:30	19:35	01-22	9764.00	9764.00	Inclination (°): 1.140, Azimuth (°): 204.960, TVD (ft): 9672.04, Dogleg (°/100 ft): 0.49, Sensor Depth (ft): 9696.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	19:35	20:20	01-22	9764.00	9853.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	20:20	20:25	01-22	9853.00	9853.00	Inclination (°): 1.670, Azimuth (°): 190.810, TVD (ft): 9761.01, Dogleg (°/100 ft): 0.71, Sensor Depth (ft): 9785.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	20:25	21:10	01-22	9853.00	9943.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	21:10	21:15	01-22	9943.00	9943.00	Inclination (°): 1.800, Azimuth (°): 187.640, TVD (ft): 9850.97, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 9875.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	21:15	22:10	01-22	9943.00	10033.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	22:10	22:15	01-22	10033.00	10033.00	Inclination (°): 2.020, Azimuth (°): 194.060, TVD (ft): 9940.92, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 9965.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	22:15	23:05	01-22	10033.00	10122.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-22	23:05	23:10	01-22	10122.00	10122.00	Inclination (°): 1.890, Azimuth (°): 203.380, TVD (ft): 10029.87, Dogleg (°/100 ft): 0.39, Sensor Depth (ft): 10054.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-22	23:10	00:00	01-23	10122.00	10212.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Thursday, Jan 23 00:00 - 23:59 (Day 10 of 25)

Billing: \$11,231.95 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10212.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 45.00
Bit Depth (ft)	11184.00	Drilling Hours	9.50	Sliding WOB (klbs)	45.00 - 50.00
Bottom Hole Depth (ft)	11184.00	Hours Circulating	1.08	Rotating SPM	186.00 - 219.00
Total Distance (ft)	972.00	Hours Sliding	5.75	Sliding SPM	186.00 - 186.00
Distance Rotated (ft)	348.00	Hours Rotating	3.75	Motor RPM	156.00 - 195.00
Distance Slid (ft)	624.00			Surface RPM	30.00 - 30.00
Inclination In	1.71			Flow Rate (gpm)	600.00 - 700.00
Inclination Out	76.44			On Bottom Pressure (psi)	2500.00 - 3000.00
Azimuth In	209.09	% Hours Rotating	39%	Off Bottom Pressure (psi)	2000.00 - 2400.00
Azimuth Out	183.43	% Hours Sliding	61%		
AVG Total ROP (ft/h)	102.14	% Distance Sliding	64%		
AVG Rotating ROP (ft/h)	94.80	% Distance Rotating	36%		
AVG Sliding ROP (ft/h)	108.52				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #4 - Intermediate 8.5"

Date In: Jan 21, 2020, 4:00 Date Out: Jan 23, 2020, 9:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	FLOW RATE: 350-750 MAX DIFF: 1910 psi MAX TQ: 18,710 ft/lbs. BIT RUNS: 1
Vendor	ULTERRA	Lobe/Stage	7/8, 8.5	
S/N	49480	Bend Angle	1.5	
Nozzles	1-14, 2-15's, & 3-16's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	1.085	Wear Pad OD (in)	7.375	
Drilling Hours for Day	2.75	Bit Distances		
Total Drilled for Day (ft)	255.00	Bend: 5.30 ft, Survey: 68.00 ft, Gamma: 53.00 ft		
Drilling Hours for BHA	35.58			POOH Reason
Total Drilled for BHA (ft)	5133.00			
				Change Bottom Hole Assembly: Pooh to P/U Curve tools.

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: RPS616, Style: PDC, Gauge Length (in): 5.00, Size (in): 8.50	ULTERRA	49480	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8, 8.5 FXD 1.5° w/ 8.25" NBS, Size (in): 7.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-006	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Stabilizer Description: 8.25" STAB	DTI	DR43605	4 1/2" IF Box	4 1/2" IF Pin	2.813	6.688		5.19	42.34
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	46.02
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	74.78
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	103.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrig54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.06
HWDP Description: 15 STANDS 5.5" HWDP , Style: Slick	BD		EverDrig54 Box	EverDrig54 Pin	3.875	6.688		1413.66	1520.72

MWD Items

No Items

BHA #5 - Curve 8.5"

Date In: Jan 23, 2020, 9:00 Date Out: Jan 24, 2020, 10:45

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	6.75	Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit: 2	
Vendor	ULTERRA	Lobe/Stage	7/8, 5.0		
S/N	51467	Bend Angle	2.12	MWD Comments	
Nozzles	6-16's	Speed (rev/gal)	0.28		
Total Flow Area (in²)	1.178	Wear Pad OD (in)	7.000	POOH Reason	
Drilling Hours for Day	6.75	Bit Distances			
Total Drilled for Day (ft)	702.00	Bend (Bit to Bend): 4.05 ft, Gamma (Bit to Gamma): 38.00 ft, Survey (Bit to Survey): 53.00 ft		Change Bottom Hole Assembly: Landed Curve / POOH to skid	
Drilling Hours for BHA	7.75				
Total Drilled for BHA (ft)	792.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: CF611, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	ULTERRA	51467	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 FXD 2.12° w/ True Slick, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.02	27.02
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	30.70
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	59.46
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	88.19
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	91.74
Drill Pipe Description: (10) Stands) 5.5" Drill Pipe, Style: Slick	ED		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		896.15	987.89
HWDP Description: (15 Stands) HWDP, Style: Slick	ED		EverDrlg54 Box	EverDrlg54 Pin	3.500	5.500		1413.66	2401.55

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	01-22	23:10	00:00	01-23	10122.00	10212.00	Pressure On (psi): 2400.00, Pressure Off (psi): 1900.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 13500.00, Flow Rate (gpm): 625.00, Strokes Per Minute: 194.00
Survey	46	01-23	00:00	00:05	01-23	10212.00	10212.00	Inclination (°): 1.710, Azimuth (°): 209.090, TVD (ft): 10119.83, Dogleg (°/100 ft): 0.28, Sensor Depth (ft): 10144.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-23	00:05	01:05	01-23	10212.00	10302.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219.00
Survey	46	01-23	01:05	01:10	01-23	10302.00	10302.00	Inclination (°): 1.490, Azimuth (°): 213.660, TVD (ft): 10209.79, Dogleg (°/100 ft): 0.28, Sensor Depth (ft): 10234.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-23	01:10	02:00	01-23	10302.00	10392.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219.00
Survey	46	01-23	02:00	02:05	01-23	10392.00	10392.00	Inclination (°): 1.360, Azimuth (°): 195.730, TVD (ft): 10299.76, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 10324.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	01-23	02:05	03:00	01-23	10392.00	10482.00	Pressure On (psi): 3000.00, Pressure Off (psi): 2400.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219.00
Survey	46	01-23	03:00	03:05	01-23	10467.00	10467.00	Inclination (°): 1.140, Azimuth (°): 154.770, TVD (ft): 10389.74, Dogleg (°/100 ft): 1.00, Sensor Depth (ft): 10414.00, Bit To Sensor (ft): 53.00
Circulating	3	01-23	03:05	04:05	01-23			Circulate
Pooh	7	01-23	04:05	09:00	01-23			POOH for Curve Assembly
Change BHA	6	01-23	09:00	11:30	01-23			P/U BHA #5 / C/O Motor and MWD tool / M/U Bit
Circulating	3	01-23	11:30	11:35	01-23			Test MWD tool & Motor / 630 psi @ 325 GPM
TIH	8	01-23	11:35	16:15	01-23			TIH W/ BHA #??
Rotary Drill	1	01-23	16:15	16:30	01-23	10482.00	10490.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00
Slide Drill	2	01-23	16:30	17:05	01-23	10490.00	10556.00	Toolface: 190, Toolface Type: magnetic
Survey	46	01-23	17:05	17:15	01-23	10556.00	10556.00	Inclination (°): 3.780, Azimuth (°): 166.370, TVD (ft): 10478.65, Dogleg (°/100 ft): 3.00, Sensor Depth (ft): 10503.00, Bit To Sensor (ft): 53.00

Slide Drill	2	01-23	17:15	18:10	01-23	10556.00	10646.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 0, Toolface Type: gravity
Survey	46	01-23	18:10	18:15	01-23	10646.00	10646.00	Inclination (°): 12.260, Azimuth (°): 202.060, TVD (ft): 10567.73, Dogleg (°/100 ft): 10.50, Sensor Depth (ft): 10593.00, Bit To Sensor (ft): 53.00
Slide Drill	2	01-23	18:15	19:00	01-23	10646.00	10736.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 0, Toolface Type: gravity
Survey	46	01-23	19:00	19:05	01-23	10736.00	10736.00	Inclination (°): 24.750, Azimuth (°): 201.270, TVD (ft): 10652.91, Dogleg (°/100 ft): 13.88, Sensor Depth (ft): 10683.00, Bit To Sensor (ft): 53.00
Slide Drill	2	01-23	19:05	19:55	01-23	10736.00	10826.00	Pressure On (psi): 2600.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 45.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 345, Toolface Type: gravity
Survey	46	01-23	19:55	20:00	01-23	10826.00	10826.00	Inclination (°): 36.260, Azimuth (°): 198.280, TVD (ft): 10730.33, Dogleg (°/100 ft): 12.90, Sensor Depth (ft): 10773.00, Bit To Sensor (ft): 53.00
Rotary Drill	1	01-23	20:00	20:10	01-23	10826.00	10836.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00
Slide Drill	2	01-23	20:10	21:00	01-23	10836.00	10915.00	Toolface: 345, Toolface Type: gravity
Survey	46	01-23	21:00	21:05	01-23	10915.00	10915.00	Inclination (°): 46.860, Azimuth (°): 192.130, TVD (ft): 10796.86, Dogleg (°/100 ft): 12.75, Sensor Depth (ft): 10862.00, Bit To Sensor (ft): 53.00
Rotary Drill	1	01-23	21:05	21:20	01-23	10915.00	10940.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00
Slide Drill	2	01-23	21:20	21:55	01-23	10940.00	11005.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 350, Toolface Type: gravity
Survey	46	01-23	21:55	22:00	01-23	11005.00	11005.00	Inclination (°): 53.190, Azimuth (°): 190.980, TVD (ft): 10854.65, Dogleg (°/100 ft): 7.10, Sensor Depth (ft): 10952.00, Bit To Sensor (ft): 53.00
Slide Drill	2	01-23	22:00	22:50	01-23	11005.00	11095.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 345, Toolface Type: gravity
Survey	46	01-23	22:50	22:55	01-23	11095.00	11095.00	Inclination (°): 67.340, Azimuth (°): 187.910, TVD (ft): 10899.18, Dogleg (°/100 ft): 16.00, Sensor Depth (ft): 11042.00, Bit To Sensor (ft): 53.00
Rotary Drill	1	01-23	22:55	23:15	01-23	11095.00	11130.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00
Slide Drill	2	01-23	23:15	23:40	01-23	11130.00	11184.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 350, Toolface Type: gravity
Survey	46	01-23	23:40	23:45	01-23	11184.00	11184.00	Inclination (°): 76.440, Azimuth (°): 183.430, TVD (ft): 10926.83, Dogleg (°/100 ft): 11.29, Sensor Depth (ft): 11131.00, Bit To Sensor (ft): 53.00
Rotary Drill	1	01-23	23:45	00:10	01-24	11184.00	11220.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Jan 24 00:00 - 23:59 (Day 11 of 25)

Billing: N/A (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11184.00	Downhole Hours	10.75	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	11274.00	Drilling Hours	1.00	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	11274.00	Hours Circulating	1.92	Rotating SPM	186.00 - 186.00
Total Distance (ft)	90.00	Hours Sliding	0.25	Sliding SPM	186.00 - 186.00
Distance Rotated (ft)	70.00	Hours Rotating	0.75	Motor RPM	172.00 - 172.00
Distance Slid (ft)	20.00			Surface RPM	30.00 - 30.00
Inclination In	85.58			Flow Rate (gpm)	600.00 - 600.00
Inclination Out	85.58			On Bottom Pressure (psi)	2500.00 - 2700.00
Azimuth In	180.26	% Hours Rotating	75%	Off Bottom Pressure (psi)	2000.00 - 2000.00
Azimuth Out	180.26	% Hours Sliding	25%		
AVG Total ROP (ft/h)	90.00	% Distance Sliding	22%		
AVG Rotating ROP (ft/h)	93.33	% Distance Rotating	78%		
AVG Sliding ROP (ft/h)	80.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #5 - Curve 8.5"

Date In: Jan 23, 2020, 9:00 Date Out: Jan 24, 2020, 10:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.75	Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,480 ft-lbs Runs on bit: 2
Vendor	ULTERRA	Lobe/Stage	7/8, 5.0	
S/N	51467	Bend Angle	2.12	
Nozzles	6-16's	Speed (rev/gal)	0.28	MWD Comments
Total Flow Area (in²)	1.178	Wear Pad OD (in)	7.000	
Drilling Hours for Day	1.00	Bit Distances		
Total Drilled for Day (ft)	90.00	Bend (Bit to Bend): 4.05 ft, Gamma (Bit to Gamma):		POOH Reason
Drilling Hours for BHA	7.75	38.00 ft, Survey (Bit to Survey): 53.00 ft		
Total Drilled for BHA (ft)	792.00			
				Change Bottom Hole Assembly: Landed Curve / POOH to skid

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: CF611, Style: PDC, Gauge Length (in): 2.00, Size (in): 8.50	ULTERRA	51467	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6 3/4" 7/8 5.0 FXD 2.12° w/ True Slick, Size (in): 6.75, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM650-017	4 1/2" IF Box	4 1/2" Reg Box		6.750		26.02	27.02
UBHO Sub Description: 6.75" UBHO, Type: NM	AIM	675-126	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.750		3.68	30.70
Drill Collar Description: 6.75" MWD NMDC, Style: Slick Drill, Type: NM	DTI	DR33250	4 1/2" IF Box	4 1/2" IF Pin	3.938	6.750		28.76	59.46
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	DTI	DR29426	4 1/2" IF Box	4 1/2" IF Pin	3.188	6.375		28.73	88.19
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BD	BD12360	EverDrg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	91.74
Drill Pipe Description: (10) Stands) 5.5" Drill Pipe, Style: Slick	ED		EverDrg54 Box	EverDrg54 Pin	4.000	5.500		896.15	987.89
HWDP Description: (15 Stands) HWDP, Style: Slick	ED		EverDrg54 Box	EverDrg54 Pin	3.500	5.500		1413.66	2401.55

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	01-23	23:45	00:10	01-24	11184.00	11220.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00

Slide Drill	2	01-24	00:10	00:25	01-24	11220.00	11240.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 25, Toolface Type: gravity
Rotary Drill	1	01-24	00:25	00:45	01-24	11240.00	11274.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 15000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186.00
Survey	46	01-24	00:45	00:50	01-24	11274.00	11274.00	Inclination (°): 85.580, Azimuth (°): 180.260, TVD (ft): 10940.88, Dogleg (°/100 ft): 10.73, Sensor Depth (ft): 11221.00, Bit To Sensor (ft): 53.00
Circulating	3	01-24	00:50	02:45	01-24			Circulate, Spot Pill
Pooh	7	01-24	02:45	10:45	01-24			POOH / PULL MWD TOOL / DRAIN MOTOR AND BREAK OFF BIT. P/U NEW MOTOR AND RACK BACK.
Standby	15	01-24	10:45	18:00	01-24			Standby while setting packer and skid rig

MWD Activities

No Activities

	Job Number	Operator		Rig Name
	WT-20-003	Advance Energy Partners		H&P #389
	Start Date	Well Name		Legal Well Name AFE
	2020-01-09	Merchant State Unit 501H		Merchant State Unit 501H
Play		State/Province and Country	County	Company Man
Delaware Basin		New Mexico, US	Lea	

Saturday, Feb 22 00:00 - 23:59 (Day 12 of 25) Billing: \$2,100.00 (\$187,594.25 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
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	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	02-22	00:00	09:00	02-22			Standby
Standby	15	02-22	09:00	21:00	02-22			Standby- Skid from #509H. N/U BOPs & Test. Rig Up
Standby	15	02-22	21:00	00:30	02-23			Standby-Retrieve Packer Tool

MWD Activities								
No Activities								

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Feb 23 00:00 - 23:59 (Day 13 of 25) Billing: \$20,245.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11274.00	Downhole Hours	23.50	Rotating WOB (klbs)	35.00 - 35.00
Bit Depth (ft)	11344.00	Drilling Hours	0.75	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	11344.00	Hours Circulating	3.92	Rotating SPM	216.00 - 216.00
Total Distance (ft)	70.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	70.00	Hours Rotating	0.75	Motor RPM	185.00 - 185.00
Distance Slid (ft)	0.00			Surface RPM	40.00 - 40.00
Inclination In	88.04			Flow Rate (gpm)	700.00 - 700.00
Inclination Out	88.04			On Bottom Pressure (psi)	2700.00 - 2700.00
Azimuth In	180.00	% Hours Rotating	100%	Off Bottom Pressure (psi)	2100.00 - 2100.00
Azimuth Out	180.00	% Hours Sliding	0%		
AVG Total ROP (ft/h)	96.00	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	96.00	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5') Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.75	Bit Distances		
Total Drilled for Day (ft)	70.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		POOH Reason
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			
				Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

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	02-22	21:00	00:30	02-23			Standby-Retrieve Packer Tool
Change BHA	6	02-23	00:30	01:30	02-23			P/U BHA # 6
Other	16	02-23	01:30	02:15	02-23			Troubleshoot Pressure Issue while Testing MWD(Good Test)
TIH	8	02-23	02:15	03:15	02-23			TIH W/ BHA #6
Other	16	02-23	03:15	04:15	02-23			P/U Agitator
TIH	8	02-23	04:15	05:15	02-23			TIH W/ BHA #6
Other	16	02-23	05:15	06:15	02-23			Slip and Cut Drill Line
Other	16	02-23	06:15	06:30	02-23			Install Rotating Head
Circulating	3	02-23	06:30	07:30	02-23			Trouble shoot Excessive pump pressure
Pooh	7	02-23	07:30	12:00	02-23			POOH for Excessive Pump Pressure
Other	16	02-23	12:00	14:15	02-23			Pull MWD tool and break off bit. Clean UBHO Sub of Cutting debris that was packed off around MWD tool and Mule shoe. Circulate through Motor and UBHO at 700 gpm with fresh water. Circulate through agitator to ensure clear of debris. Re-Scibe and M/U bit and Insert MWD tool
Circulating	3	02-23	14:15	14:30	02-23			Test MWD tool and Motor (Good Test)
TIH	8	02-23	14:30	20:20	02-23			TIH W/ BHA #6
Circulating	3	02-23	20:20	23:00	02-23			Relog F/11205' - T/11274'
Rotary Drill	1	02-23	23:00	23:45	02-23	11274.00	11344.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-23	23:45	23:50	02-23	11344.00	11344.00	Inclination (°): 88.040, Azimuth (°): 180.000, TVD (ft): 10944.28, Dogleg (°/100 ft): 4.06, Sensor Depth (ft): 11282.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-23	23:50	00:45	02-24	11344.00	11434.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Feb 24 00:00 - 23:59 (Day 14 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11344.00	Downhole Hours	24.00	Rotating WOB (klbs)	35.00 - 50.00
Bit Depth (ft)	13046.00	Drilling Hours	21.17	Sliding WOB (klbs)	40.00 - 50.00
Bottom Hole Depth (ft)	13046.00	Hours Circulating	0.33	Rotating SPM	216.00 - 216.00
Total Distance (ft)	1737.00	Hours Sliding	6.42	Sliding SPM	216.00 - 216.00
Distance Rotated (ft)	1441.00	Hours Rotating	14.75	Motor RPM	185.00 - 185.00
Distance Slid (ft)	296.00			Surface RPM	40.00 - 50.00
Inclination In	87.34			Flow Rate (gpm)	700.00 - 700.00
Inclination Out	90.29			On Bottom Pressure (psi)	2500.00 - 4450.00
Azimuth In	178.77	% Hours Rotating	70%	Off Bottom Pressure (psi)	2100.00 - 3950.00
Azimuth Out	180.79	% Hours Sliding	30%		
AVG Total ROP (ft/h)	81.50	% Distance Sliding	17%		
AVG Rotating ROP (ft/h)	95.69	% Distance Rotating	83%		
AVG Sliding ROP (ft/h)	46.13				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5')

Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	21.17	Bit Distances		
Total Drilled for Day (ft)	1702.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		POOH Reason Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

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	02-23	23:50	00:45	02-24	11344.00	11434.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	00:45	00:50	02-24	11434.00	11434.00	Inclination (°): 87.340, Azimuth (°): 178.770, TVD (ft): 10947.90, Dogleg (°/100 ft): 1.57, Sensor Depth (ft): 11372.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	00:50	00:55	02-24	11434.00	11442.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 40, Surface Torque (ft lbf): 16000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	00:55	01:35	02-24	11442.00	11472.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 65, Toolface Type: gravity
Rotary Drill	1	02-24	01:35	02:05	02-24	11472.00	11523.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	02:05	02:10	02-24	11523.00	11523.00	Inclination (°): 87.650, Azimuth (°): 180.260, TVD (ft): 10951.79, Dogleg (°/100 ft): 1.71, Sensor Depth (ft): 11461.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	02:10	02:15	02-24	11523.00	11535.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	02:15	02:45	02-24	11535.00	11555.00	Pressure On (psi): 2500.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-24	02:45	03:15	02-24	11555.00	11613.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 35.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	03:15	03:20	02-24	11613.00	11613.00	Inclination (°): 89.850, Azimuth (°): 180.530, TVD (ft): 10953.76, Dogleg (°/100 ft): 2.46, Sensor Depth (ft): 11551.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	03:20	04:15	02-24	11613.00	11702.00	Pressure On (psi): 2700.00, Pressure Off (psi): 2100.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	04:15	04:20	02-24	11702.00	11702.00	Inclination (°): 89.050, Azimuth (°): 179.650, TVD (ft): 10954.61, Dogleg (°/100 ft): 1.34, Sensor Depth (ft): 11640.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	04:20	04:25	02-24	11702.00	11708.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Other	16	02-24	04:25	04:50	02-24			Work on Pumps, Troubleshoot loss of pressure
Slide Drill	2	02-24	04:50	05:15	02-24	11708.00	11733.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 50, Toolface Type: gravity
Rotary Drill	1	02-24	05:15	05:30	02-24	11733.00	11772.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Circulating	3	02-24	05:30	05:50	02-24			Circulate on 1 Mud Pump, while work on Mud Pump
Rotary Drill	1	02-24	05:50	06:05	02-24	11772.00	11791.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	06:05	06:10	02-24	11791.00	11791.00	Inclination (°): 89.850, Azimuth (°): 180.880, TVD (ft): 10955.47, Dogleg (°/100 ft): 1.65, Sensor Depth (ft): 11729.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	06:10	07:00	02-24	11791.00	11881.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	07:00	07:05	02-24	11881.00	11881.00	Inclination (°): 90.860, Azimuth (°): 181.050, TVD (ft): 10954.91, Dogleg (°/100 ft): 1.14, Sensor Depth (ft): 11819.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	07:05	07:55	02-24	11881.00	11971.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	07:55	08:00	02-24	11971.00	11971.00	Inclination (°): 91.210, Azimuth (°): 179.650, TVD (ft): 10953.28, Dogleg (°/100 ft): 1.60, Sensor Depth (ft): 11909.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	08:00	09:05	02-24	11971.00	12060.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	09:05	09:10	02-24	12060.00	12060.00	Inclination (°): 91.080, Azimuth (°): 178.150, TVD (ft): 10951.50, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 11998.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	09:10	09:15	02-24	12060.00	12070.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	09:15	09:55	02-24	12070.00	12095.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	02-24	09:55	10:25	02-24	12095.00	12150.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	10:25	10:30	02-24	12150.00	12150.00	Inclination (°): 89.800, Azimuth (°): 177.890, TVD (ft): 10950.81, Dogleg (°/100 ft): 1.45, Sensor Depth (ft): 12088.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	10:30	10:35	02-24	12150.00	12160.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00

Slide Drill	2	02-24	10:35	11:00	02-24	12160.00	12185.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	02-24	11:00	11:40	02-24	12185.00	12240.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	11:40	11:45	02-24	12240.00	12240.00	Inclination (°): 88.660, Azimuth (°): 179.290, TVD (ft): 10952.02, Dogleg (°/100 ft): 2.01, Sensor Depth (ft): 12178.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	11:45	11:55	02-24	12240.00	12254.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	11:55	12:35	02-24	12254.00	12284.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	02-24	12:35	13:00	02-24	12284.00	12329.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	13:00	13:05	02-24	12329.00	12329.00	Inclination (°): 87.560, Azimuth (°): 179.820, TVD (ft): 10954.96, Dogleg (°/100 ft): 1.37, Sensor Depth (ft): 12267.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	13:05	13:15	02-24	12329.00	12342.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	13:15	13:45	02-24	12342.00	12368.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	02-24	13:45	14:20	02-24	12368.00	12419.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	14:20	14:25	02-24	12419.00	12419.00	Inclination (°): 87.650, Azimuth (°): 182.810, TVD (ft): 10958.72, Dogleg (°/100 ft): 3.32, Sensor Depth (ft): 12357.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	14:25	15:20	02-24	12419.00	12509.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	15:20	15:25	02-24	12509.00	12509.00	Inclination (°): 86.070, Azimuth (°): 180.960, TVD (ft): 10963.65, Dogleg (°/100 ft): 2.70, Sensor Depth (ft): 12447.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-24	15:25	16:00	02-24	12509.00	12544.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-24	16:00	16:40	02-24	12509.00	12598.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	16:40	16:45	02-24	12598.00	12598.00	Inclination (°): 88.840, Azimuth (°): 180.960, TVD (ft): 10967.60, Dogleg (°/100 ft): 3.11, Sensor Depth (ft): 12536.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	16:45	17:40	02-24	12598.00	12688.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	17:40	17:45	02-24	12688.00	12688.00	Inclination (°): 88.700, Azimuth (°): 178.860, TVD (ft): 10969.53, Dogleg (°/100 ft): 2.34, Sensor Depth (ft): 12626.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-24	17:45	18:25	02-24	12688.00	12723.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 50, Toolface Type: gravity
Rotary Drill	1	02-24	18:25	18:55	02-24	12723.00	12777.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 18000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	18:55	19:00	02-24	12777.00	12777.00	Inclination (°): 89.850, Azimuth (°): 179.730, TVD (ft): 10970.66, Dogleg (°/100 ft): 1.62, Sensor Depth (ft): 12715.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	19:00	19:05	02-24	12777.00	12785.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	19:05	19:45	02-24	12785.00	12810.00	Pressure On (psi): 4250.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	02-24	19:45	20:25	02-24	12810.00	12867.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	20:25	20:30	02-24	12867.00	12867.00	Inclination (°): 90.070, Azimuth (°): 181.930, TVD (ft): 10970.72, Dogleg (°/100 ft): 2.46, Sensor Depth (ft): 12805.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	20:30	21:30	02-24	12867.00	12957.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	21:30	21:35	02-24	12957.00	12957.00	Inclination (°): 89.800, Azimuth (°): 181.400, TVD (ft): 10970.82, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 12895.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	21:35	21:45	02-24	12957.00	12963.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-24	21:45	22:25	02-24	12963.00	12983.00	Pressure On (psi): 4250.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 0, Toolface Type: gravity

Rotary Drill	1	02-24	22:25	23:15	02-24	12983.00	13046.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-24	23:15	23:20	02-24	13046.00	13046.00	Inclination (°): 90.290, Azimuth (°): 180.790, TVD (ft): 10970.75, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 12984.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-24	23:20	00:35	02-25	13046.00	13136.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
MWD Activities								
No Activities								



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Tuesday, Feb 25 00:00 - 23:59 (Day 15 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	13046.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	14390.00	Drilling Hours	22.75	Sliding WOB (klbs)	50.00 - 55.00
Bottom Hole Depth (ft)	14390.00	Hours Circulating	0.00	Rotating SPM	216.00 - 222.00
Total Distance (ft)	1344.00	Hours Sliding	7.33	Sliding SPM	216.00 - 222.00
Distance Rotated (ft)	1096.00	Hours Rotating	15.42	Motor RPM	185.00 - 185.00
Distance Slid (ft)	248.00			Surface RPM	30.00 - 50.00
Inclination In	88.88			Flow Rate (gpm)	700.00 - 715.00
Inclination Out	87.16			On Bottom Pressure (psi)	4200.00 - 4850.00
Azimuth In	178.50	% Hours Rotating	68%	Off Bottom Pressure (psi)	3850.00 - 3950.00
Azimuth Out	179.38	% Hours Sliding	32%		
AVG Total ROP (ft/h)	60.34	% Distance Sliding	18%		
AVG Rotating ROP (ft/h)	72.18	% Distance Rotating	82%		
AVG Sliding ROP (ft/h)	33.82				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5')

Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	22.75	Bit Distances		
Total Drilled for Day (ft)	1344.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		POOH Reason Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

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	02-24	23:20	00:35	02-25	13046.00	13136.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Other	16	02-25	00:35	00:55	02-25			Tight Connection
Survey	46	02-25	00:55	01:00	02-25	13136.00	13136.00	Inclination (°): 88.880, Azimuth (°): 178.500, TVD (ft): 10971.41, Dogleg (°/100 ft): 2.99, Sensor Depth (ft): 13074.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	01:00	01:05	02-25	13136.00	13140.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	02-25	01:05	02:10	02-25	13140.00	13180.00	Pressure On (psi): 4250.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 50, Toolface Type: gravity
Rotary Drill	1	02-25	02:10	02:35	02-25	13180.00	13225.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	02-25	02:35	02:40	02-25	13225.00	13225.00	Inclination (°): 89.360, Azimuth (°): 180.170, TVD (ft): 10972.77, Dogleg (°/100 ft): 1.95, Sensor Depth (ft): 13163.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	02:40	03:15	02-25	13225.00	13315.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Survey	46	02-25	03:15	03:20	02-25	13315.00	13315.00	Inclination (°): 89.140, Azimuth (°): 179.730, TVD (ft): 10973.95, Dogleg (°/100 ft): 0.55, Sensor Depth (ft): 13253.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	03:20	03:25	02-25	13315.00	13320.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	03:25	04:05	02-25	13320.00	13345.00	Pressure On (psi): 4250.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	02-25	04:05	04:40	02-25	13345.00	13404.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Survey	46	02-25	04:40	04:50	02-25	13404.00	13404.00	Inclination (°): 90.770, Azimuth (°): 180.090, TVD (ft): 10974.02, Dogleg (°/100 ft): 1.88, Sensor Depth (ft): 13342.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	04:50	05:50	02-25	13404.00	13494.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Other	16	02-25	05:50	06:00	02-25			Downlink MWD
Survey	46	02-25	06:00	06:05	02-25	13494.00	13494.00	Inclination (°): 90.950, Azimuth (°): 179.210, TVD (ft): 10972.67, Dogleg (°/100 ft): 1.00, Sensor Depth (ft): 13432.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	06:05	06:15	02-25	13494.00	13504.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	06:15	07:05	02-25	13504.00	13544.00	Pressure On (psi): 4250.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 90, Toolface Type: gravity
Rotary Drill	1	02-25	07:05	07:45	02-25	13544.00	13584.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Survey	46	02-25	07:45	07:50	02-25	13584.00	13584.00	Inclination (°): 89.630, Azimuth (°): 178.940, TVD (ft): 10972.22, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 13522.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	07:50	09:00	02-25	13584.00	13673.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Survey	46	02-25	09:00	09:05	02-25	13673.00	13673.00	Inclination (°): 87.820, Azimuth (°): 180.260, TVD (ft): 10974.20, Dogleg (°/100 ft): 2.52, Sensor Depth (ft): 13611.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	09:05	09:15	02-25	13673.00	13683.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	09:15	10:00	02-25	13683.00	13705.00	Toolface: 50, Toolface Type: gravity
Rotary Drill	1	02-25	10:00	11:15	02-25	13705.00	13763.00	Pressure On (psi): 4850.00, Pressure Off (psi): 3950.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 712.00, Strokes Per Minute: 222.00
Survey	46	02-25	11:15	11:20	02-25	13763.00	13763.00	Inclination (°): 87.380, Azimuth (°): 179.730, TVD (ft): 10977.96, Dogleg (°/100 ft): 0.76, Sensor Depth (ft): 13701.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	11:20	11:25	02-25	13763.00	13768.00	Pressure On (psi): 4450.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 24000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	11:25	12:30	02-25	13768.00	13798.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-25	12:30	13:25	02-25	13798.00	13852.00	
Survey	46	02-25	13:25	13:30	02-25	13852.00	13852.00	Inclination (°): 89.630, Azimuth (°): 182.370, TVD (ft): 10980.29, Dogleg (°/100 ft): 3.90, Sensor Depth (ft): 13790.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	13:30	15:00	02-25	13852.00	13942.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	15:00	15:05	02-25	13942.00	13942.00	Inclination (°): 89.140, Azimuth (°): 181.230, TVD (ft): 10981.25, Dogleg (°/100 ft): 1.38, Sensor Depth (ft): 13880.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	15:05	16:25	02-25	13942.00	14031.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	16:25	16:30	02-25	14031.00	14031.00	Inclination (°): 88.180, Azimuth (°): 178.860, TVD (ft): 10983.33, Dogleg (°/100 ft): 2.87, Sensor Depth (ft): 13969.00, Bit To Sensor (ft): 62.00

Rotary Drill	1	02-25	16:30	16:35	02-25	14031.00	14035.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	16:35	17:35	02-25	14035.00	14066.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 90, Toolface Type: gravity
Rotary Drill	1	02-25	17:35	18:30	02-25	14066.00	14121.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	18:30	18:35	02-25	14121.00	14121.00	Inclination (°): 89.490, Azimuth (°): 180.790, TVD (ft): 10985.16, Dogleg (°/100 ft): 2.59, Sensor Depth (ft): 14059.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	18:35	18:55	02-25	14121.00	14145.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	18:55	20:00	02-25	14145.00	14175.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	02-25	20:00	20:35	02-25	14175.00	14211.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	20:35	20:40	02-25	14211.00	14211.00	Inclination (°): 88.440, Azimuth (°): 181.050, TVD (ft): 10986.79, Dogleg (°/100 ft): 1.20, Sensor Depth (ft): 14149.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	20:40	22:00	02-25	14211.00	14300.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	22:00	22:05	02-25	14300.00	14300.00	Inclination (°): 85.360, Azimuth (°): 179.910, TVD (ft): 10991.60, Dogleg (°/100 ft): 3.69, Sensor Depth (ft): 14238.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	22:05	22:10	02-25	14300.00	14305.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-25	22:10	23:00	02-25	14305.00	14335.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-25	23:00	23:50	02-25	14335.00	14390.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-25	23:50	23:55	02-25	14390.00	14390.00	Inclination (°): 87.160, Azimuth (°): 179.380, TVD (ft): 10997.47, Dogleg (°/100 ft): 2.08, Sensor Depth (ft): 14328.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-25	23:55	00:55	02-26	14390.00	14479.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00

MWD Activities								
No Activities								



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Wednesday, Feb 26 00:00 - 23:59 (Day 16 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	14390.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	15690.00	Drilling Hours	21.08	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	15690.00	Hours Circulating	0.00	Rotating SPM	222.00 - 222.00
Total Distance (ft)	1300.00	Hours Sliding	8.67	Sliding SPM	222.00 - 222.00
Distance Rotated (ft)	1007.00	Hours Rotating	12.42	Motor RPM	185.00 - 185.00
Distance Slid (ft)	293.00			Surface RPM	50.00 - 50.00
Inclination In	87.43			Flow Rate (gpm)	715.00 - 715.00
Inclination Out	90.20			On Bottom Pressure (psi)	4200.00 - 4350.00
Azimuth In	178.24	% Hours Rotating	59%	Off Bottom Pressure (psi)	3850.00 - 3850.00
Azimuth Out	179.21	% Hours Sliding	41%		
AVG Total ROP (ft/h)	61.66	% Distance Sliding	23%		
AVG Rotating ROP (ft/h)	81.10	% Distance Rotating	77%		
AVG Sliding ROP (ft/h)	33.81				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5')

Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor
Drilling Hours for Day	21.08	Bit Distances		
Total Drilled for Day (ft)	1300.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

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	02-25	23:55	00:55	02-26	14390.00	14479.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	00:55	01:00	02-26	14479.00	14479.00	Inclination (°): 87.430, Azimuth (°): 178.240, TVD (ft): 11001.67, Dogleg (°/100 ft): 1.31, Sensor Depth (ft): 14417.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	01:00	02:10	02-26	14479.00	14568.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	02:10	02:15	02-26	14568.00	14568.00	Inclination (°): 86.510, Azimuth (°): 176.750, TVD (ft): 11006.38, Dogleg (°/100 ft): 1.97, Sensor Depth (ft): 14506.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-26	02:15	03:35	02-26	14568.00	14608.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-26	03:35	04:30	02-26	14608.00	14658.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	04:30	04:40	02-26	14658.00	14658.00	Inclination (°): 86.860, Azimuth (°): 178.770, TVD (ft): 11011.58, Dogleg (°/100 ft): 2.27, Sensor Depth (ft): 14596.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	04:40	04:45	02-26	14658.00	14662.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	04:45	06:10	02-26	14662.00	14697.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	02-26	06:10	06:45	02-26	14697.00	14747.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	06:45	06:50	02-26	14747.00	14747.00	Inclination (°): 87.030, Azimuth (°): 181.400, TVD (ft): 11016.33, Dogleg (°/100 ft): 2.96, Sensor Depth (ft): 14685.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	06:50	07:50	02-26	14747.00	14828.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Rig Repair	14	02-26	07:50	09:30	02-26			Rig Power shut down due to Generator malfunction
Rotary Drill	1	02-26	09:30	09:35	02-26	14828.00	14837.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	09:35	09:40	02-26	14837.00	14837.00	Inclination (°): 86.240, Azimuth (°): 180.000, TVD (ft): 11021.61, Dogleg (°/100 ft): 1.78, Sensor Depth (ft): 14775.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	09:40	09:50	02-26	14837.00	14847.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	09:50	10:55	02-26	14847.00	14882.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-26	10:55	11:40	02-26	14882.00	14927.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	11:40	11:45	02-26	14927.00	14927.00	Inclination (°): 86.950, Azimuth (°): 179.030, TVD (ft): 11026.96, Dogleg (°/100 ft): 1.33, Sensor Depth (ft): 14865.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	11:45	11:55	02-26	14927.00	14940.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	11:55	12:55	02-26	14940.00	14972.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-26	12:55	13:25	02-26	14972.00	15017.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	13:25	13:30	02-26	15017.00	15017.00	Inclination (°): 87.820, Azimuth (°): 178.770, TVD (ft): 11031.06, Dogleg (°/100 ft): 1.01, Sensor Depth (ft): 14955.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	13:30	13:40	02-26	15017.00	15030.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	13:40	14:25	02-26	15030.00	15066.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-26	14:25	14:50	02-26	15066.00	15106.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	14:50	14:55	02-26	15106.00	15106.00	Inclination (°): 88.350, Azimuth (°): 181.320, TVD (ft): 11034.04, Dogleg (°/100 ft): 2.92, Sensor Depth (ft): 15044.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	14:55	15:55	02-26	15106.00	15196.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	15:55	16:00	02-26	15196.00	15196.00	Inclination (°): 87.250, Azimuth (°): 182.370, TVD (ft): 11037.49, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 15134.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	16:00	16:10	02-26	15196.00	15209.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	16:10	16:55	02-26	15209.00	15229.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	02-26	16:55	17:30	02-26	15229.00	15285.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00

Survey	46	02-26	17:30	17:35	02-26	15285.00	15285.00	Inclination (°): 86.420, Azimuth (°): 182.550, TVD (ft): 11042.40, Dogleg (°/100 ft): 0.95, Sensor Depth (ft): 15223.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-26	17:35	18:30	02-26	15285.00	15320.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	02-26	18:30	19:00	02-26	15320.00	15375.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	19:00	19:10	02-26	15375.00	15375.00	Inclination (°): 88.350, Azimuth (°): 182.280, TVD (ft): 11046.51, Dogleg (°/100 ft): 2.17, Sensor Depth (ft): 15313.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	19:10	20:20	02-26	15375.00	15465.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	20:20	20:25	02-26	15465.00	15465.00	Inclination (°): 88.620, Azimuth (°): 181.580, TVD (ft): 11048.89, Dogleg (°/100 ft): 0.83, Sensor Depth (ft): 15403.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	20:25	20:35	02-26	15465.00	15471.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	20:35	21:15	02-26	15471.00	15496.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	02-26	21:15	21:50	02-26	15496.00	15555.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	21:50	21:55	02-26	15555.00	15555.00	Inclination (°): 88.350, Azimuth (°): 178.770, TVD (ft): 11051.27, Dogleg (°/100 ft): 3.14, Sensor Depth (ft): 15493.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	21:55	22:05	02-26	15555.00	15560.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-26	22:05	22:50	02-26	15560.00	15595.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-26	22:50	23:20	02-26	15595.00	15644.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-26	23:20	23:25	02-26	15644.00	15644.00	Inclination (°): 90.200, Azimuth (°): 179.210, TVD (ft): 11052.40, Dogleg (°/100 ft): 2.14, Sensor Depth (ft): 15582.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-26	23:25	00:00	02-27	15644.00	15690.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Thursday, Feb 27 00:00 - 23:59 (Day 17 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15690.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 60.00
Bit Depth (ft)	17241.00	Drilling Hours	22.58	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	17241.00	Hours Circulating	0.00	Rotating SPM	222.00 - 222.00
Total Distance (ft)	1551.00	Hours Sliding	7.58	Sliding SPM	222.00 - 222.00
Distance Rotated (ft)	1291.00	Hours Rotating	15.00	Motor RPM	185.00 - 185.00
Distance Slid (ft)	260.00			Surface RPM	50.00 - 60.00
Inclination In	91.56			Flow Rate (gpm)	715.00 - 715.00
Inclination Out	87.91			On Bottom Pressure (psi)	4200.00 - 4950.00
Azimuth In	179.12	% Hours Rotating	66%	Off Bottom Pressure (psi)	3850.00 - 4200.00
Azimuth Out	180.44	% Hours Sliding	34%		
AVG Total ROP (ft/h)	68.94	% Distance Sliding	17%		
AVG Rotating ROP (ft/h)	85.80	% Distance Rotating	83%		
AVG Sliding ROP (ft/h)	34.29				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5')

Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor
Drilling Hours for Day	22.58	Bit Distances		
Total Drilled for Day (ft)	1551.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

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	02-26	23:25	00:00	02-27	15644.00	15690.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Rotary Drill	1	02-27	00:00	00:30	02-27	15690.00	15733.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	00:30	00:35	02-27	15733.00	15733.00	Inclination (°): 91.560, Azimuth (°): 179.120, TVD (ft): 11051.03, Dogleg (°/100 ft): 1.53, Sensor Depth (ft): 15671.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	00:35	01:25	02-27	15733.00	15823.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	01:25	01:30	02-27	15823.00	15823.00	Inclination (°): 92.180, Azimuth (°): 177.710, TVD (ft): 11048.09, Dogleg (°/100 ft): 1.71, Sensor Depth (ft): 15761.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	01:30	01:40	02-27	15823.00	15827.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-27	01:40	02:50	02-27	15827.00	15852.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 135, Toolface Type: gravity
Rotary Drill	1	02-27	02:50	03:30	02-27	15852.00	15913.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	03:30	03:35	02-27	15913.00	15913.00	Inclination (°): 92.130, Azimuth (°): 177.710, TVD (ft): 11044.71, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 15851.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	03:35	05:10	02-27	15913.00	16002.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	05:10	05:15	02-27	16002.00	16002.00	Inclination (°): 91.120, Azimuth (°): 177.710, TVD (ft): 11042.18, Dogleg (°/100 ft): 1.13, Sensor Depth (ft): 15940.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	05:15	05:25	02-27	16002.00	16005.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-27	05:25	06:00	02-27	16005.00	16030.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	02-27	06:00	06:40	02-27	16030.00	16092.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	06:40	06:45	02-27	16092.00	16092.00	Inclination (°): 87.650, Azimuth (°): 177.450, TVD (ft): 11043.15, Dogleg (°/100 ft): 3.87, Sensor Depth (ft): 16030.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	06:45	06:50	02-27	16092.00	16098.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-27	06:50	07:35	02-27	16098.00	16128.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	02-27	07:35	08:15	02-27	16128.00	16181.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	08:15	08:20	02-27	16181.00	16181.00	Inclination (°): 87.690, Azimuth (°): 178.590, TVD (ft): 11046.77, Dogleg (°/100 ft): 1.28, Sensor Depth (ft): 16119.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	08:20	09:20	02-27	16181.00	16271.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	09:20	09:25	02-27	16271.00	16271.00	Inclination (°): 86.680, Azimuth (°): 177.540, TVD (ft): 11051.19, Dogleg (°/100 ft): 1.62, Sensor Depth (ft): 16209.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-27	09:25	10:20	02-27	16271.00	16306.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 50, Toolface Type: gravity
Rotary Drill	1	02-27	10:20	11:00	02-27	16306.00	16361.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	11:00	11:05	02-27	16361.00	16361.00	Inclination (°): 88.180, Azimuth (°): 177.800, TVD (ft): 11055.22, Dogleg (°/100 ft): 1.69, Sensor Depth (ft): 16299.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-27	11:05	11:50	02-27	16361.00	16391.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	02-27	11:50	12:35	02-27	16391.00	16450.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	12:35	12:40	02-27	16450.00	16450.00	Inclination (°): 89.010, Azimuth (°): 180.880, TVD (ft): 11057.41, Dogleg (°/100 ft): 3.58, Sensor Depth (ft): 16388.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	12:40	13:35	02-27	16450.00	16539.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	13:35	13:40	02-27	16539.00	16539.00	Inclination (°): 89.320, Azimuth (°): 180.350, TVD (ft): 11058.70, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 16477.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	13:40	14:35	02-27	16539.00	16629.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	14:35	14:40	02-27	16629.00	16629.00	Inclination (°): 88.040, Azimuth (°): 179.290, TVD (ft): 11060.78, Dogleg (°/100 ft): 1.85, Sensor Depth (ft): 16567.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-27	14:40	15:35	02-27	16629.00	16659.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 45, Toolface Type: gravity

Rotary Drill	1	02-27	15:35	16:05	02-27	16659.00	16719.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	16:05	16:10	02-27	16719.00	16719.00	Inclination (°): 87.780, Azimuth (°): 178.940, TVD (ft): 11064.06, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 16657.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-27	16:10	17:05	02-27	16719.00	16749.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-27	17:05	17:50	02-27	16749.00	16808.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	17:50	17:55	02-27	16808.00	16808.00	Inclination (°): 89.630, Azimuth (°): 179.820, TVD (ft): 11066.07, Dogleg (°/100 ft): 2.30, Sensor Depth (ft): 16746.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	17:55	18:00	02-27	16808.00	16815.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-27	18:00	18:40	02-27	16815.00	16840.00	Pressure On (psi): 4200.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 45, Toolface Type: gravity
Rotary Drill	1	02-27	18:40	19:15	02-27	16840.00	16898.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	19:15	19:20	02-27	16898.00	16898.00	Inclination (°): 91.600, Azimuth (°): 180.260, TVD (ft): 11065.10, Dogleg (°/100 ft): 2.24, Sensor Depth (ft): 16836.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	19:20	20:25	02-27	16898.00	16987.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	20:25	20:30	02-27	16987.00	16987.00	Inclination (°): 91.080, Azimuth (°): 181.140, TVD (ft): 11063.02, Dogleg (°/100 ft): 1.15, Sensor Depth (ft): 16925.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	20:30	21:40	02-27	16987.00	17077.00	Pressure On (psi): 4350.00, Pressure Off (psi): 3850.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 23000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-27	21:40	21:45	02-27	17077.00	17077.00	Inclination (°): 89.630, Azimuth (°): 181.230, TVD (ft): 11062.47, Dogleg (°/100 ft): 1.61, Sensor Depth (ft): 17015.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	21:45	22:35	02-27	17077.00	17167.00	
Survey	46	02-27	22:35	22:40	02-27	17167.00	17167.00	Inclination (°): 87.910, Azimuth (°): 180.440, TVD (ft): 11064.40, Dogleg (°/100 ft): 2.10, Sensor Depth (ft): 17105.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-27	22:40	22:50	02-27	17167.00	17172.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Slide Drill	2	02-27	22:50	23:45	02-27	17172.00	17202.00	Pressure On (psi): 4600.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	02-27	23:45	00:00	02-28	17202.00	17241.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Friday, Feb 28 00:00 - 23:59 (Day 18 of 25)

Billing: \$20,245.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	17241.00	Downhole Hours	24.00	Rotating WOB (klbs)	60.00 - 60.00
Bit Depth (ft)	17405.00	Drilling Hours	3.33	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	17405.00	Hours Circulating	1.58	Rotating SPM	183.00 - 222.00
Total Distance (ft)	164.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	164.00	Hours Rotating	3.33	Motor RPM	156.00 - 185.00
Distance Slid (ft)	0.00			Surface RPM	60.00 - 60.00
Inclination In	87.34			Flow Rate (gpm)	600.00 - 715.00
Inclination Out	87.87			On Bottom Pressure (psi)	4100.00 - 4950.00
Azimuth In	179.56	% Hours Rotating	100%	Off Bottom Pressure (psi)	3500.00 - 4200.00
Azimuth Out	179.73	% Hours Sliding	0%		
AVG Total ROP (ft/h)	56.65	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	56.65	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #6 - BHA #6 (Lateral 8.5')

Date In: Feb 23, 2020, 0:30 Date Out: Feb 28, 2020, 12:30

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs: 0
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A264172	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	2.58	Bit Distances		
Total Drilled for Day (ft)	127.00	Bend (Bit to Bend): 5.36 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		POOH Reason Change Bottom Hole Assembly: Torquing up and pressuring up when trying to drill ahead. POOH to change Bit and Motor
Drilling Hours for BHA	90.92			
Total Drilled for BHA (ft)	6094.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A264172	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" 7/8 8.5 1.75° FXD w/Slick Sleeve, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-018	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.23	37.23
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.23
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.15
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.08
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.63
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.31
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.90
Agitator Description: Agitator, Size (in): 7.00	NOV	AGHE 0675-0063	4 1/2" IF Box	4 1/2" IF Pin		7.000		25.43	2825.33
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2828.98

MWD Items

No Items

BHA #7 - BHA #7 (8.5" Lateral)

Date In: Feb 28, 2020, 12:30 Date Out: Mar 1, 2020, 3:15

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs,	
Vendor	NOV	Lobe/Stage	7/8, 8.5		
S/N	A255306	Bend Angle	1.75		
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason Penetration Rate: Loss of ROP. POOH for bit	
Drilling Hours for Day	0.75	Bit Distances			
Total Drilled for Day (ft)	37.00	Bend (Bit to Bend): 5.32 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft			
Drilling Hours for BHA	16.50				
Total Drilled for BHA (ft)	1035.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A255306	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.24
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.16
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.09
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.64
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.32
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.91
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.51
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.16

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	02-27	23:45	00:00	02-28	17202.00	17241.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Rotary Drill	1	02-28	00:00	00:15	02-28	17241.00	17256.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-28	00:15	00:25	02-28	17256.00	17256.00	Inclination (°): 87.340, Azimuth (°): 179.560, TVD (ft): 11068.09, Dogleg (°/100 ft): 1.18, Sensor Depth (ft): 17194.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-28	00:25	01:25	02-28	17256.00	17346.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Survey	46	02-28	01:25	01:30	02-28	17346.00	17346.00	Inclination (°): 87.870, Azimuth (°): 179.730, TVD (ft): 11071.85, Dogleg (°/100 ft): 0.62, Sensor Depth (ft): 17284.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-28	01:30	02:50	02-28	17346.00	17368.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4200.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 35000.00, Flow Rate (gpm): 715.00, Strokes Per Minute: 222.00
Circulating	3	02-28	02:50	04:25	02-28			Circulate
Pooh	7	02-28	04:25	12:30	02-28			POOH for Excessive Torque and ROP
Change BHA	6	02-28	12:30	13:45	02-28			P/U BHA # 7
TIH	8	02-28	13:45	16:30	02-28			TIH W/ BHA #7
Other	16	02-28	16:30	17:30	02-28			Slip and Cut Drill Line
TIH	8	02-28	17:30	23:15	02-28			TIH W/ BHA #7
Rotary Drill	1	02-28	23:15	00:00	02-29	17368.00	17405.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Saturday, Feb 29 00:00 - 23:59 (Day 19 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	17405.00	Downhole Hours	24.00	Rotating WOB (klbs)	60.00 - 60.00
Bit Depth (ft)	18403.00	Drilling Hours	15.75	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	18403.00	Hours Circulating	0.67	Rotating SPM	183.00 - 183.00
Total Distance (ft)	998.00	Hours Sliding	6.92	Sliding SPM	186.00 - 186.00
Distance Rotated (ft)	850.00	Hours Rotating	8.83	Motor RPM	156.00 - 156.00
Distance Slid (ft)	148.00			Surface RPM	60.00 - 60.00
Inclination In	91.38			Flow Rate (gpm)	600.00 - 600.00
Inclination Out	85.89			On Bottom Pressure (psi)	3800.00 - 4100.00
Azimuth In	179.73	% Hours Rotating	56%	Off Bottom Pressure (psi)	3500.00 - 3500.00
Azimuth Out	179.47	% Hours Sliding	44%		
AVG Total ROP (ft/h)	62.73	% Distance Sliding	15%		
AVG Rotating ROP (ft/h)	92.56	% Distance Rotating	85%		
AVG Sliding ROP (ft/h)	21.40				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #7 - BHA #7 (8.5" Lateral)

Date In: Feb 28, 2020, 12:30 Date Out: Mar 1, 2020, 3:15

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs,
Vendor	NOV	Lobe/Stage	7/8, 8.5	
S/N	A255306	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	15.75	Bit Distances		
Total Drilled for Day (ft)	998.00	Bend (Bit to Bend): 5.32 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		
Drilling Hours for BHA	16.50			
Total Drilled for BHA (ft)	1035.00			
				POOH Reason
				Penetration Rate: Loss of ROP. POOH for bit

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50	NOV	A255306	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.24
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.16
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.09
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.64
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.32
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.91
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.51
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.16

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	02-28	23:15	00:00	02-29	17368.00	17405.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Rotary Drill	1	02-29	00:00	00:15	02-29	17405.00	17445.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	00:15	00:20	02-29	17445.00	17445.00	Inclination (°): 91.380, Azimuth (°): 179.730, TVD (ft): 11072.49, Dogleg (°/100 ft): 3.55, Sensor Depth (ft): 17383.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	00:20	00:35	02-29	17445.00	17450.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Slide Drill	2	02-29	00:35	01:10	02-29	17450.00	17475.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 160, Toolface Type: gravity
Rotary Drill	1	02-29	01:10	01:20	02-29	17475.00	17534.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	01:20	01:25	02-29	17534.00	17534.00	Inclination (°): 88.130, Azimuth (°): 180.700, TVD (ft): 11072.88, Dogleg (°/100 ft): 3.81, Sensor Depth (ft): 17472.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	01:25	02:15	02-29	17534.00	17624.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	02:15	02:20	02-29	17624.00	17624.00	Inclination (°): 86.110, Azimuth (°): 181.400, TVD (ft): 11077.40, Dogleg (°/100 ft): 2.38, Sensor Depth (ft): 17562.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	02:20	02:30	02-29	17624.00	17629.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Slide Drill	2	02-29	02:30	03:10	02-29	17629.00	17659.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	02-29	03:10	03:30	02-29	17659.00	17713.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	03:30	03:35	02-29	17713.00	17713.00	Inclination (°): 87.960, Azimuth (°): 181.670, TVD (ft): 11082.00, Dogleg (°/100 ft): 2.10, Sensor Depth (ft): 17651.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	03:35	04:15	02-29	17713.00	17803.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	04:15	04:20	02-29	17803.00	17803.00	Inclination (°): 88.040, Azimuth (°): 181.230, TVD (ft): 11085.14, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 17741.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	04:20	04:25	02-29	17803.00	17808.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Slide Drill	2	02-29	04:25	04:50	02-29	17808.00	17828.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	02-29	04:50	05:20	02-29	17828.00	17892.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	05:20	05:25	02-29	17892.00	17892.00	Inclination (°): 90.460, Azimuth (°): 182.280, TVD (ft): 11086.31, Dogleg (°/100 ft): 2.96, Sensor Depth (ft): 17830.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	05:25	06:20	02-29	17892.00	17982.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	06:20	06:25	02-29	17982.00	17982.00	Inclination (°): 90.950, Azimuth (°): 182.460, TVD (ft): 11085.20, Dogleg (°/100 ft): 0.58, Sensor Depth (ft): 17920.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	06:25	07:25	02-29	17982.00	18072.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	07:25	07:30	02-29	18072.00	18072.00	Inclination (°): 92.220, Azimuth (°): 182.110, TVD (ft): 11082.71, Dogleg (°/100 ft): 1.46, Sensor Depth (ft): 18010.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-29	07:30	10:25	02-29	18072.00	18105.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 180, Toolface Type: gravity RECYCLED 3 TIMES AND TRIED TO DOWNLINK TO A 1 SEC PULSE WIDTH(ATTEMPT FAILED)
Rotary Drill	1	02-29	10:25	11:05	02-29	18105.00	18161.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00 DOWNLINK MWD TOOL (UNSUCCESSFUL)
Other Survey	16 46	02-29 02-29	11:05 11:15	11:15 11:20	02-29 02-29	18161.00 18161.00	18161.00 18161.00	Inclination (°): 87.250, Azimuth (°): 181.840, TVD (ft): 11083.12, Dogleg (°/100 ft): 5.59, Sensor Depth (ft): 18099.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	11:20	11:55	02-29	18161.00	18230.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00

Slide Drill	2	02-29	11:55	12:30	02-29	18230.00	18241.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 330, Toolface Type: gravity
Rotary Drill	1	02-29	12:30	12:45	02-29	18241.00	18250.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	12:45	12:50	02-29	18250.00	18250.00	Inclination (°): 85.450, Azimuth (°): 181.050, TVD (ft): 11088.79, Dogleg (°/100 ft): 2.21, Sensor Depth (ft): 18188.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	02-29	12:50	13:00	02-29	18250.00	18264.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Slide Drill	2	02-29	13:00	13:55	02-29	18264.00	18278.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 310, Toolface Type: gravity
Rotary Drill	1	02-29	13:55	14:30	02-29	18278.00	18340.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Survey	46	02-29	14:30	14:35	02-29	18340.00	18340.00	Inclination (°): 85.890, Azimuth (°): 179.470, TVD (ft): 11095.58, Dogleg (°/100 ft): 1.82, Sensor Depth (ft): 18278.00, Bit To Sensor (ft): 62.00
Slide Drill	2	02-29	14:35	15:25	02-29	18340.00	18355.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 186, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	02-29	15:25	16:50	02-29	18355.00	18403.00	Pressure On (psi): 4100.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 60.00, Surface RPM: 60, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 600.00, Strokes Per Minute: 183.00
Circulating	3	02-29	16:50	17:30	02-29			CIRCULATE TO POOH DUE TO DECREASE IN ROP
Pooh	7	02-29	17:30	02:00	03-01			POOH

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Sunday, Mar 01 00:00 - 23:59 (Day 20 of 25)

Billing: \$20,245.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	18403.00	Downhole Hours	24.00	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	19235.00	Drilling Hours	9.17	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	19235.00	Hours Circulating	0.00	Rotating SPM	231.00 - 231.00
Total Distance (ft)	832.00	Hours Sliding	3.17	Sliding SPM	220.00 - 220.00
Distance Rotated (ft)	739.00	Hours Rotating	6.00	Motor RPM	156.00 - 195.00
Distance Slid (ft)	93.00			Surface RPM	35.00 - 35.00
Inclination In	88.13			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	86.68			On Bottom Pressure (psi)	3800.00 - 5700.00
Azimuth In	178.06	% Hours Rotating	65%	Off Bottom Pressure (psi)	3500.00 - 5000.00
Azimuth Out	178.06	% Hours Sliding	35%		
AVG Total ROP (ft/h)	90.76	% Distance Sliding	11%		
AVG Rotating ROP (ft/h)	123.17	% Distance Rotating	89%		
AVG Sliding ROP (ft/h)	29.37				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #7 - BHA #7 (8.5" Lateral)

Date In: Feb 28, 2020, 12:30 Date Out: Mar 1, 2020, 3:15

Bit Details		Motor Details		Directional Comments		
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs,		
Vendor	NOV	Lobe/Stage	7/8, 8.5			
S/N	A255306	Bend Angle	1.75			
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments		
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	<th>POOH Reason</th> <td>Penetration Rate: Loss of ROP. POOH for bit</td>	POOH Reason	Penetration Rate: Loss of ROP. POOH for bit
Drilling Hours for Day	0.00	Bit Distances				
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.32 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft				
Drilling Hours for BHA	16.50					
Total Drilled for BHA (ft)	1035.00					

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: <i>TKC66, Style: PDC, Gauge Length (in): 6.00, Size (in): 8.50</i>	NOV	A255306	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: <i>1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5</i>	AIM	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
UBHO Sub Description: <i>LORDE NM UBHO, Type: NM</i>	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.24
Drill Collar Description: <i>NMDC(MWD), Style: Slick Drill, Type: NM</i>	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.16
Drill Collar Description: <i>NMDC, Style: Slick Drill, Type: NM</i>	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.09
Crossover Sub Description: <i>X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel</i>	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.64
Drill Pipe Description: <i>30 Stands of 5.5" Drill Pipe, Style: Slick</i>	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.32
Crossover Sub Description: <i>X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel</i>	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.91
Agitator Description: <i>Agitator, Size (in): 6.75</i>	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.51
Crossover Sub Description: <i>X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel</i>	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.16

MWD Items

No Items

BHA #8 - 8.5" Lateral

Date In: Mar 1, 2020, 3:15 Date Out: Mar 4, 2020, 17:00

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0	
Vendor	Hughes	Lobe/Stage	7/8, 8.5		
S/N	5308825	Bend Angle	1.75		
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	POOH Reason	
Drilling Hours for Day	9.17	Bit Distances			
Total Drilled for Day (ft)	832.00	Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft			
Drilling Hours for BHA	48.42				
Total Drilled for BHA (ft)	2749.00			Total Depth/Casing Point	

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Hughes	5308825	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.26	37.26
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.26
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.18
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.11
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.66
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.34
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.93
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.53
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.18

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Pooh	7	02-29	17:30	02:00	03-01			POOH
Change BHA	6	03-01	02:00	03:15	03-01			P/U BHA # 8
Rig Service - In Hole	19	03-01	03:15	04:35	03-01			
TIH	8	03-01	04:35	05:40	03-01			TIH W/ BHA #8
Other	16	03-01	05:40	06:15	03-01			P/U Agitator w/ 500 psi drop
TIH	8	03-01	06:15	13:00	03-01			TIH W/ BHA #8
Logging	11	03-01	13:00	13:30	03-01			Re-Log gamma F/ 18353 - 18403'
Rotary Drill	1	03-01	13:30	13:40	03-01	18403.00	18429.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	13:40	13:45	03-01	18429.00	18429.00	Inclination (°): 88.130, Azimuth (°): 178.060, TVD (ft): 11100.22, Dogleg (°/100 ft): 2.97, Sensor Depth (ft): 18367.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	13:45	14:40	03-01	18429.00	18518.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 30000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	14:40	15:05	03-01	18518.00	18518.00	Inclination (°): 87.780, Azimuth (°): 178.240, TVD (ft): 11103.40, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 18456.00, Bit To Sensor (ft): 62.00
Slide Drill	2	03-01	15:05	15:45	03-01	18518.00	18533.00	Down link MWD tool to 0.8 sec pulse width Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 45, Toolface Type: gravity
Rotary Drill	1	03-01	15:45	16:30	03-01	18533.00	18607.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	16:30	16:35	03-01	18607.00	18607.00	Inclination (°): 90.370, Azimuth (°): 178.500, TVD (ft): 11104.84, Dogleg (°/100 ft): 2.92, Sensor Depth (ft): 18545.00, Bit To Sensor (ft): 62.00

Rotary Drill	1	03-01	16:35	17:20	03-01	18607.00	18697.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	17:20	17:25	03-01	18697.00	18697.00	Inclination (°): 89.670, Azimuth (°): 178.060, TVD (ft): 11104.81, Dogleg (°/100 ft): 0.92, Sensor Depth (ft): 18635.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	17:25	17:55	03-01	18697.00	18787.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	17:55	18:00	03-01	18787.00	18787.00	Inclination (°): 88.880, Azimuth (°): 177.980, TVD (ft): 11105.94, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 18725.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	18:00	18:30	03-01	18787.00	18876.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	18:30	18:35	03-01	18876.00	18876.00	Inclination (°): 90.330, Azimuth (°): 179.380, TVD (ft): 11106.56, Dogleg (°/100 ft): 2.26, Sensor Depth (ft): 18814.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	18:35	18:45	03-01	18876.00	18885.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-01	18:45	19:25	03-01	18885.00	18908.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 200, Toolface Type: gravity
Rotary Drill	1	03-01	19:25	19:50	03-01	18908.00	18966.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	19:50	20:05	03-01	18966.00	18966.00	Inclination (°): 88.970, Azimuth (°): 179.380, TVD (ft): 11107.11, Dogleg (°/100 ft): 1.51, Sensor Depth (ft): 18904.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	20:05	20:10	03-01	18966.00	18975.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-01	20:10	20:55	03-01	18975.00	19000.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 200, Toolface Type: gravity
Rotary Drill	1	03-01	20:55	21:15	03-01	19000.00	19056.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	21:15	21:20	03-01	19056.00	19056.00	Inclination (°): 85.450, Azimuth (°): 179.290, TVD (ft): 11111.49, Dogleg (°/100 ft): 3.91, Sensor Depth (ft): 18994.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	21:20	21:40	03-01	19056.00	19084.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-01	21:40	22:45	03-01	19084.00	19114.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 340, Toolface Type: gravity
Rotary Drill	1	03-01	22:45	22:55	03-01	19114.00	19146.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	22:55	23:00	03-01	19146.00	19146.00	Inclination (°): 83.470, Azimuth (°): 178.590, TVD (ft): 11120.18, Dogleg (°/100 ft): 2.33, Sensor Depth (ft): 19084.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-01	23:00	23:55	03-01	19146.00	19235.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-01	23:55	00:00	03-02	19235.00	19235.00	Inclination (°): 86.680, Azimuth (°): 178.060, TVD (ft): 11127.82, Dogleg (°/100 ft): 3.66, Sensor Depth (ft): 19173.00, Bit To Sensor (ft): 62.00

MWD Activities

No Activities

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Monday, Mar 02 00:00 - 23:59 (Day 21 of 25) Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	19235.00	Downhole Hours	24.00	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	20466.00	Drilling Hours	22.92	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	20466.00	Hours Circulating	0.00	Rotating SPM	231.00 - 231.00
Total Distance (ft)	1232.00	Hours Sliding	7.08	Sliding SPM	220.00 - 220.00
Distance Rotated (ft)	1075.00	Hours Rotating	15.83	Motor RPM	182.00 - 195.00
Distance Slid (ft)	157.00			Surface RPM	35.00 - 35.00
Inclination In	86.81			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	90.95			On Bottom Pressure (psi)	3800.00 - 5700.00
Azimuth In	178.15	% Hours Rotating	69%	Off Bottom Pressure (psi)	3500.00 - 5000.00
Azimuth Out	178.15	% Hours Sliding	31%		
AVG Total ROP (ft/h)	53.76	% Distance Sliding	13%		
AVG Rotating ROP (ft/h)	67.89	% Distance Rotating	87%		
AVG Sliding ROP (ft/h)	22.16				

Personnel	
Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #8 - 8.5" Lateral Date In: Mar 1, 2020, 3:15 Date Out: Mar 4, 2020, 17:00

Bit Details		Motor Details		Directional Comments		
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0		
Vendor	Hughes	Lobe/Stage	7/8, 8.5			
S/N	5308825	Bend Angle	1.75			
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments		
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	<th>POOH Reason</th> <td>Total Depth/Casing Point</td>	POOH Reason	Total Depth/Casing Point
Drilling Hours for Day	22.92	Bit Distances				
Total Drilled for Day (ft)	1231.00	Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft				
Drilling Hours for BHA	48.42					
Total Drilled for BHA (ft)	2749.00					

Directional Items									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Hughes	5308825	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.26	37.26
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.26
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.18
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.11
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.66
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.34
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.93
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.53
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.18

MWD Items
No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Survey	46	03-01	23:55	00:00	03-02	19235.00	19235.00	Inclination (°): 86.680, Azimuth (°): 178.060, TVD (ft): 11127.82, Dogleg (°/100 ft): 3.66, Sensor Depth (ft): 19173.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	00:00	01:05	03-02	19235.00	19325.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	01:05	01:10	03-02	19325.00	19325.00	Inclination (°): 86.810, Azimuth (°): 178.150, TVD (ft): 11132.93, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 19263.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	01:10	01:30	03-02	19325.00	19335.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	01:30	01:45	03-02	19335.00	19350.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	03-02	01:45	02:30	03-02	19350.00	19415.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	02:30	02:35	03-02	19415.00	19415.00	Inclination (°): 86.110, Azimuth (°): 178.680, TVD (ft): 11138.48, Dogleg (°/100 ft): 0.97, Sensor Depth (ft): 19353.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	02:35	02:45	03-02	19415.00	19425.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	02:45	03:55	03-02	19425.00	19455.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	03-02	03:55	04:25	03-02	19455.00	19505.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	04:25	04:30	03-02	19504.00	19504.00	Inclination (°): 86.900, Azimuth (°): 178.770, TVD (ft): 11143.91, Dogleg (°/100 ft): 0.89, Sensor Depth (ft): 19442.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	04:30	04:55	03-02	19504.00	19515.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	04:55	05:50	03-02	19515.00	19545.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	03-02	05:50	06:10	03-02	19545.00	19594.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	06:10	06:15	03-02	19594.00	19594.00	Inclination (°): 88.570, Azimuth (°): 178.770, TVD (ft): 11147.47, Dogleg (°/100 ft): 1.86, Sensor Depth (ft): 19532.00, Bit To Sensor (ft): 62.00
Slide Drill	2	03-02	06:15	07:10	03-02	19594.00	19604.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	03-02	07:10	07:55	03-02	19604.00	19683.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	07:55	08:00	03-02	19683.00	19683.00	Inclination (°): 89.490, Azimuth (°): 179.380, TVD (ft): 11148.97, Dogleg (°/100 ft): 1.24, Sensor Depth (ft): 19621.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	08:00	08:10	03-02	19683.00	19694.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	08:10	08:40	03-02	19694.00	19711.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	03-02	08:40	09:25	03-02	19711.00	19773.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	09:25	09:30	03-02	19773.00	19773.00	Inclination (°): 90.770, Azimuth (°): 179.470, TVD (ft): 11148.77, Dogleg (°/100 ft): 1.43, Sensor Depth (ft): 19711.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	09:30	10:55	03-02	19773.00	19862.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	10:55	11:00	03-02	19862.00	19862.00	Inclination (°): 90.550, Azimuth (°): 180.170, TVD (ft): 11147.74, Dogleg (°/100 ft): 0.82, Sensor Depth (ft): 19800.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	11:00	12:35	03-02	19862.00	19952.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	12:35	12:40	03-02	19952.00	19952.00	Inclination (°): 90.550, Azimuth (°): 180.260, TVD (ft): 11146.88, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 19890.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	12:40	13:30	03-02	19952.00	20006.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	13:30	14:30	03-02	20006.00	20023.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 200, Toolface Type: gravity
Rotary Drill	1	03-02	14:30	14:55	03-02	20023.00	20041.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	14:55	15:00	03-02	20041.00	20041.00	Inclination (°): 91.380, Azimuth (°): 180.440, TVD (ft): 11145.38, Dogleg (°/100 ft): 0.95, Sensor Depth (ft): 19979.00, Bit To Sensor (ft): 62.00

Rotary Drill	1	03-02	15:00	15:15	03-02	20041.00	20059.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	15:15	15:55	03-02	20059.00	20069.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	03-02	15:55	16:45	03-02	20069.00	20131.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	16:45	16:50	03-02	20131.00	20131.00	Inclination (°): 90.290, Azimuth (°): 178.590, TVD (ft): 11144.07, Dogleg (°/100 ft): 2.39, Sensor Depth (ft): 20069.00, Bit To Sensor (ft): 62.00
Slide Drill	2	03-02	16:50	17:35	03-02	20131.00	20139.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 160, Toolface Type: gravity
Rotary Drill	1	03-02	17:35	19:05	03-02	20139.00	20221.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	19:05	19:10	03-02	20221.00	20221.00	Inclination (°): 89.320, Azimuth (°): 178.150, TVD (ft): 11144.38, Dogleg (°/100 ft): 1.18, Sensor Depth (ft): 20159.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	19:10	19:55	03-02	20221.00	20264.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-02	19:55	20:50	03-02	20264.00	20284.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	03-02	20:50	21:05	03-02	20284.00	20310.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	21:05	21:10	03-02	20310.00	20310.00	Inclination (°): 88.480, Azimuth (°): 178.150, TVD (ft): 11146.08, Dogleg (°/100 ft): 0.94, Sensor Depth (ft): 20248.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	21:10	22:45	03-02	20310.00	20400.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-02	22:45	22:50	03-02	20400.00	20400.00	Inclination (°): 90.950, Azimuth (°): 178.150, TVD (ft): 11146.53, Dogleg (°/100 ft): 2.74, Sensor Depth (ft): 20338.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-02	22:50	00:00	03-03	20400.00	20466.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	20466.00	Downhole Hours	24.00	Rotating WOB (klbs)	55.00 - 55.00
Bit Depth (ft)	21152.00	Drilling Hours	16.33	Sliding WOB (klbs)	55.00 - 55.00
Bottom Hole Depth (ft)	21152.00	Hours Circulating	4.50	Rotating SPM	231.00 - 231.00
Total Distance (ft)	686.00	Hours Sliding	6.17	Sliding SPM	220.00 - 220.00
Distance Rotated (ft)	607.00	Hours Rotating	10.17	Motor RPM	182.00 - 195.00
Distance Slid (ft)	79.00			Surface RPM	35.00 - 35.00
Inclination In	88.04			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	87.16			On Bottom Pressure (psi)	3800.00 - 5700.00
Azimuth In	177.62	% Hours Rotating	62%	Off Bottom Pressure (psi)	3500.00 - 5000.00
Azimuth Out	179.38	% Hours Sliding	38%		
AVG Total ROP (ft/h)	42.97	% Distance Sliding	12%		
AVG Rotating ROP (ft/h)	59.38	% Distance Rotating	88%		
AVG Sliding ROP (ft/h)	12.81				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #8 - 8.5" Lateral

Date In: Mar 1, 2020, 3:15 Date Out: Mar 4, 2020, 17:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0
Vendor	Hughes	Lobe/Stage	7/8, 8.5	
S/N	5308825	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	16.33	Bit Distances		POOH Reason Total Depth/Casing Point
Total Drilled for Day (ft)	686.00	Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		
Drilling Hours for BHA	48.42			
Total Drilled for BHA (ft)	2749.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Hughes	5308825	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.26	37.26
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.26
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.18
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.11
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.66
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.34
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.93
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.53
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.18

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	03-02	22:50	00:00	03-03	20400.00	20466.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Rotary Drill	1	03-03	00:00	00:20	03-03	20466.00	20490.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	00:20	00:25	03-03	20490.00	20490.00	Inclination (°): 88.040, Azimuth (°): 177.620, TVD (ft): 11147.32, Dogleg (°/100 ft): 3.29, Sensor Depth (ft): 20428.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	00:25	00:35	03-03	20490.00	20495.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-03	00:35	02:55	03-03	20495.00	20525.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 45, Toolface Type: gravity
Rotary Drill	1	03-03	02:55	03:30	03-03	20525.00	20579.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	03:30	03:35	03-03	20579.00	20579.00	Inclination (°): 89.230, Azimuth (°): 177.890, TVD (ft): 11149.44, Dogleg (°/100 ft): 1.37, Sensor Depth (ft): 20517.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	03:35	05:00	03-03	20579.00	20669.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	05:00	05:05	03-03	20669.00	20669.00	Inclination (°): 92.840, Azimuth (°): 179.290, TVD (ft): 11147.82, Dogleg (°/100 ft): 4.30, Sensor Depth (ft): 20607.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	05:05	05:20	03-03	20669.00	20675.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Slide Drill	2	03-03	05:20	07:00	03-03	20675.00	20699.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	03-03	07:00	08:05	03-03	20699.00	20758.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	08:05	08:10	03-03	20758.00	20758.00	Inclination (°): 90.070, Azimuth (°): 179.030, TVD (ft): 11145.56, Dogleg (°/100 ft): 3.13, Sensor Depth (ft): 20696.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	08:10	09:45	03-03	20758.00	20848.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	09:45	09:50	03-03	20848.00	20848.00	Inclination (°): 91.430, Azimuth (°): 179.380, TVD (ft): 11144.38, Dogleg (°/100 ft): 1.56, Sensor Depth (ft): 20786.00, Bit To Sensor (ft): 62.00
Slide Drill	2	03-03	09:50	12:00	03-03	20848.00	20873.00	Pressure On (psi): 3800.00, Pressure Off (psi): 3500.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	03-03	12:00	13:25	03-03	20873.00	20938.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	13:25	13:30	03-03	20938.00	20938.00	Inclination (°): 88.660, Azimuth (°): 179.910, TVD (ft): 11144.31, Dogleg (°/100 ft): 3.13, Sensor Depth (ft): 20876.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	13:30	14:55	03-03	20938.00	21027.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	14:55	15:00	03-03	21027.00	21027.00	Inclination (°): 88.090, Azimuth (°): 180.090, TVD (ft): 11146.83, Dogleg (°/100 ft): 0.67, Sensor Depth (ft): 20965.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	15:00	16:25	03-03	21027.00	21116.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	16:25	16:30	03-03	21116.00	21116.00	Inclination (°): 87.560, Azimuth (°): 179.470, TVD (ft): 11150.21, Dogleg (°/100 ft): 0.92, Sensor Depth (ft): 21054.00, Bit To Sensor (ft): 62.00
Rotary Drill	1	03-03	16:30	17:00	03-03	21116.00	21152.00	Pressure On (psi): 5700.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Surface RPM: 35, Surface Torque (ft lbf): 38000.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 231.00
Survey	46	03-03	17:00	17:05	03-03	21152.00	21152.00	Inclination (°): 87.160, Azimuth (°): 179.380, TVD (ft): 11151.87, Dogleg (°/100 ft): 1.14, Sensor Depth (ft): 21090.00, Bit To Sensor (ft): 62.00
Circulating L/D DP	3	03-03	17:05	21:35	03-03			
	28	03-03	21:35	16:00	03-04			POOH L/D DP

MWD Activities

No Activities



Job Number WT-20-003	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2020-01-09	Well Name Merchant State Unit 501H	Legal Well Name AFE Merchant State Unit 501H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Wednesday, Mar 04 00:00 - 23:59 (Day 23 of 25)

Billing: \$6,200.00 (\$187,594.25 total)

Drilling Summary			Drilling Parameters	
Start Depth (ft)	Downhole Hours	17.00	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)	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	Hours Rotating	0.00	Motor RPM	182.00 - 195.00
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)	% Distance Sliding			
AVG Rotating ROP (ft/h)	% Distance Rotating			
AVG Sliding ROP (ft/h)				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	Directional Driller

BHA #8 - 8.5" Lateral

Date In: Mar 1, 2020, 3:15 Date Out: Mar 4, 2020, 17:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 450-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs, Bit Runs 0
Vendor	Hughes	Lobe/Stage	7/8, 8.5	
S/N	5308825	Bend Angle	1.75	
Nozzles	6 x 22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.227	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		POOH Reason
Total Drilled for Day (ft)		Bend (Bit to Bend): 5.45 ft, Gamma (Bit to Gamma): 47.00 ft, Survey (Bit to Survey): 62.00 ft		
Drilling Hours for BHA	48.42			
Total Drilled for BHA (ft)	2749.00			Total Depth/Casing Point

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Hughes	5308825	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 1.75° FBH 7/8 8.5 Stg. Mtr. Slick, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	AIM	700-40-002	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.26	37.26
UBHO Sub Description: LORDE NM UBHO, Type: NM	AIM	67501NM	4 1/2" IF Box	4 1/2" IF Pin	3.313	6.750		5.00	42.26
Drill Collar Description: NMDC(MWD), Style: Slick Drill, Type: NM	Gator	GT67-30-279	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.92	73.18
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GT67-30-315	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.875		30.93	104.11
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD12360	EverDrlg54 Box	4 1/2" IF Pin	2.938	6.750		3.55	107.66
Drill Pipe Description: 30 Stands of 5.5" Drill Pipe, Style: Slick	Rig		EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2688.68	2796.34
Crossover Sub Description: X/O(EverDrlg54-Pin - 4 1/2 IF-Box), Type: Steel	Black Diamond	BD15901	4 1/2" IF Box	EverDrlg54 Pin	3.500	6.750		3.59	2799.93
Agitator Description: Agitator, Size (in): 6.75	Rubicon	A369003	4 1/2" IF Box	4 1/2" IF Pin		6.750		34.60	2834.53
Crossover Sub Description: X/O(4 1/2 IF-Pin - EverDrlg54-Box), Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.750		3.65	2838.18

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
L/D DP	28	03-03	21:35	16:00	03-04			POOH L/D DP
Change BHA	6	03-04	16:00	17:00	03-04			L/D Directional Tools
Standby	15	03-04	17:00	06:00	03-06			Standby. Casing Ops

MWD Activities

No Activities

	Job Number WT-20-003	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2020-01-09	Well Name Merchant State Unit 501H		Legal Well Name AFE Merchant State Unit 501H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Thursday, Mar 05 00:00 - 23:59 (Day 24 of 25) Billing: \$500.00 (\$187,594.25 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
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller
Joel Johnson	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	03-04	17:00	06:00	03-06			Standby. Casing Ops

MWD Activities								
No Activities								



Surface Plat

Merchant State Unit 501H (WT-20-003)

2020-01-09 to 2020-03-05

Lea, New Mexico, US (32.44,)

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) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-102

Revised August 4, 2011

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name MERCHANT STATE UNIT	Well Number 501H
OGRID No.	Operator Name ADVANCE ENERGY PARTNERS HAT MESA	Elevation 3685'

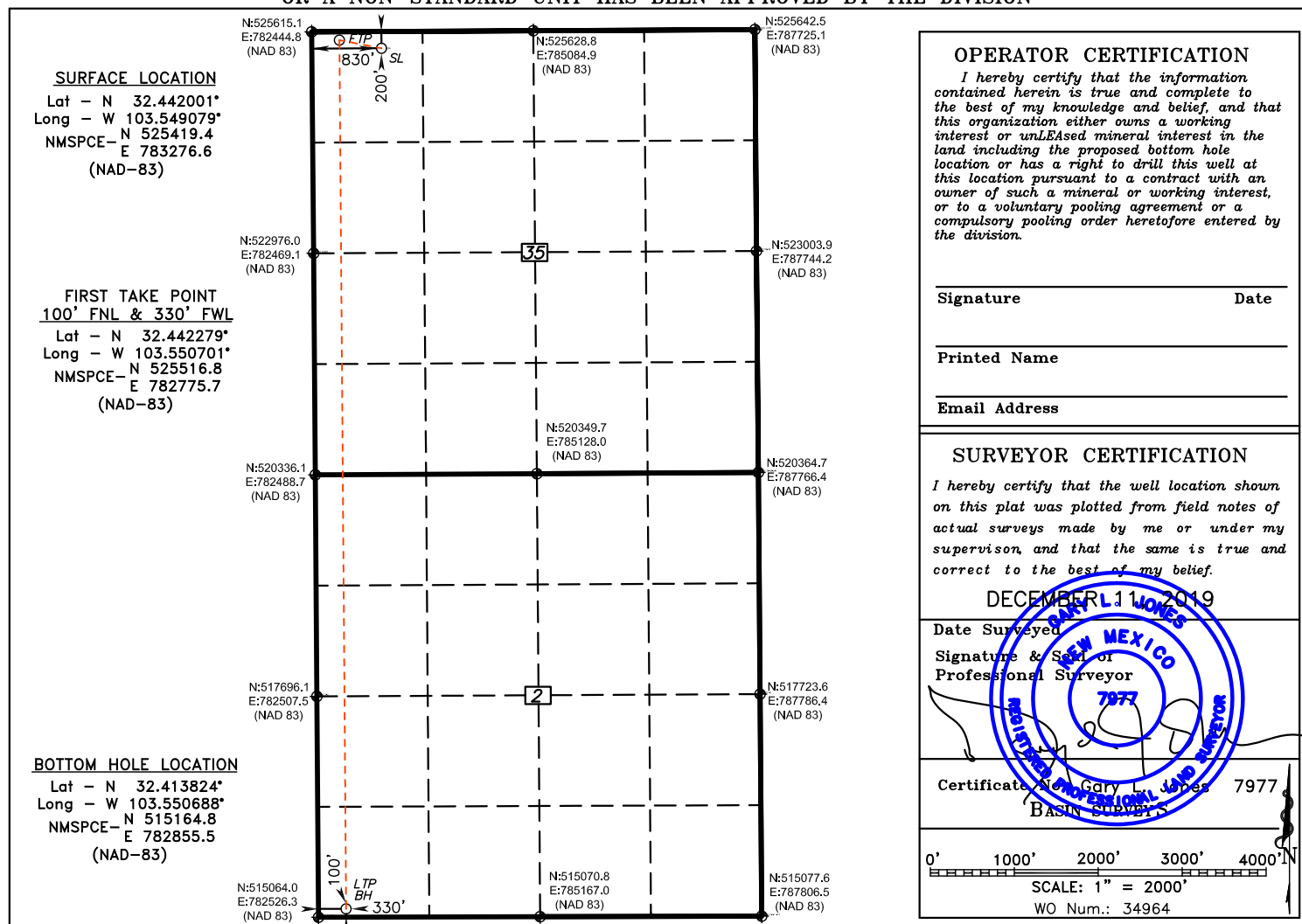
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
D	35	21 S	33 E		200	NORTH	830	WEST	LEA

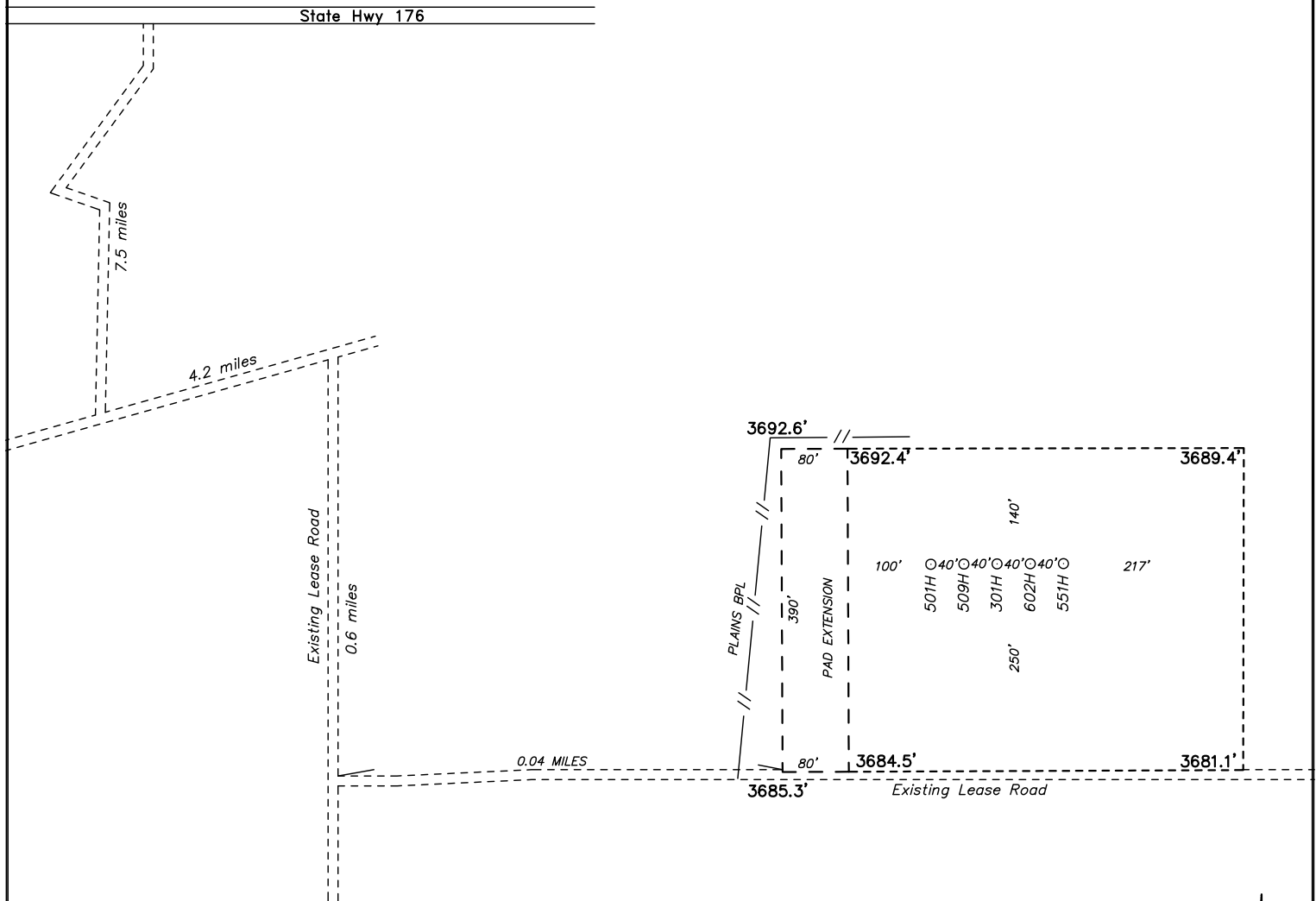
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
M	2	22 S	33 E		100	SOUTH	330	WEST	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 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



**ADVANCE ENERGY PARTNERS HAT MESA
MERCHANT STATE UNIT 501H**

ELEV. - 3685'

Lat - N 32.442001°

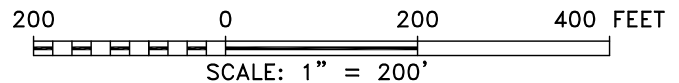
Long - W 103.549079°

NMSPCE - N 525419.4

E 783276.6

(NAD-83)

EUNICE, NM IS ±22 MILES TO THE EAST OF LOCATION.



ADVANCE ENERGY PARTNERS HAT MESA

REF: MERCHANT STATE UNIT 501H / WELL PAD TOPO

THE MERCHANT STATE UNIT 501H LOCATED 200' FROM
THE NORTH LINE AND 830' FROM THE WEST LINE OF
SECTION 35, 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 basin-surveys.com

W.O. Number: 34964

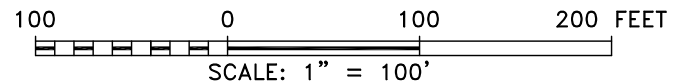
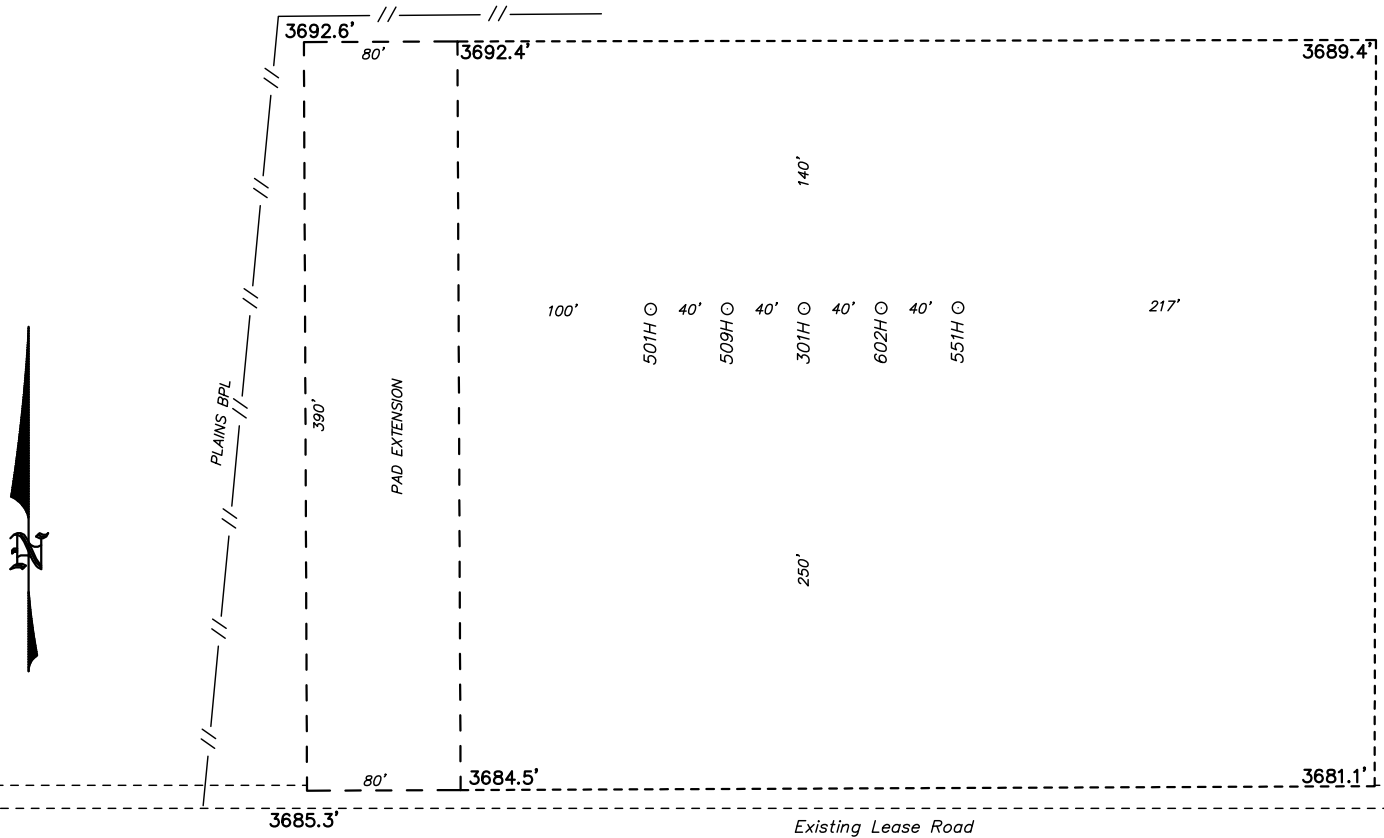
Drawn By: J. GOAD

Date: 12-30-2019

Survey Date: 12-11-2019

Sheet 1 of 1 Sheets

**SECTION 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



ADVANCE ENERGY PARTNERS HAT MESA

REF: MERCHANT STATE UNIT 501H / WELL PAD TOPO

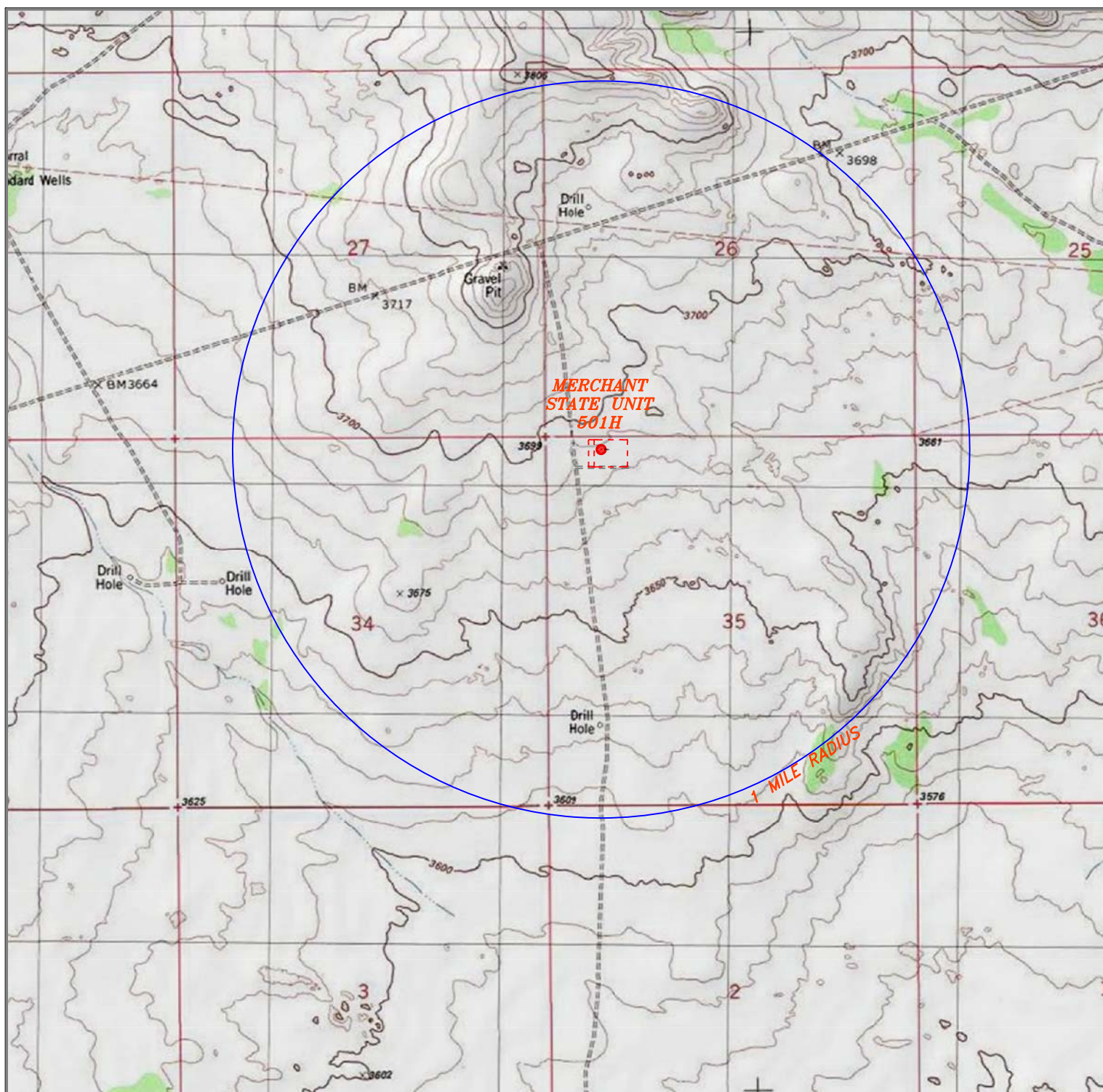
THE MERCHANT STATE UNIT 501H LOCATED 200' FROM
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SECTION 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

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

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W.O. Number: 34964	Drawn By: J. GOAD	Date: 12-30-2019	Survey Date: 12-11-2019	Sheet 1 of 1 Sheets
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MERCHANT STATE UNIT 501H

Located 200' FNL and 830' FWL
 Section 35, Township 21 South, Range 33 East,
 N.M.P.M., Lea County, New Mexico.



P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
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0' 1000' 2000' 3000' 150'0"
 SCALE: 1" = 2000'

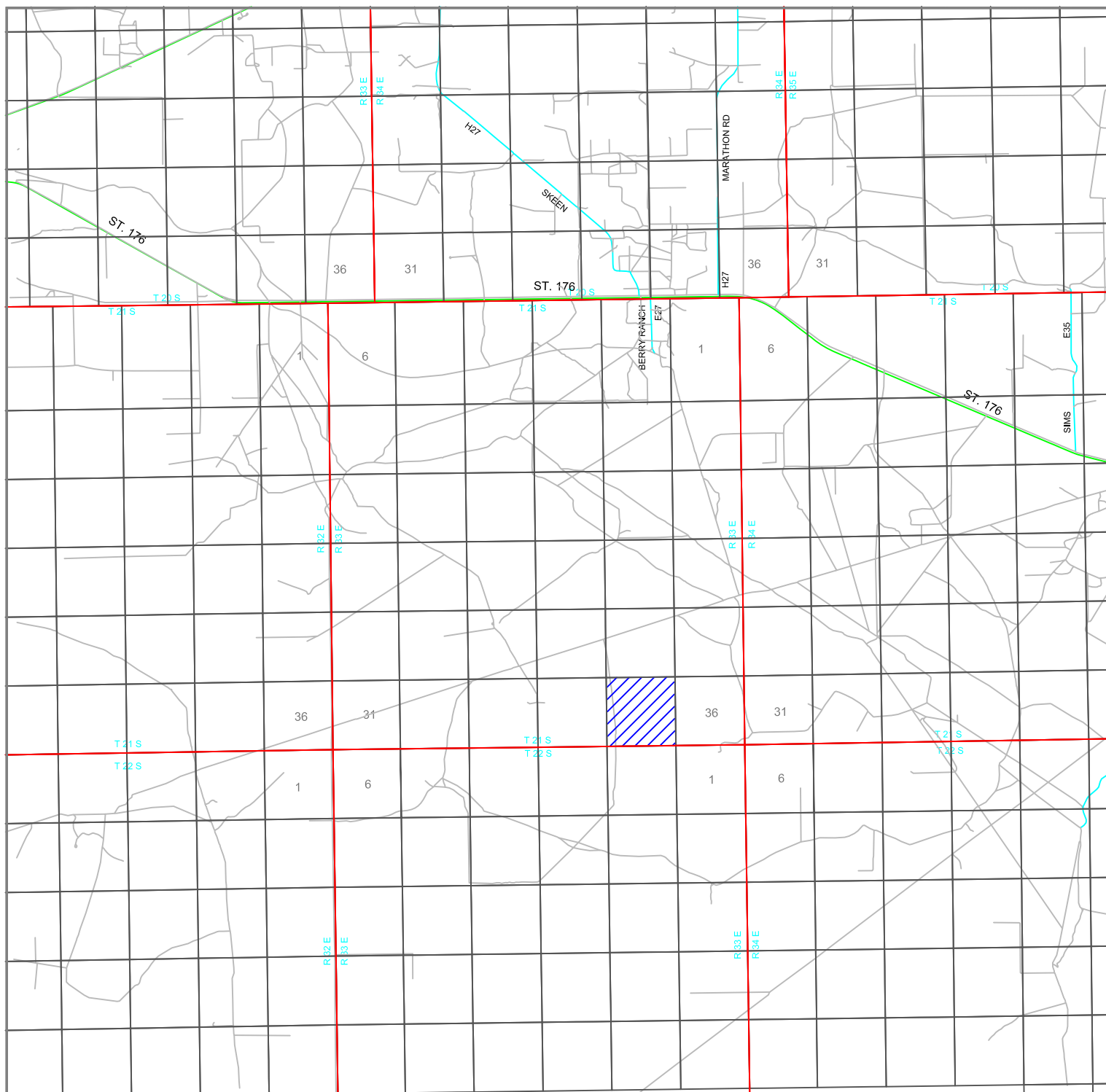
W.O. Number: JG 34964

Survey Date: 12-11-2019

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



**ADVANCE
 ENERGY
 PARTNERS
 HAT MESA**



MERCHANT STATE UNIT 501H

Located 200' FNL and 830' FWL
 Section 35, Township 21 South, Range 33 East,
 N.M.P.M., Lea County, New Mexico.



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0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

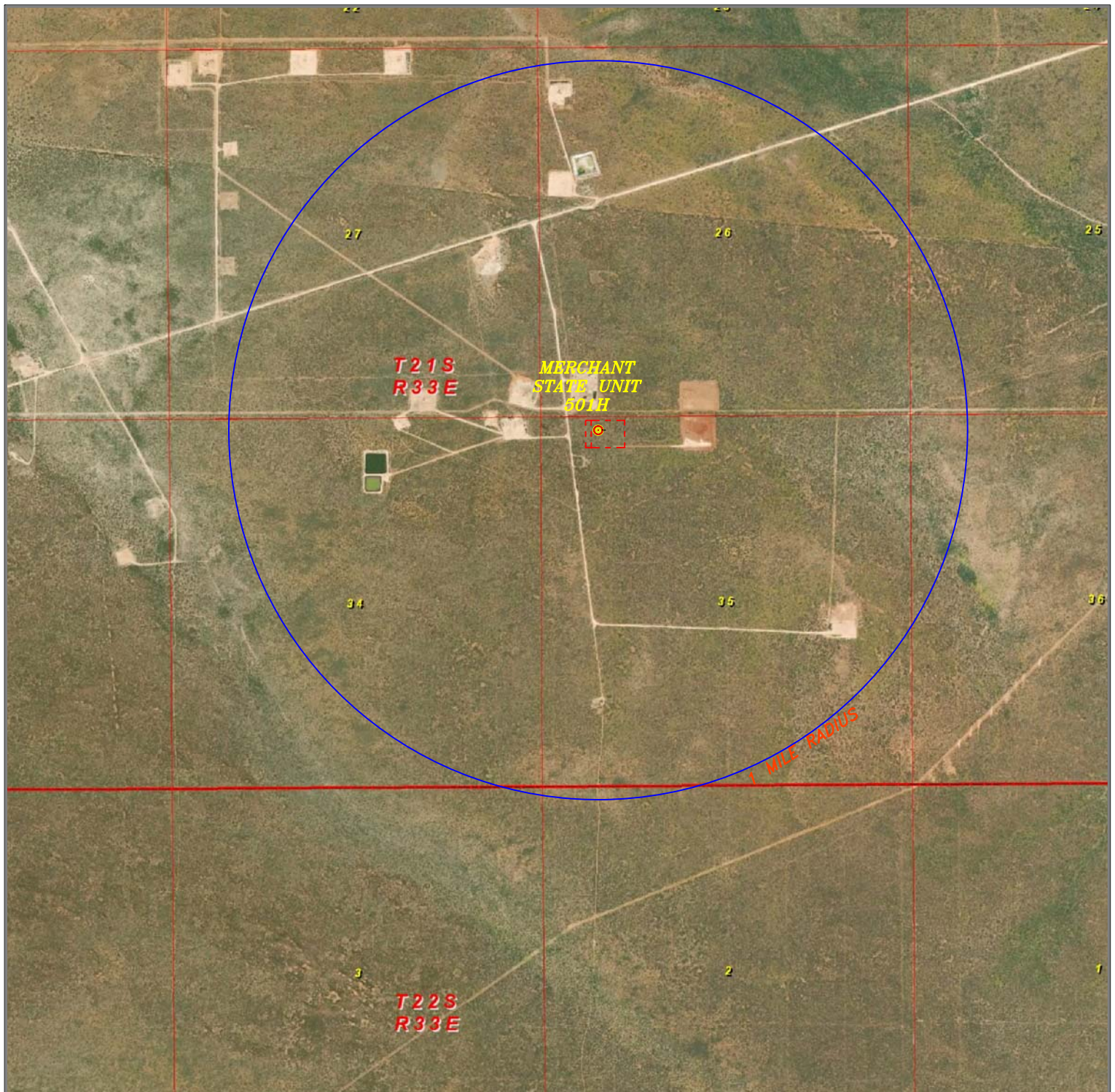
W.O. Number: JG 34964

Survey Date: 12-11-2019

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



**ADVANCE
 ENERGY
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MERCHANT STATE UNIT 501H

Located 200' FNL and 830' FWL
Section 35, Township 21 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.



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0' 1000' 2000' 3000' 1500'
SCALE: 1" = 2000'

W.O. Number: JG 34964

Survey Date: 12-11-2019

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



**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 Resources

Form C-103
 Revised July 18, 2013

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

WELL API NO. 30-025-46696
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name MERCHANT STATE UNIT
8. Well Number 501H
9. OGRID Number 372417
10. Pool name or Wildcat WC-025 G-06 S213326D;BONE SPRING

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 ☐
2. Name of Operator Advance Energy Partners Hat Mesa
3. Address of Operator 11490 Westheimer Rd, Houston, TX 77077
4. Well Location Unit Letter <u>D</u> : <u>200</u> feet from the <u>N</u> line and <u>830</u> feet from the <u>W</u> line Section <u>35</u> Township <u>21S</u> Range <u>33E</u> NMPM County LEA
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3685'

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☐	
DOWNHOLE COMMINGLE ☐			
CLOSED-LOOP SYSTEM ☐			
OTHER: ☐		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.

- 9/11/20: Pressure test casing to 9,800 psi for 30 minutes.
- 10/20/20 – 11/12/20: Perforate from 11,221' – 21,039' (2976). Frac with 24,213,460 lbs sand and 24,733,212 gal fluid.
- 12/9/20 – 12/11/20: Drill all plugs out and clean out to a PBTD of 21,068'.
- 01/30/21- Ran 2 7/8" production tubing
- 12/29/20 – Ready to produce

Spud Date: 01/10/2020

Rig Release Date: 03/06/2020

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: 2/15/22

PRINT NAME: Eileen M Kosakowski

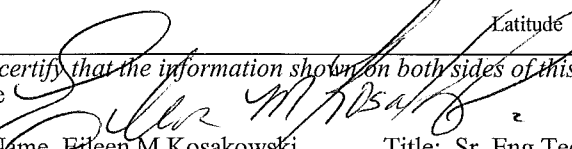
E-mail address: ekosakowski@advanceenergypartners.com

PHONE: (823)-672-4604

For State Use Only

APPROVED BY: TITLE DATE

Conditions of Approval (if any):

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		
		1. WELL API NO. 30-025-46696					
		2. Type of Lease ☒ STATE ☐ FEE ☐ FED/INDIAN					
		3. State Oil & Gas Lease No.					
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 Merchant State Unit			
				6. Well Number: 501H			
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-06 S213326D; BONE SPRING			
12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	
Surface:	D	35	21S	33E		200	
BH:	M	2	22S	33E		30	
13. Date Spudded 01/10/20	14. Date T.D. Reached 03/03/20	15. Date Rig Released 03/06/20		16. Date Completed (Ready to Produce) 12/29/20		17. Elevations (DF and RKB, RT, GR, etc.) 3685'	
18. Total Measured Depth of Well 21,152		19. Plug Back Measured Depth 21,068		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 11,221-21,039' Bone Springs							
23. CASING RECORD (Report all strings set in well)							
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE	
13.375"		54.4#		1743		17.5"	
9.625"		40#		5324/3836		12.25"	
5.5"		20#		21,142		8.5"	
24. LINER RECORD							
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN			
				2 7/8			
25. TUBING RECORD							
SIZE	DEPTH SET		PACKER SET				
	11,198'		N/A				
26. Perforation record (interval, size, and number) 11,221-21,039' -2976 holes				27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC. DEPTH INTERVAL AMOUNT AND KIND MATERIAL USED 11,221-21,039' 24,213,460 lbs sand, 24,733,212 bbls water			
28. PRODUCTION							
Date First Production 12/29/20		Production Method (Flowing, gas lift, pumping - Size and type pump) Flowing			Well Status (Prod. or Shut-in) Prod		
Date of Test 01/12/21	Hours Tested 24 Hrs	Choke Size 68	Prod'n For Test Period	Oil - Bbl 1072	Gas - MCF 1105	Water - Bbl. 4747	
Flow Tubing Press. 1000	Casing Pressure 831	Calculated 24-Hour Rate	Oil - Bbl. 1072	Gas - MCF 1105	Water - Bbl. 4747	Oil Gravity - API - (Corr.) 41.7	
29. Disposition of Gas (Sold, used for fuel, vented, etc.) Sold					30. Test Witnessed By Baron 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: 03/06/20			
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: 2/15/22			
Printed Name Eileen M Kosakowski				Title: Sr. Eng Tech.			
				E-mail Address: ekosakowski@advanceenergypartners.com			

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 81826

ACKNOWLEDGMENTS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	OGRID: 372417
	Action Number: 81826
	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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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 81826

CONDITIONS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	OGRID: 372417
	Action Number: 81826
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	Future submittal of C-105 needs to indicate Formation Tops on page 2.	7/22/2024