

Released to Imaging: 7/22/2024 8:56:34 AM

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 30-025-46363	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 551H

II. ¹⁰ Surface Location

UL or lot no. D	Section 35	Township 21S	Range 33E	Lot Idn	Feet from the 200	North/South Line N	Feet from the 950	East/West line W	County Lea
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¹¹ Bottom Hole Location

UL or lot no. M	Section 2	Township 22S	Range 33E	Lot Idn	Feet from the 43	North/South line S	Feet from the 676	East/West line W	County 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				

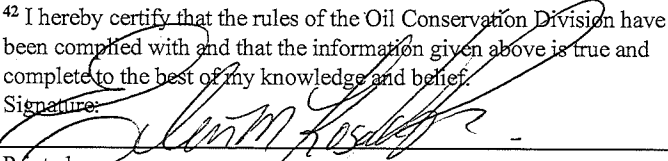
III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
214984	Plains Marketing, L.P. 10 Desta Drive, Suite 200E Midland, Texas 9705	O
159160	Versado Gas Processors, LLC 1000 Louisiana, Suite 4300 Houston, TX 77022	G

IV. Well Completion Data

²¹ Spud Date 09/16/2019	²² Ready Date 10/30/2019	²³ TD 21,455'	²⁴ PBTD 21,130'	²⁵ Perforations 11,529'-21,125'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17.5"	13.375"	1760	820		
12.25"	9.625"	5268	1330		
8.5"	5.5"	21,441	2985		

V. Well Test Data

³¹ Date New Oil 11/01/2019	³² Gas Delivery Date 11/1/2019	³³ Test Date 11/25/2019	³⁴ Test Length 24	³⁵ Tbg. Pressure N/A	³⁶ Csg. Pressure 710
³⁷ Choke Size 64/64	³⁸ Oil 3012	³⁹ Water 2725	⁴⁰ Gas 2819		⁴¹ Test Method F
⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 			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: 2/16/22		Phone: 832-672-4604			

Received by OCD: 2/16/2022 8:09:58 AM

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240
Phone (505) 393-8161 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

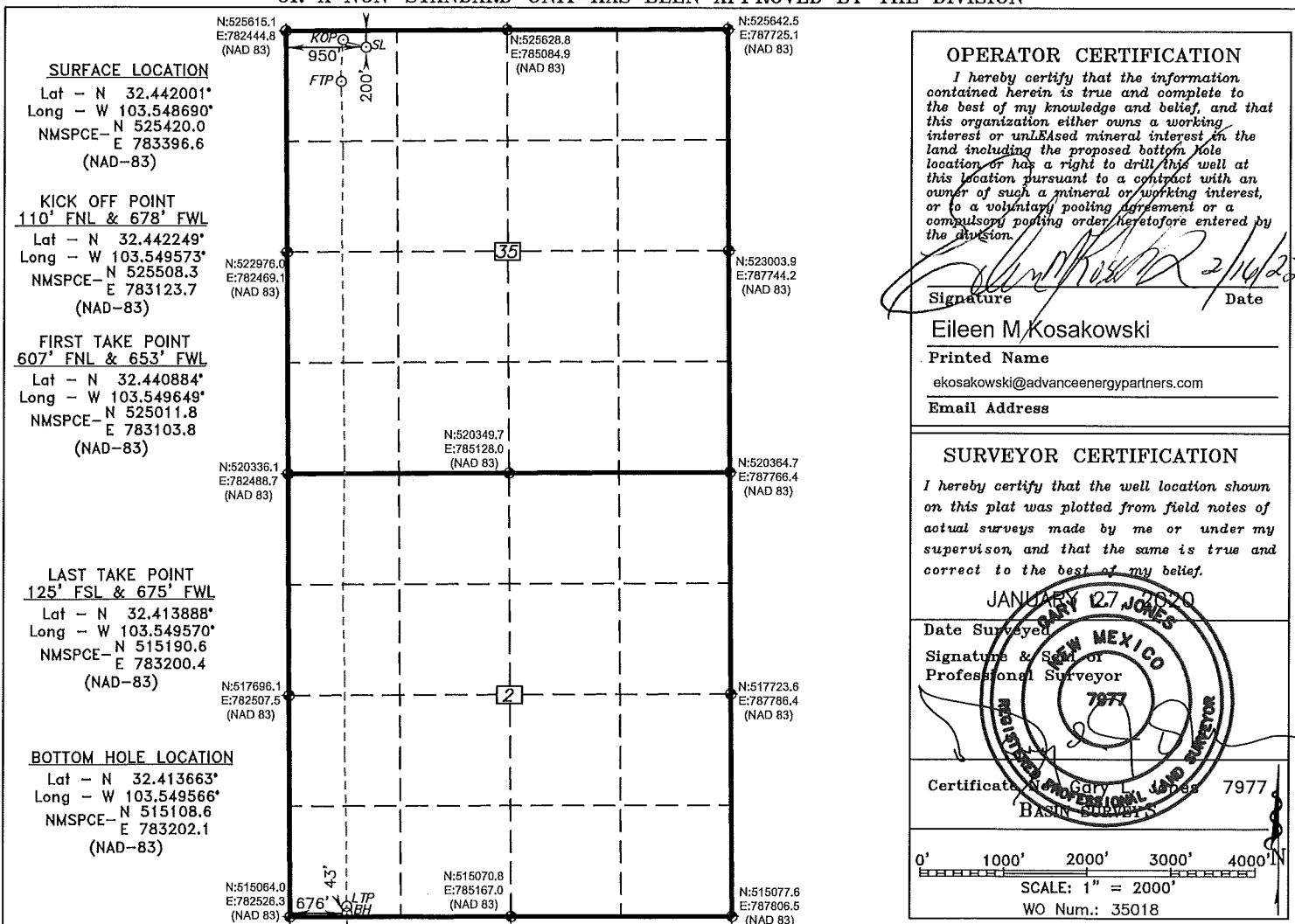
API Number 30-025-46363	Pool Code 97929	Pool Name WC-025 G-06 S213326D;BONE SPRING
Property Code 319603	Property Name MERCHANT STATE UNIT	Well Number 551H
GRID No. 372417	Operator Name ADVANCE ENERGY PARTNERS HAT MESA	Elevation 3688' 3684'

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	950	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		43	SOUTH	676	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. 551H
Lea County, New Mexico**

Rig: H&P #389

Job No.: WT-19-146

Start Date: 09/14/2019

End Date: 10/07/2019

Directional Drillers:

Advance Directional

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 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)

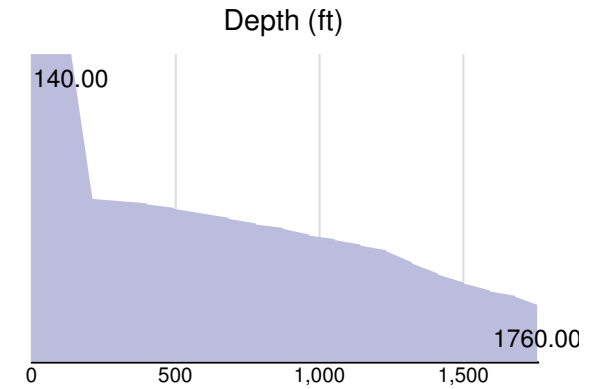
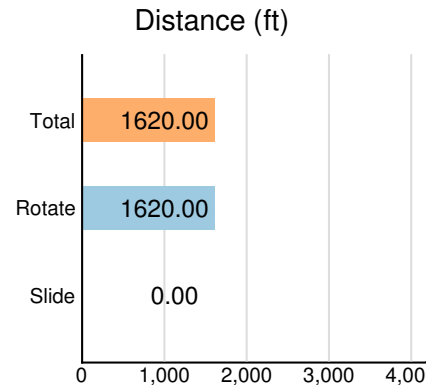
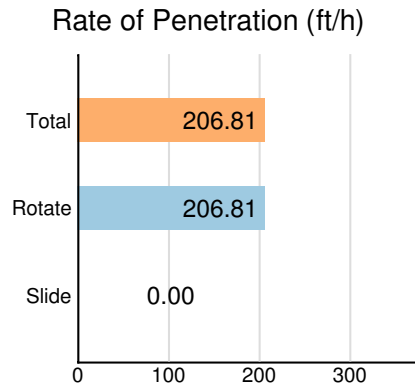
BHA Performance

BHA 1

BHA #1 17.5"

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Out: 09/17/2019 00:00

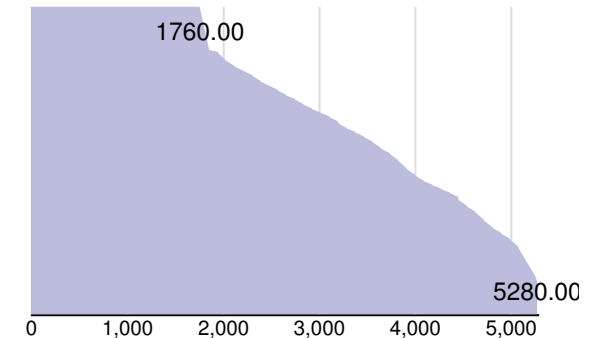
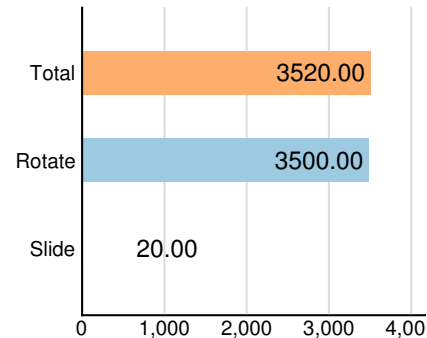
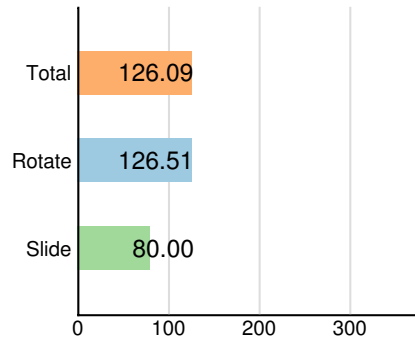


BHA 2

Intermediate 12.25"

In: 09/17/2019 17:00

Out: 09/19/2019 08:45

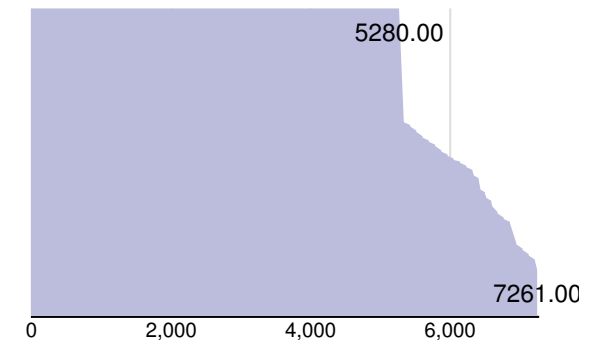
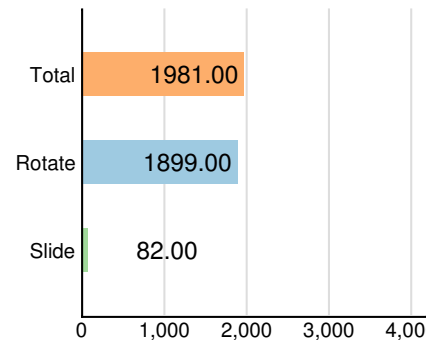
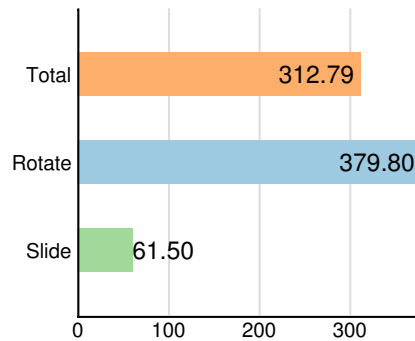


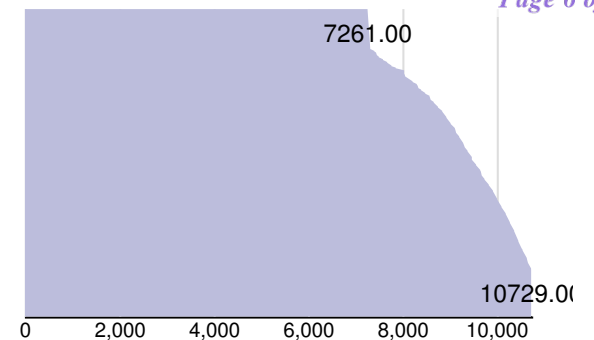
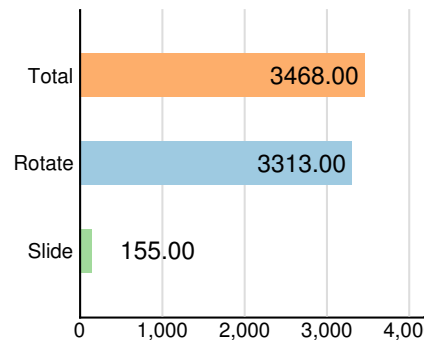
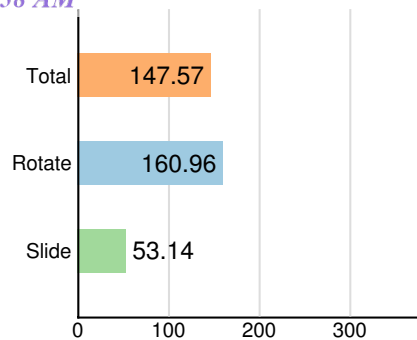
BHA 3

8.5"
INTERMEDIATE

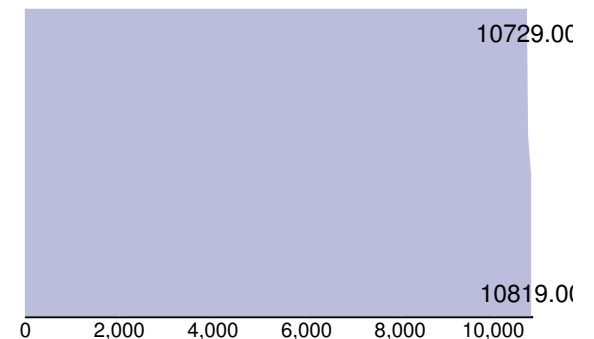
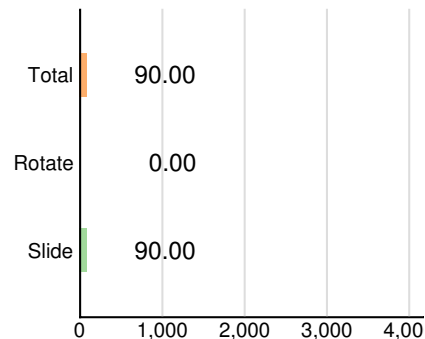
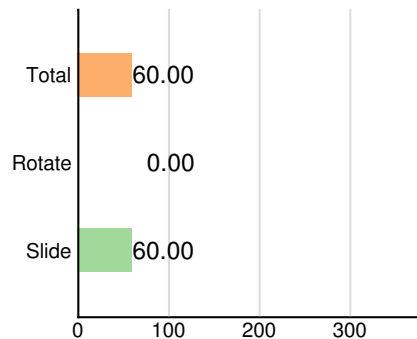
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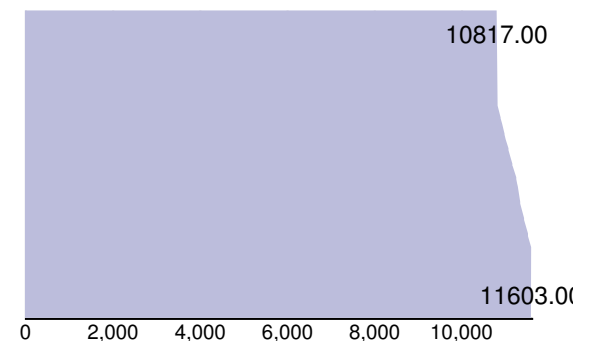
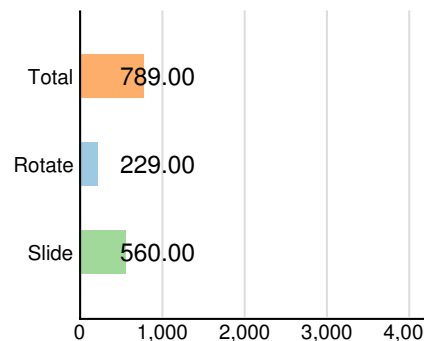
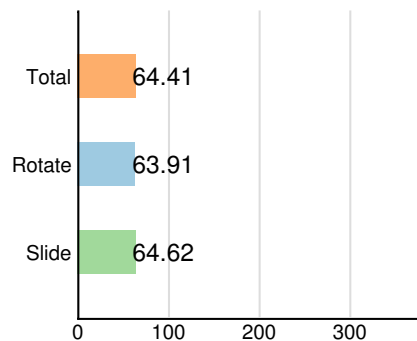


BHA 48.5"
INTERMEDIATEIn: 09/20/2019 19:00
Out: 09/22/2019 08:15**BHA 5**

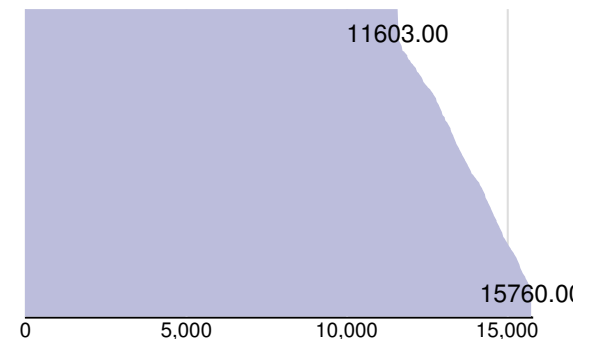
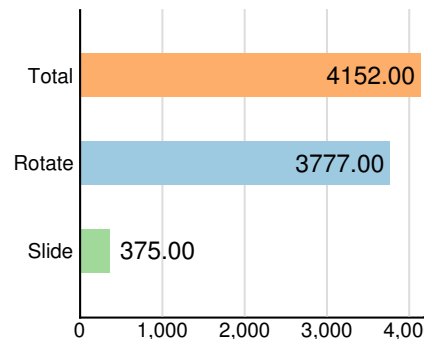
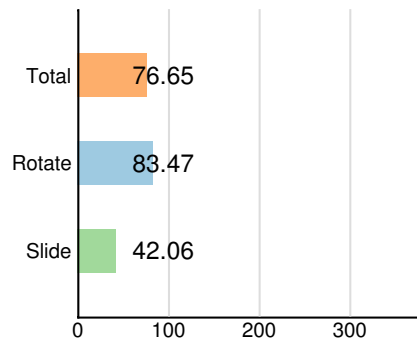
Curve

In: 09/22/2019 08:15
Out: 09/22/2019 22:45**BHA 6**

Curve

In: 09/22/2019 22:45
Out: 09/24/2019 03:00**BHA 7**

8.5" Lateral

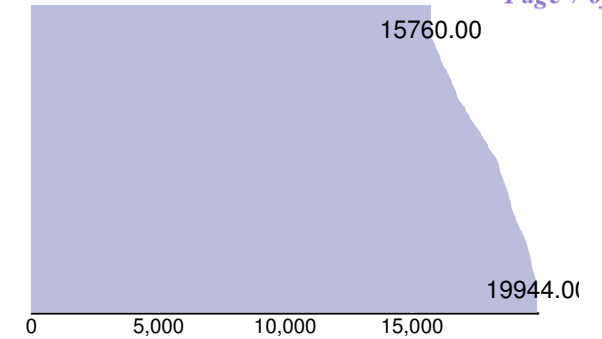
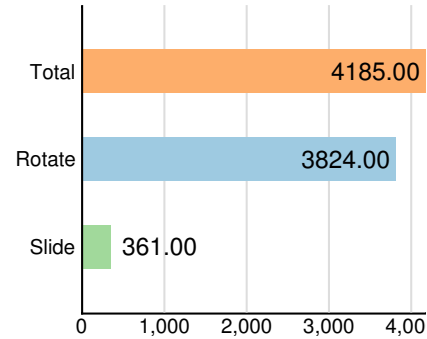
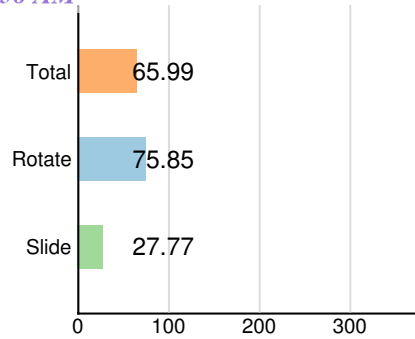
In: 09/24/2019 03:00
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BHA 8

8.5 Lateral

In: 09/27/2019 04:15

Out: 09/30/2019 17:45

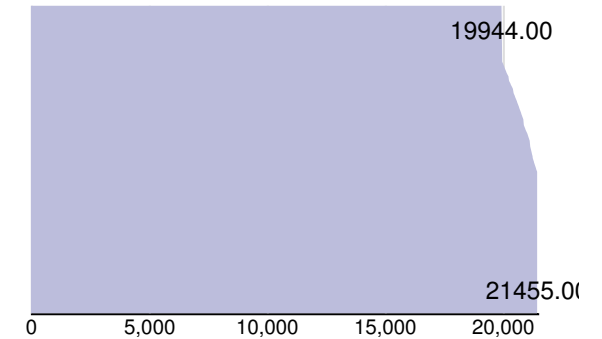
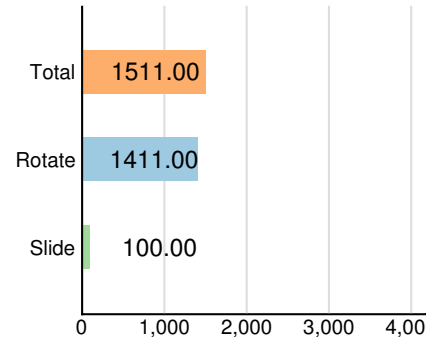
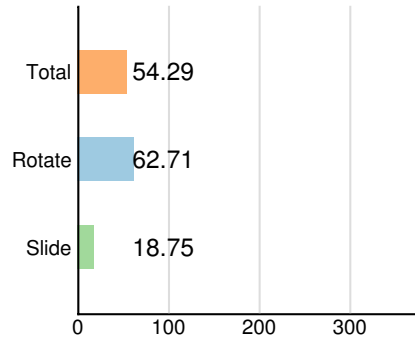


BHA 9

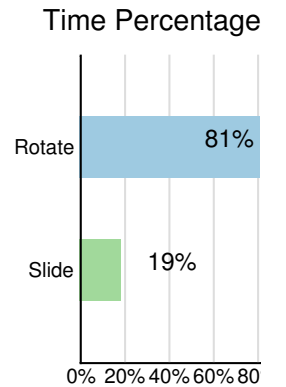
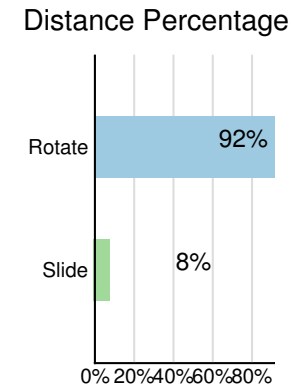
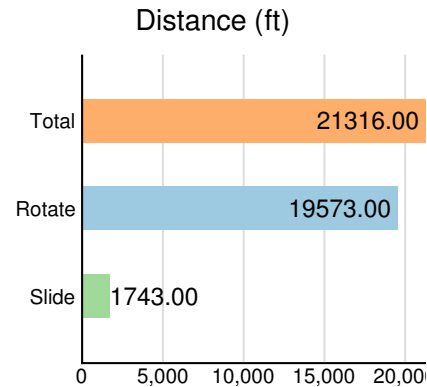
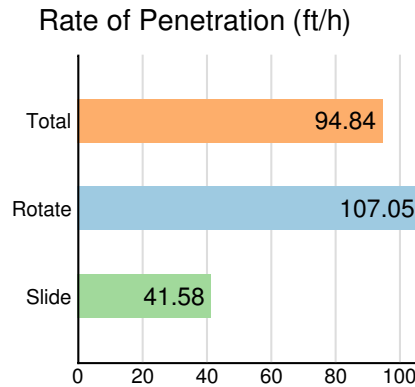
8.5" LATERAL

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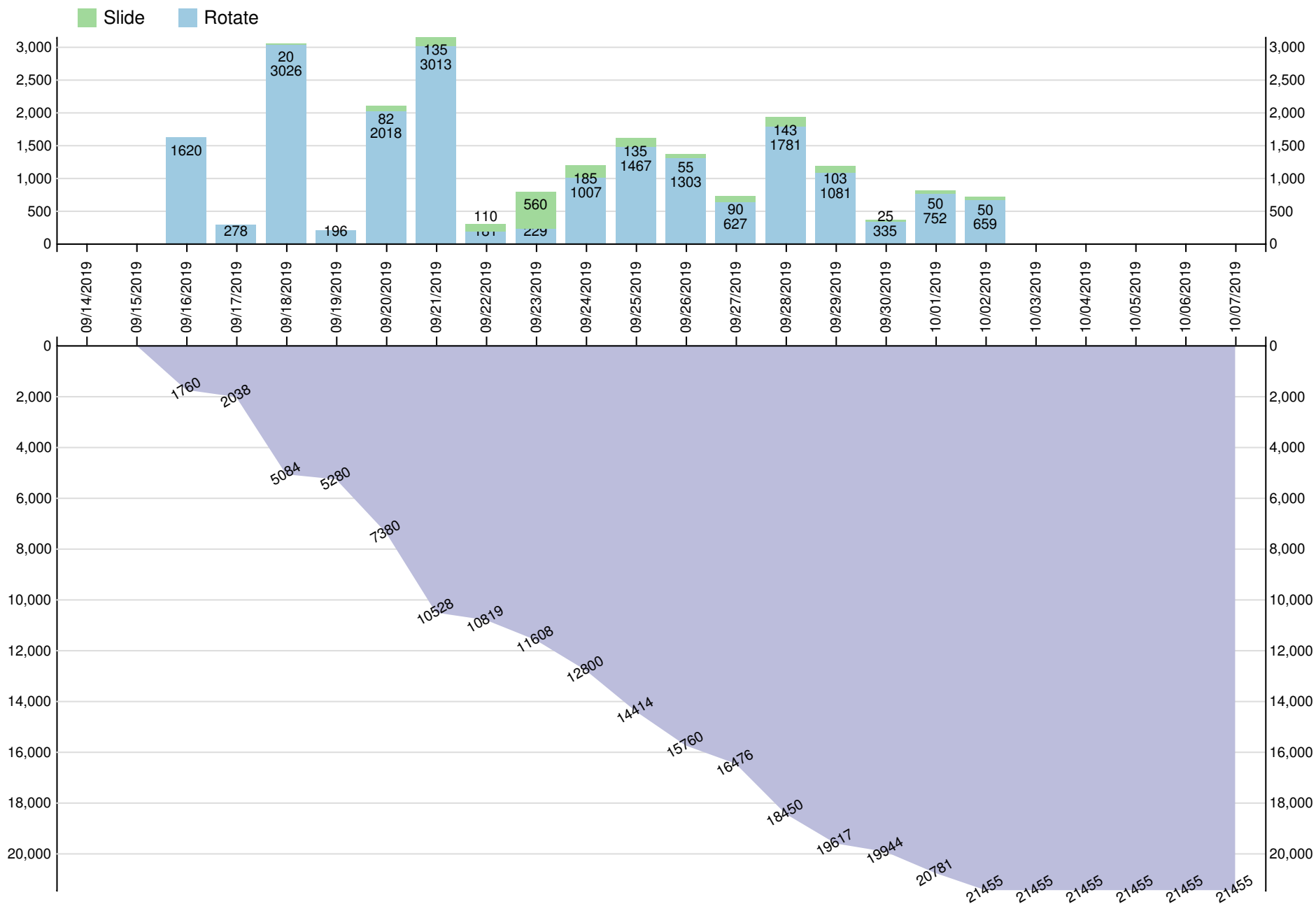
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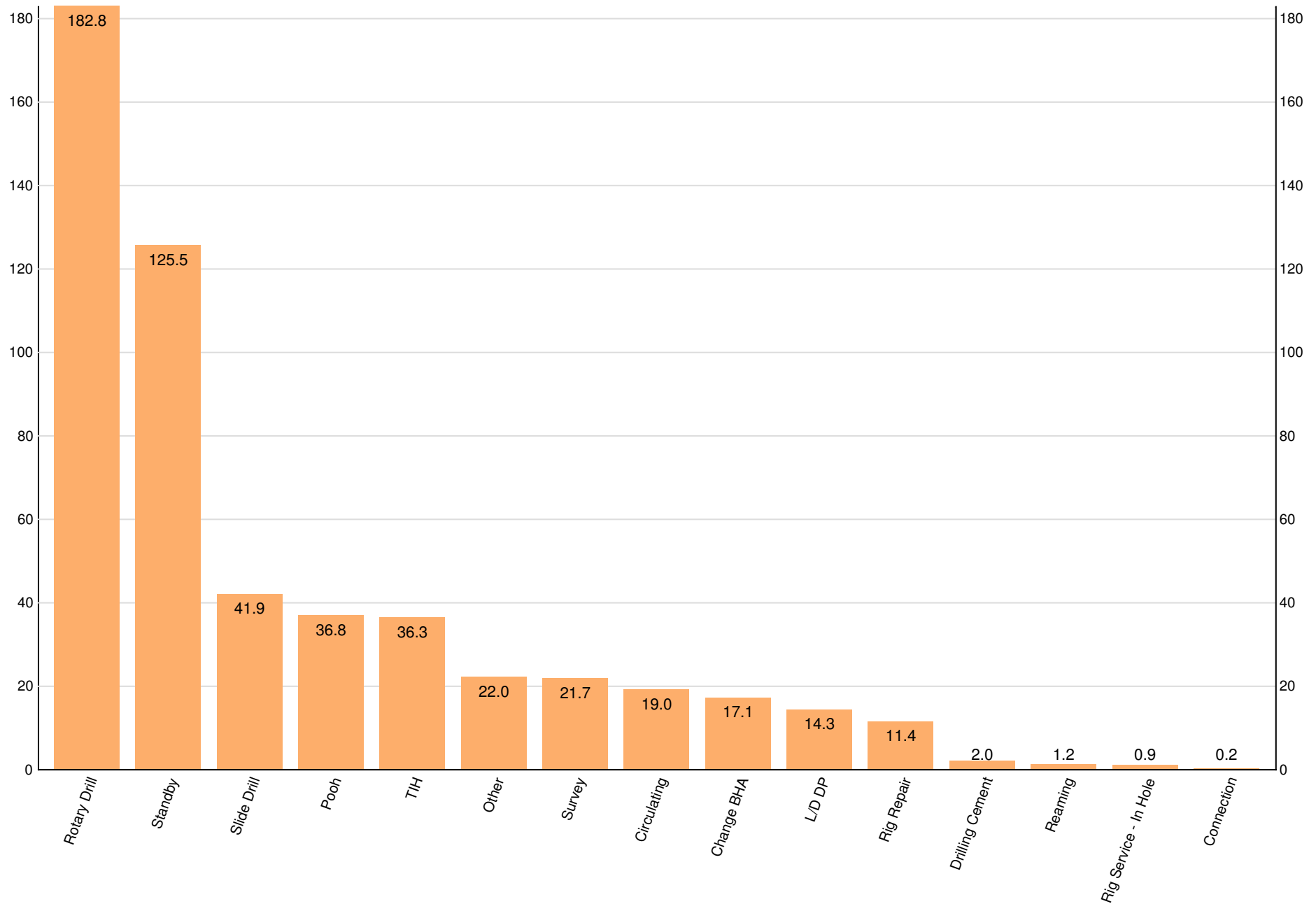
Total



Days vs. Depth



Directional Activity Hours





Proposed vs. As Drilled

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)

Advance Energy Partners, LLC

Merchant State Unit 551H
Lea County, New Mexico
WT-19-146
H&P 389
Plan 1.0



SITE DETAILS: Merchant State Unit 551H

Site Centre Northing: 525420.00
Easting: 783396.60

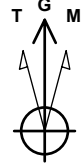
Positional Uncertainty: 0.00
Convergence: 0.42
Local North: Grid

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

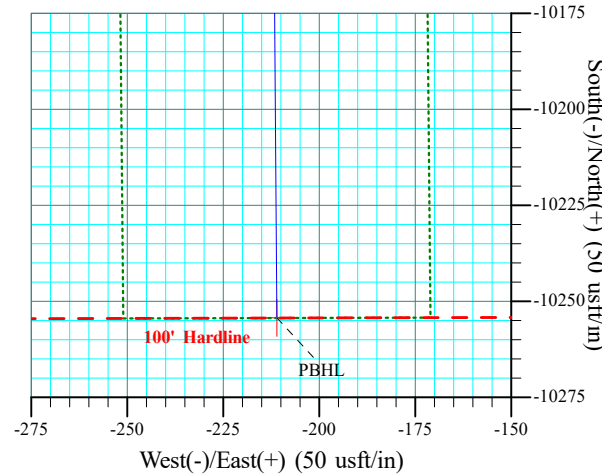
Depth Reference:
3684'GL+25.5'KB @ 3709.50usft (H&P 389)



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.18°

Magnetic Field
Strength: 48066.6nT
Dip Angle: 60.21°
Date: 9/15/2019
Model: MVHD

Magnetic North: 6.18° to Grid North

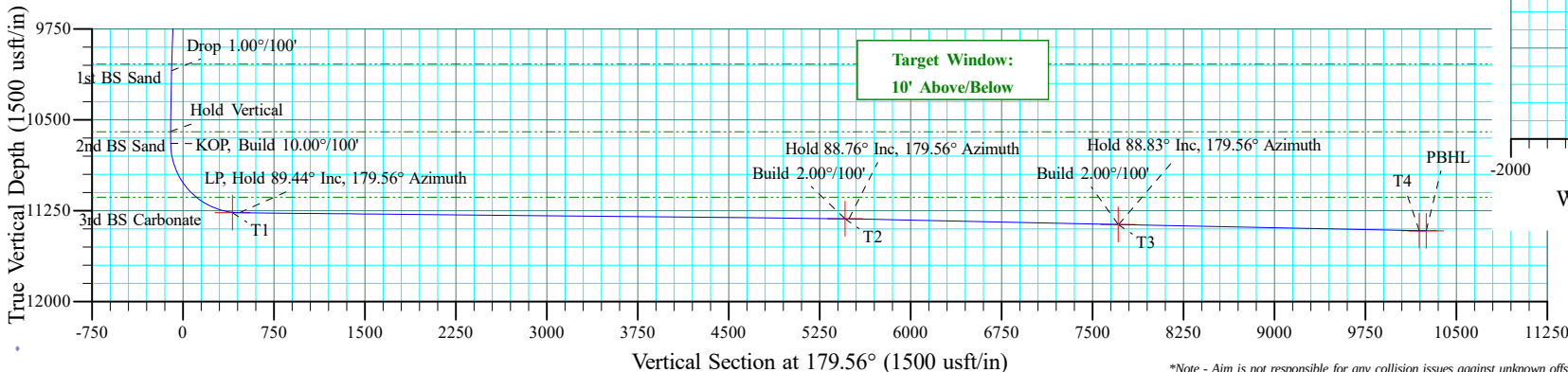
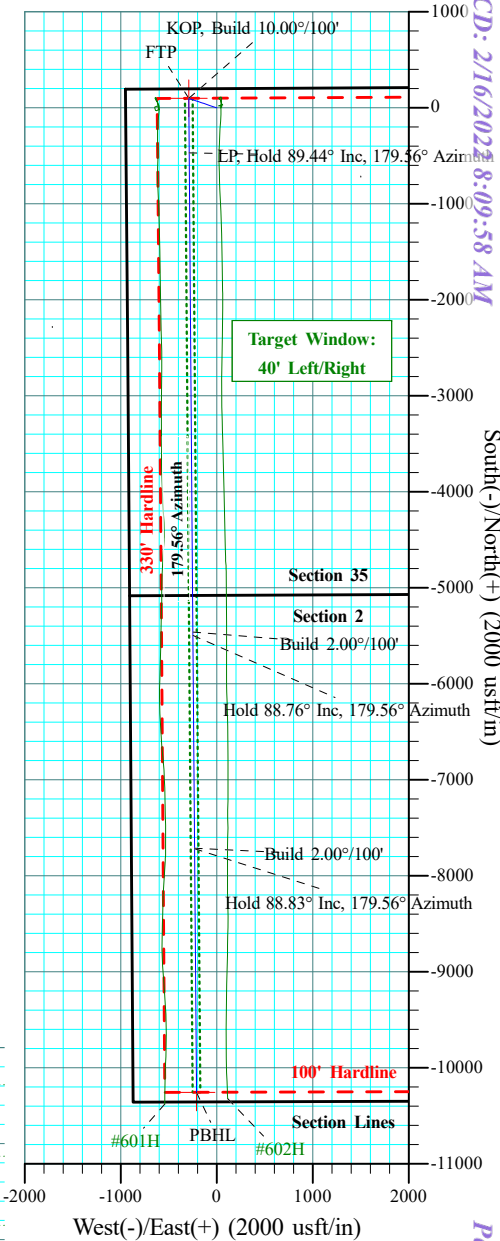


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
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2	6584.02	0.00	0.00	6584.02	0.00	0.00	0.000	0.00	0.00	Build 1.00°/100'
3	7084.02	5.00	288.71	7083.39	6.99	-20.65	1.000	288.71	-7.15	Hold 5.0° Inc, 288.71° Azimuth
4	10107.55	5.00	288.71	10095.41	91.51	-270.25	0.000	0.00	-93.58	Drop 1.00°/100'
5	10607.55	0.00	0.00	10594.78	98.50	-290.90	1.000	180.00	-100.73	Hold Vertical
6	10707.55	0.00	0.00	10694.78	98.50	-290.90	0.000	0.00	-100.73	KOP, Build 10.00°/100'
7	11601.95	89.44	179.56	11267.71	-468.84	-286.52	10.000	179.56	466.63	LP, Hold 89.44° Inc, 179.56° Azimuth
8	16594.57	89.44	179.56	11316.51	-5461.07	-247.99	0.000	0.00	5459.00	Build 2.00°/100'
9	16628.34	88.76	179.56	11317.04	-5494.84	-247.73	2.000	180.00	5492.77	Hold 88.76° Inc, 179.56° Azimuth
10	18848.09	88.76	179.56	11364.90	-7714.00	-230.61	0.000	0.00	7712.00	Build 2.00°/100'
11	18851.26	88.83	179.56	11364.96	-7717.17	-230.58	2.000	0.00	7715.18	Hold 88.83° Inc, 179.56° Azimuth
12	21389.00	88.83	179.56	11416.87	-10254.30	-211.00	0.000	0.00	10252.38	PBHL

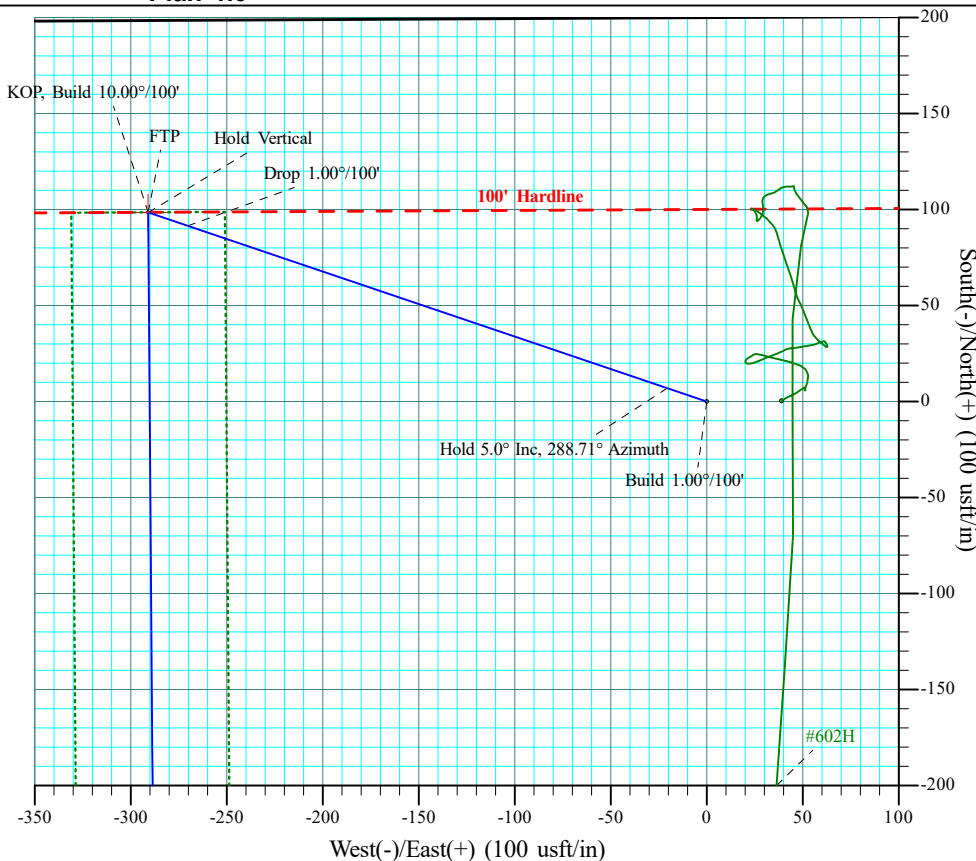
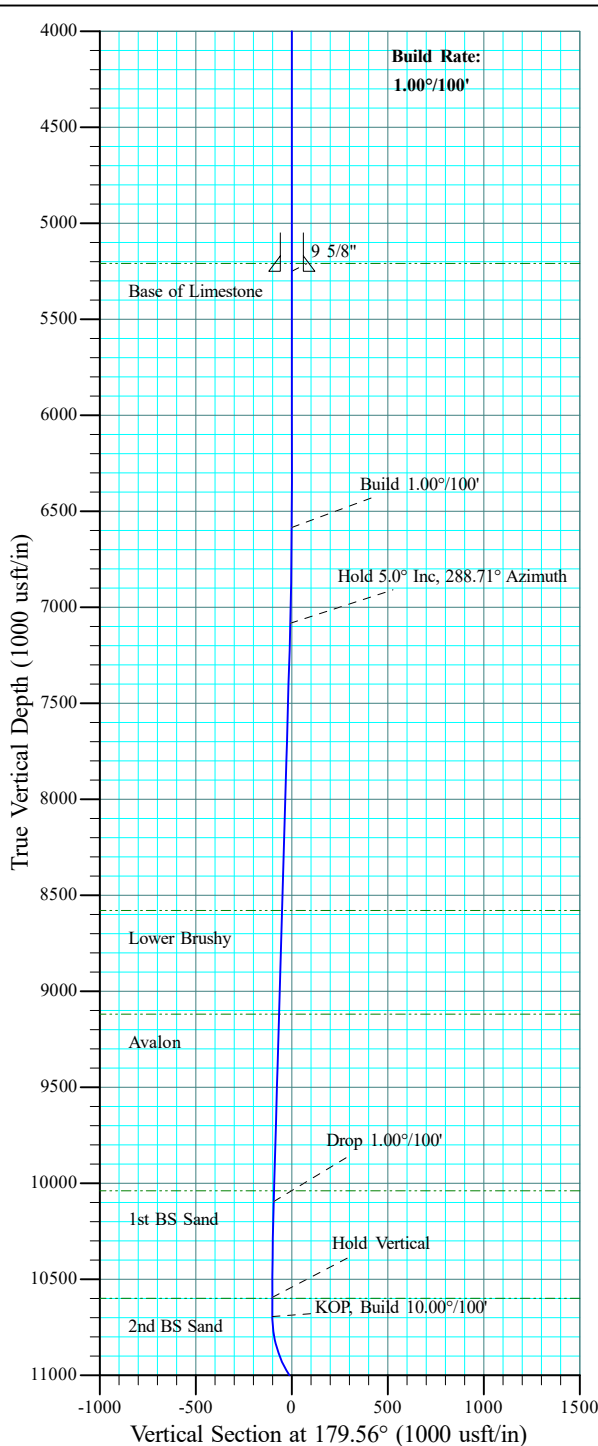
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant551H)	0.00	98.50	-290.90	525518.50	783105.70	32° 26' 32.198 N	103° 32' 58.672 W
PBHL r2 (Merchant551H)	11416.87	-10254.30	-211.00	515165.70	783185.60	32° 24' 49.753 N	103° 32' 58.625 W





Merchant State Unit 551H
Lea County, New Mexico
WT-19-146
H&P 389
Plan 1.0



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.18°

Magnetic Field
Strength: 48066.6nT
Dip Angle: 60.21°
Date: 9/15/2019
Model: MVHD

Magnetic North: 6.18° to Grid North

SITE DETAILS: Merchant State Unit 551H

Site Centre Northing: 525420.00
Easting: 783396.60

Positional Uncertainty: 0.00
Convergence: 0.42
Local North: Grid

Depth Reference:
3684'GL+25.5'KB @ 3709.50usft (H&P 389)

SLOTS

Slot Name	+N/-S	+E/-W
551H	0.00	0.00
601H	16.90	-619.90
602H	0.30	39.10

CASING DETAILS

TVD	MD	Name
1750.00	1750.00	13 3/8"
5250.00	5250.00	9 5/8"

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 (Merchant551H)	0.00	98.50	-290.90	525518.50	783105.70	32° 26' 32.198 N 103° 32' 58.672 W	
PBHL r2 (Merchant551H)	11416.87	-10254.30	-211.00	515165.70	783185.60	32° 24' 49.753 N 103° 32' 58.625 W	

Drawn By: IG

Date Created: 9/10/2019

Date Revised: 9/13/2019

File: Advance Energy - Merchant State Unit 551H 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	6584.02	0.00	0.00	6584.02	0.00	0.00	0.00	0.00	0.00	Build 1.00°/100'
3	7084.02	5.00	288.71	7083.39	6.99	-20.65	1.000	288.71	-7.15	Hold 5.0° Inc, 288.71° Azimuth
4	10107.55	5.00	288.71	10095.41	91.51	-270.25	0.000	0.00	-93.58	Drop 1.00°/100'
5	10607.55	0.00	0.00	10594.78	98.50	-290.90	1.000	180.00	-100.73	Hold Vertical
6	10707.55	0.00	0.00	10694.78	98.50	-290.90	0.000	0.00	-100.73	KOP, Build 10.00°/100'
7	11601.95	89.44	179.56	11267.71	-468.84	-286.52	10.000	179.56	466.63	LP, Hold 89.44° Inc, 179.56° Azimuth
8	16594.57	89.44	179.56	11316.51	-5461.07	-247.99	0.000	0.00	5459.00	Build 2.00°/100'
9	16628.34	88.76	179.56	11317.04	-5494.84	-247.73	2.000	180.00	5492.77	Hold 88.76° Inc, 179.56° Azimuth
10	18848.09	88.76	179.56	11364.90	-7714.00	-230.61	0.000	0.00	7712.00	Build 2.00°/100'
11	18851.26	88.83	179.56	11364.96	-7717.17	-230.58	2.000	0.00	7715.18	Hold 88.83° Inc, 179.56° Azimuth
12				11416.87	-10254.30	-211.00	0.000	0.00	10252.38	PBHL



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

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 551H											
Site Position:			Northing:			525,420.00 usft			Latitude:			32° 26' 31.202 N					
From:			Easting:			783,396.60 usft			Longitude:			103° 32' 55.286 W					
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.42 °		

Well	#551H - Slot 551H					
Well Position	+N/-S	0.00 usft	Northing:	525,420.00 usft	Latitude:	32° 26' 31.202 N
	+E/-W	0.00 usft	Easting:	783,396.60 usft	Longitude:	103° 32' 55.286 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,684.00 usft

Wellbore	Lateral 1r2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	9/15/2019	6.60	60.21	48,066.61348219

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	9/14/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	21,389.00	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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.000	0.000	0.000	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.000	0.000	0.000	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.000	0.000	0.000	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.000	0.000	0.000	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.000	0.000	0.000	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.000	0.000	0.000	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.000	0.000	0.000	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.000	0.000	0.000	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.000	0.000	0.000	



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.000	0.000	0.000
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.000	0.000	0.000
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.000	0.000	0.000
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.000	0.000	0.000
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.000	0.000	0.000
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.000	0.000	0.000
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.000	0.000	0.000
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.000	0.000	0.000
1,750.00	0.00	0.00	1,750.00	0.00	0.00	0.00	0.000	0.000	0.000
13 3/8"									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.000	0.000	0.000
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.000	0.000	0.000
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.000	0.000	0.000
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.000	0.000	0.000
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.000	0.000	0.000
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.000	0.000	0.000
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.000	0.000	0.000
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.000	0.000	0.000
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.000	0.000	0.000
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.000	0.000	0.000
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.000	0.000	0.000
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.000	0.000	0.000
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.000	0.000	0.000
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.000	0.000	0.000
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.000	0.000	0.000
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.000	0.000	0.000
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.000	0.000	0.000
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.000	0.000	0.000
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.000	0.000	0.000
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.000	0.000	0.000
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.000	0.000	0.000
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.000	0.000	0.000
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.000	0.000	0.000
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.000	0.000	0.000
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.000	0.000	0.000
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.000	0.000	0.000
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.000	0.000	0.000
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.000	0.000	0.000
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.000	0.000	0.000
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.000	0.000	0.000
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.000	0.000	0.000
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.000	0.000	0.000
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.000	0.000	0.000
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.000	0.000	0.000



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.000	0.000	0.000
5,250.00	0.00	0.00	5,250.00	0.00	0.00	0.00	0.000	0.000	0.000
9 5/8"									
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.000	0.000	0.000
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.000	0.000	0.000
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.000	0.000	0.000
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.000	0.000	0.000
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.000	0.000	0.000
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.000	0.000	0.000
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.000	0.000	0.000
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.000	0.000	0.000
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.000	0.000	0.000
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.000	0.000	0.000
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.000	0.000	0.000
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.000	0.000	0.000
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.000	0.000	0.000
6,584.02	0.00	0.00	6,584.02	0.00	0.00	0.00	0.000	0.000	0.000
Build 1.00°/100'									
6,600.00	0.16	288.71	6,600.00	0.01	-0.02	-0.01	1.000	1.000	0.000
6,700.00	1.16	288.71	6,699.99	0.38	-1.11	-0.38	1.000	1.000	0.000
6,800.00	2.16	288.71	6,799.95	1.31	-3.86	-1.33	1.000	1.000	0.000
6,900.00	3.16	288.71	6,899.84	2.79	-8.25	-2.86	1.000	1.000	0.000
7,000.00	4.16	288.71	6,999.63	4.84	-14.30	-4.95	1.000	1.000	0.000
7,084.02	5.00	288.71	7,083.39	6.99	-20.65	-7.15	1.000	1.000	0.000
Hold 5.0° Inc, 288.71° Azimuth									
7,100.00	5.00	288.71	7,099.30	7.44	-21.97	-7.61	0.000	0.000	0.000
7,200.00	5.00	288.71	7,198.92	10.23	-30.23	-10.47	0.000	0.000	0.000
7,300.00	5.00	288.71	7,298.54	13.03	-38.48	-13.32	0.000	0.000	0.000
7,400.00	5.00	288.71	7,398.16	15.82	-46.74	-16.18	0.000	0.000	0.000
7,500.00	5.00	288.71	7,497.78	18.62	-54.99	-19.04	0.000	0.000	0.000
7,600.00	5.00	288.71	7,597.40	21.42	-63.25	-21.90	0.000	0.000	0.000
7,700.00	5.00	288.71	7,697.02	24.21	-71.50	-24.76	0.000	0.000	0.000
7,800.00	5.00	288.71	7,796.64	27.01	-79.76	-27.62	0.000	0.000	0.000
7,900.00	5.00	288.71	7,896.26	29.80	-88.01	-30.48	0.000	0.000	0.000
8,000.00	5.00	288.71	7,995.88	32.60	-96.27	-33.33	0.000	0.000	0.000
8,100.00	5.00	288.71	8,095.50	35.39	-104.52	-36.19	0.000	0.000	0.000
8,200.00	5.00	288.71	8,195.12	38.19	-112.78	-39.05	0.000	0.000	0.000
8,300.00	5.00	288.71	8,294.74	40.98	-121.03	-41.91	0.000	0.000	0.000
8,400.00	5.00	288.71	8,394.36	43.78	-129.29	-44.77	0.000	0.000	0.000
8,500.00	5.00	288.71	8,493.98	46.57	-137.54	-47.63	0.000	0.000	0.000
8,600.00	5.00	288.71	8,593.60	49.37	-145.80	-50.49	0.000	0.000	0.000
8,700.00	5.00	288.71	8,693.22	52.16	-154.05	-53.34	0.000	0.000	0.000
8,800.00	5.00	288.71	8,792.84	54.96	-162.31	-56.20	0.000	0.000	0.000
8,900.00	5.00	288.71	8,892.46	57.75	-170.56	-59.06	0.000	0.000	0.000



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,000.00	5.00	288.71	8,992.07	60.55	-178.82	-61.92	0.000	0.000	0.000
9,100.00	5.00	288.71	9,091.69	63.34	-187.07	-64.78	0.000	0.000	0.000
9,200.00	5.00	288.71	9,191.31	66.14	-195.33	-67.64	0.000	0.000	0.000
9,300.00	5.00	288.71	9,290.93	68.93	-203.58	-70.50	0.000	0.000	0.000
9,400.00	5.00	288.71	9,390.55	71.73	-211.84	-73.35	0.000	0.000	0.000
9,500.00	5.00	288.71	9,490.17	74.52	-220.09	-76.21	0.000	0.000	0.000
9,600.00	5.00	288.71	9,589.79	77.32	-228.35	-79.07	0.000	0.000	0.000
9,700.00	5.00	288.71	9,689.41	80.12	-236.60	-81.93	0.000	0.000	0.000
9,800.00	5.00	288.71	9,789.03	82.91	-244.86	-84.79	0.000	0.000	0.000
9,900.00	5.00	288.71	9,888.65	85.71	-253.12	-87.65	0.000	0.000	0.000
10,000.00	5.00	288.71	9,988.27	88.50	-261.37	-90.51	0.000	0.000	0.000
10,107.55	5.00	288.71	10,095.41	91.51	-270.25	-93.58	0.000	0.000	0.000
Drop 1.00°/100'									
10,200.00	4.08	288.71	10,187.57	93.85	-277.18	-95.98	1.000	-1.000	0.000
10,300.00	3.08	288.71	10,287.37	95.85	-283.08	-98.02	1.000	-1.000	0.000
10,400.00	2.08	288.71	10,387.27	97.29	-287.34	-99.50	1.000	-1.000	0.000
10,500.00	1.08	288.71	10,487.23	98.18	-289.94	-100.40	1.000	-1.000	0.000
10,607.55	0.00	0.00	10,594.78	98.50	-290.90	-100.73	1.000	-1.000	66.286
Hold Vertical									
10,707.55	0.00	0.00	10,694.78	98.50	-290.90	-100.73	0.000	0.000	0.000
KOP, Build 10.00°/100'									
10,750.00	4.24	179.56	10,737.19	96.93	-290.89	-99.16	10.000	10.000	0.000
10,800.00	9.24	179.56	10,786.83	91.06	-290.84	-93.29	10.000	10.000	0.000
10,850.00	14.24	179.56	10,835.76	80.88	-290.76	-83.11	10.000	10.000	0.000
10,900.00	19.24	179.56	10,883.63	66.48	-290.65	-68.71	10.000	10.000	0.000
10,950.00	24.24	179.56	10,930.06	47.97	-290.51	-50.20	10.000	10.000	0.000
11,000.00	29.24	179.56	10,974.69	25.47	-290.34	-27.70	10.000	10.000	0.000
11,050.00	34.24	179.56	11,017.20	-0.82	-290.13	-1.40	10.000	10.000	0.000
11,100.00	39.24	179.56	11,057.25	-30.73	-289.90	28.50	10.000	10.000	0.000
11,150.00	44.24	179.56	11,094.55	-64.00	-289.65	61.78	10.000	10.000	0.000
11,200.00	49.24	179.56	11,128.80	-100.41	-289.36	98.18	10.000	10.000	0.000
11,250.00	54.24	179.56	11,159.75	-139.66	-289.06	137.43	10.000	10.000	0.000
11,300.00	59.24	179.56	11,187.16	-181.45	-288.74	179.23	10.000	10.000	0.000
11,350.00	64.24	179.56	11,210.82	-225.48	-288.40	223.26	10.000	10.000	0.000
11,400.00	69.24	179.56	11,230.55	-271.40	-288.05	269.18	10.000	10.000	0.000
11,450.00	74.24	179.56	11,246.21	-318.87	-287.68	316.65	10.000	10.000	0.000
11,500.00	79.24	179.56	11,257.67	-367.52	-287.30	365.30	10.000	10.000	0.000
11,550.00	84.24	179.56	11,264.85	-416.98	-286.92	414.77	10.000	10.000	0.000
11,601.95	89.44	179.56	11,267.71	-468.84	-286.52	466.63	10.000	10.000	0.000
LP, Hold 89.44° Inc, 179.56° Azimuth									
11,700.00	89.44	179.56	11,268.67	-566.88	-285.76	564.67	0.000	0.000	0.000
11,800.00	89.44	179.56	11,269.65	-666.87	-284.99	664.66	0.000	0.000	0.000
11,900.00	89.44	179.56	11,270.62	-766.86	-284.22	764.66	0.000	0.000	0.000
12,000.00	89.44	179.56	11,271.60	-866.86	-283.45	864.65	0.000	0.000	0.000



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,100.00	89.44	179.56	11,272.58	-966.85	-282.68	964.65	0.000	0.000	0.000
12,200.00	89.44	179.56	11,273.56	-1,066.84	-281.91	1,064.64	0.000	0.000	0.000
12,300.00	89.44	179.56	11,274.53	-1,166.83	-281.13	1,164.64	0.000	0.000	0.000
12,400.00	89.44	179.56	11,275.51	-1,266.82	-280.36	1,264.63	0.000	0.000	0.000
12,500.00	89.44	179.56	11,276.49	-1,366.82	-279.59	1,364.63	0.000	0.000	0.000
12,600.00	89.44	179.56	11,277.47	-1,466.81	-278.82	1,464.63	0.000	0.000	0.000
12,700.00	89.44	179.56	11,278.44	-1,566.80	-278.05	1,564.62	0.000	0.000	0.000
12,800.00	89.44	179.56	11,279.42	-1,666.79	-277.28	1,664.62	0.000	0.000	0.000
12,900.00	89.44	179.56	11,280.40	-1,766.79	-276.50	1,764.61	0.000	0.000	0.000
13,000.00	89.44	179.56	11,281.37	-1,866.78	-275.73	1,864.61	0.000	0.000	0.000
13,100.00	89.44	179.56	11,282.35	-1,966.77	-274.96	1,964.60	0.000	0.000	0.000
13,200.00	89.44	179.56	11,283.33	-2,066.76	-274.19	2,064.60	0.000	0.000	0.000
13,300.00	89.44	179.56	11,284.31	-2,166.76	-273.42	2,164.59	0.000	0.000	0.000
13,400.00	89.44	179.56	11,285.28	-2,266.75	-272.65	2,264.59	0.000	0.000	0.000
13,500.00	89.44	179.56	11,286.26	-2,366.74	-271.87	2,364.58	0.000	0.000	0.000
13,600.00	89.44	179.56	11,287.24	-2,466.73	-271.10	2,464.58	0.000	0.000	0.000
13,700.00	89.44	179.56	11,288.22	-2,566.72	-270.33	2,564.57	0.000	0.000	0.000
13,800.00	89.44	179.56	11,289.19	-2,666.72	-269.56	2,664.57	0.000	0.000	0.000
13,900.00	89.44	179.56	11,290.17	-2,766.71	-268.79	2,764.56	0.000	0.000	0.000
14,000.00	89.44	179.56	11,291.15	-2,866.70	-268.02	2,864.56	0.000	0.000	0.000
14,100.00	89.44	179.56	11,292.13	-2,966.69	-267.24	2,964.55	0.000	0.000	0.000
14,200.00	89.44	179.56	11,293.10	-3,066.69	-266.47	3,064.55	0.000	0.000	0.000
14,300.00	89.44	179.56	11,294.08	-3,166.68	-265.70	3,164.54	0.000	0.000	0.000
14,400.00	89.44	179.56	11,295.06	-3,266.67	-264.93	3,264.54	0.000	0.000	0.000
14,500.00	89.44	179.56	11,296.04	-3,366.66	-264.16	3,364.53	0.000	0.000	0.000
14,600.00	89.44	179.56	11,297.01	-3,466.65	-263.39	3,464.53	0.000	0.000	0.000
14,700.00	89.44	179.56	11,297.99	-3,566.65	-262.61	3,564.52	0.000	0.000	0.000
14,800.00	89.44	179.56	11,298.97	-3,666.64	-261.84	3,664.52	0.000	0.000	0.000
14,900.00	89.44	179.56	11,299.94	-3,766.63	-261.07	3,764.52	0.000	0.000	0.000
15,000.00	89.44	179.56	11,300.92	-3,866.62	-260.30	3,864.51	0.000	0.000	0.000
15,100.00	89.44	179.56	11,301.90	-3,966.62	-259.53	3,964.51	0.000	0.000	0.000
15,200.00	89.44	179.56	11,302.88	-4,066.61	-258.75	4,064.50	0.000	0.000	0.000
15,300.00	89.44	179.56	11,303.85	-4,166.60	-257.98	4,164.50	0.000	0.000	0.000
15,400.00	89.44	179.56	11,304.83	-4,266.59	-257.21	4,264.49	0.000	0.000	0.000
15,500.00	89.44	179.56	11,305.81	-4,366.58	-256.44	4,364.49	0.000	0.000	0.000
15,600.00	89.44	179.56	11,306.79	-4,466.58	-255.67	4,464.48	0.000	0.000	0.000
15,700.00	89.44	179.56	11,307.76	-4,566.57	-254.90	4,564.48	0.000	0.000	0.000
15,800.00	89.44	179.56	11,308.74	-4,666.56	-254.12	4,664.47	0.000	0.000	0.000
15,900.00	89.44	179.56	11,309.72	-4,766.55	-253.35	4,764.47	0.000	0.000	0.000
16,000.00	89.44	179.56	11,310.70	-4,866.55	-252.58	4,864.46	0.000	0.000	0.000
16,100.00	89.44	179.56	11,311.67	-4,966.54	-251.81	4,964.46	0.000	0.000	0.000
16,200.00	89.44	179.56	11,312.65	-5,066.53	-251.04	5,064.45	0.000	0.000	0.000
16,300.00	89.44	179.56	11,313.63	-5,166.52	-250.27	5,164.45	0.000	0.000	0.000



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,400.00	89.44	179.56	11,314.61	-5,266.51	-249.49	5,264.44	0.000	0.000	0.000
16,500.00	89.44	179.56	11,315.58	-5,366.51	-248.72	5,364.44	0.000	0.000	0.000
16,594.57	89.44	179.56	11,316.51	-5,461.07	-247.99	5,459.00	0.000	0.000	0.000
Build 2.00°/100'									
16,600.00	89.33	179.56	11,316.57	-5,466.50	-247.95	5,464.43	2.000	-2.000	0.000
16,628.34	88.76	179.56	11,317.04	-5,494.84	-247.73	5,492.77	2.000	-2.000	0.000
Hold 88.76° Inc, 179.56° Azimuth									
16,700.00	88.76	179.56	11,318.58	-5,566.48	-247.18	5,564.41	0.000	0.000	0.000
16,800.00	88.76	179.56	11,320.74	-5,666.45	-246.41	5,664.39	0.000	0.000	0.000
16,900.00	88.76	179.56	11,322.89	-5,766.42	-245.64	5,764.37	0.000	0.000	0.000
17,000.00	88.76	179.56	11,325.05	-5,866.40	-244.86	5,864.34	0.000	0.000	0.000
17,100.00	88.76	179.56	11,327.21	-5,966.37	-244.09	5,964.32	0.000	0.000	0.000
17,200.00	88.76	179.56	11,329.36	-6,066.34	-243.32	6,064.30	0.000	0.000	0.000
17,300.00	88.76	179.56	11,331.52	-6,166.32	-242.55	6,164.27	0.000	0.000	0.000
17,400.00	88.76	179.56	11,333.67	-6,266.29	-241.78	6,264.25	0.000	0.000	0.000
17,500.00	88.76	179.56	11,335.83	-6,366.27	-241.01	6,364.23	0.000	0.000	0.000
17,600.00	88.76	179.56	11,337.99	-6,466.24	-240.24	6,464.20	0.000	0.000	0.000
17,700.00	88.76	179.56	11,340.14	-6,566.21	-239.46	6,564.18	0.000	0.000	0.000
17,800.00	88.76	179.56	11,342.30	-6,666.19	-238.69	6,664.16	0.000	0.000	0.000
17,900.00	88.76	179.56	11,344.46	-6,766.16	-237.92	6,764.13	0.000	0.000	0.000
18,000.00	88.76	179.56	11,346.61	-6,866.13	-237.15	6,864.11	0.000	0.000	0.000
18,100.00	88.76	179.56	11,348.77	-6,966.11	-236.38	6,964.09	0.000	0.000	0.000
18,200.00	88.76	179.56	11,350.92	-7,066.08	-235.61	7,064.06	0.000	0.000	0.000
18,300.00	88.76	179.56	11,353.08	-7,166.06	-234.83	7,164.04	0.000	0.000	0.000
18,400.00	88.76	179.56	11,355.24	-7,266.03	-234.06	7,264.02	0.000	0.000	0.000
18,500.00	88.76	179.56	11,357.39	-7,366.00	-233.29	7,363.99	0.000	0.000	0.000
18,600.00	88.76	179.56	11,359.55	-7,465.98	-232.52	7,463.97	0.000	0.000	0.000
18,700.00	88.76	179.56	11,361.70	-7,565.95	-231.75	7,563.95	0.000	0.000	0.000
18,800.00	88.76	179.56	11,363.86	-7,665.92	-230.98	7,663.93	0.000	0.000	0.000
18,848.09	88.76	179.56	11,364.90	-7,714.00	-230.61	7,712.00	0.000	0.000	0.000
Build 2.00°/100'									
18,851.26	88.83	179.56	11,364.96	-7,717.17	-230.58	7,715.18	2.000	2.000	0.000
Hold 88.83° Inc, 179.56° Azimuth									
18,900.00	88.83	179.56	11,365.96	-7,765.90	-230.20	7,763.90	0.000	0.000	0.000
19,000.00	88.83	179.56	11,368.01	-7,865.88	-229.43	7,863.88	0.000	0.000	0.000
19,100.00	88.83	179.56	11,370.05	-7,965.85	-228.66	7,963.86	0.000	0.000	0.000
19,200.00	88.83	179.56	11,372.10	-8,065.83	-227.89	8,063.84	0.000	0.000	0.000
19,300.00	88.83	179.56	11,374.14	-8,165.80	-227.12	8,163.82	0.000	0.000	0.000
19,400.00	88.83	179.56	11,376.19	-8,265.78	-226.35	8,263.80	0.000	0.000	0.000
19,500.00	88.83	179.56	11,378.23	-8,365.76	-225.58	8,363.78	0.000	0.000	0.000
19,600.00	88.83	179.56	11,380.28	-8,465.73	-224.80	8,463.76	0.000	0.000	0.000
19,700.00	88.83	179.56	11,382.32	-8,565.71	-224.03	8,563.74	0.000	0.000	0.000
19,800.00	88.83	179.56	11,384.37	-8,665.68	-223.26	8,663.71	0.000	0.000	0.000
19,900.00	88.83	179.56	11,386.42	-8,765.66	-222.49	8,763.69	0.000	0.000	0.000



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
20,000.00	88.83	179.56	11,388.46	-8,865.64	-221.72	8,863.67	0.000	0.000	0.000
20,100.00	88.83	179.56	11,390.51	-8,965.61	-220.95	8,963.65	0.000	0.000	0.000
20,200.00	88.83	179.56	11,392.55	-9,065.59	-220.17	9,063.63	0.000	0.000	0.000
20,300.00	88.83	179.56	11,394.60	-9,165.57	-219.40	9,163.61	0.000	0.000	0.000
20,400.00	88.83	179.56	11,396.64	-9,265.54	-218.63	9,263.59	0.000	0.000	0.000
20,500.00	88.83	179.56	11,398.69	-9,365.52	-217.86	9,363.57	0.000	0.000	0.000
20,600.00	88.83	179.56	11,400.73	-9,465.49	-217.09	9,463.55	0.000	0.000	0.000
20,700.00	88.83	179.56	11,402.78	-9,565.47	-216.32	9,563.53	0.000	0.000	0.000
20,800.00	88.83	179.56	11,404.82	-9,665.45	-215.54	9,663.51	0.000	0.000	0.000
20,900.00	88.83	179.56	11,406.87	-9,765.42	-214.77	9,763.48	0.000	0.000	0.000
21,000.00	88.83	179.56	11,408.91	-9,865.40	-214.00	9,863.46	0.000	0.000	0.000
21,100.00	88.83	179.56	11,410.96	-9,965.37	-213.23	9,963.44	0.000	0.000	0.000
21,200.00	88.83	179.56	11,413.00	-10,065.35	-212.46	10,063.42	0.000	0.000	0.000
21,300.00	88.83	179.56	11,415.05	-10,165.33	-211.69	10,163.40	0.000	0.000	0.000
21,389.00	88.83	179.56	11,416.87	-10,254.30	-211.00	10,252.38	0.000	0.000	0.000
PBHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Merchant551H)	0.00	0.00	0.00	98.50	-290.90	525,518.50	783,105.70	32° 26' 32.198 N	103° 32' 58.672 W
- hit/miss target									
- plan misses target center by 307.12usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
PBHL r2 (Merchant55)	0.00	0.00	11,416.87	-10,254.30	-211.00	515,165.70	783,185.60	32° 24' 49.753 N	103° 32' 58.625 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,750.00	1,750.00	13 3/8"	13-3/8	17-1/2
5,250.00	5,250.00	9 5/8"	9-5/8	12-1/4



Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Lateral 1r2	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1.0	Database:	EDMRESTORED

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,759.50	1,759.50	Rustler		0.00	
5,209.50	5,209.50	Base of Limestone		0.00	
8,585.85	8,579.50	Lower Brushy		0.00	
9,127.91	9,119.50	Avalon		0.00	
10,051.43	10,039.50	1st BS Sand		0.00	
10,612.27	10,599.50	2nd BS Sand		0.00	
11,216.68	11,139.50	3rd BS Carbonate		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6584	6584	0	0	Build 1.00°/100'
7084	7083	7	-21	Hold 5.0° Inc, 288.71° Azimuth
10,108	10,095	92	-270	Drop 1.00°/100'
10,608	10,595	98	-291	Hold Vertical
10,708	10,695	98	-291	KOP, Build 10.00°/100'
11,602	11,268	-469	-287	LP, Hold 89.44° Inc, 179.56° Azimuth
16,595	11,317	-5461	-248	Build 2.00°/100'
16,628	11,317	-5495	-248	Hold 88.76° Inc, 179.56° Azimuth
18,848	11,365	-7714	-231	Build 2.00°/100'
18,851	11,365	-7717	-231	Hold 88.83° Inc, 179.56° Azimuth
21,389	11,417	-10,254	-211	PBHL

Checked By: _____ Approved By: _____ Date: _____

Advance Energy Partners, LLC

Merchant State Unit 551H
Lea County, New Mexico
WT-19-146
H&P 389
Plan 1.0 Final PVA



SITE DETAILS: Merchant State Unit 551H

Site Centre Northing: 525420.00
Easting: 783396.60

Positional Uncertainty: 0.00
Convergence: 0.42
Local North: Grid



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.18°

Magnetic Field
Strength: 48066.6nT
Dip Angle: 60.21°
Date: 9/15/2019
Model: MVHD

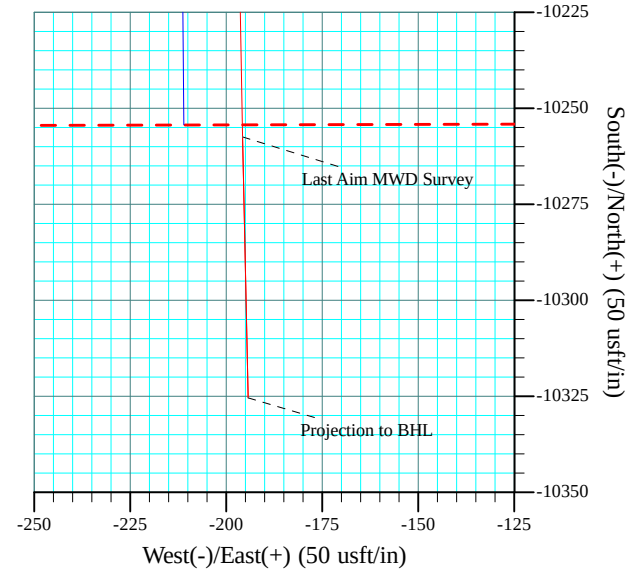
Magnetic North: 6.18° to Grid North

PROJECT DETAILS: Lea County, New Mexico

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

System Datum: Mean Sea Level

Depth Reference:
3684'GL+25.5'KB @ 3709.50usft (H&P 389)

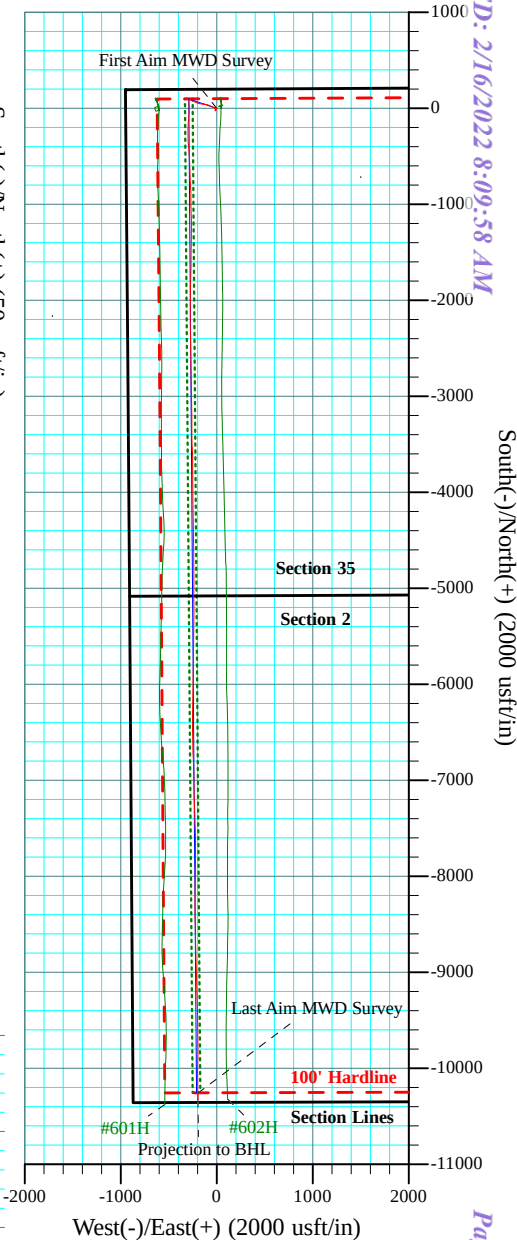
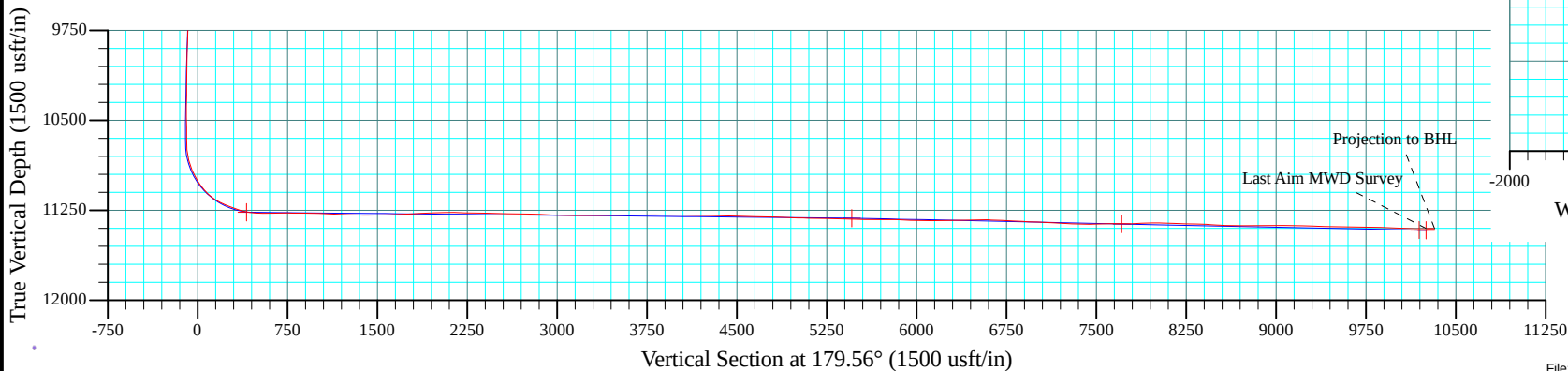


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	21387.00	90.20	178.80	11403.83	-10257.41	-195.70	0.00	0.00	10255.60	Last Aim MWD Survey
2	21455.00	90.20	178.80	11403.60	-10325.39	-194.28	0.00	0.00	10323.60	Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant551H)	0.00	98.50	-290.90	525518.50	783105.70	32° 26' 32.198 N	103° 32' 58.672 W
PBHL r2 (Merchant551H)	11416.87	-10254.30	-211.00	515165.70	783185.60	32° 24' 49.753 N	103° 32' 58.625 W



Received by OCD: 2/16/2022 8:09:58 AM

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

Page 21 of 188



Survey Reports

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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 551H			
Site Position:		Northing:	525,420.00 usft	Latitude:	32° 26' 31.202 N
From:	Map	Easting:	783,396.60 usft	Longitude:	103° 32' 55.286 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	#551H - Slot 551H					
Well Position	+N/-S	0.00 usft	Northing:	525,420.00 usft	Latitude:	32° 26' 31.202 N
	+E/-W	0.00 usft	Easting:	783,396.60 usft	Longitude:	103° 32' 55.286 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,684.00 usft

Wellbore	Aim MWD Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	9/18/2019	6.60	60.21	48,065.71517684

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	10/3/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
141.00	21,455.00	Aim MWD Surveys (Aim MWD Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
141.00	0.13	130.55	141.00	-0.10	0.12	0.10	0.09	0.09	0.00	
First Aim MWD Survey										
331.00	0.31	169.30	331.00	-0.75	0.38	0.75	0.12	0.09	20.39	
425.00	0.62	189.17	425.00	-1.50	0.35	1.50	0.37	0.33	21.14	
615.00	0.48	207.98	614.99	-3.22	-0.19	3.22	0.12	-0.07	9.90	
709.00	0.48	206.57	708.98	-3.92	-0.55	3.91	0.01	0.00	-1.50	
804.00	0.66	204.46	803.98	-4.77	-0.96	4.77	0.19	0.19	-2.22	
894.00	0.75	207.89	893.97	-5.77	-1.45	5.75	0.11	0.10	3.81	
983.00	1.01	224.76	982.96	-6.84	-2.27	6.82	0.41	0.29	18.96	
1,073.00	1.23	225.99	1,072.94	-8.07	-3.52	8.04	0.25	0.24	1.37	

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
1,162.00	1.19	223.89	1,161.92	-9.40	-4.85	9.36	0.07	-0.04	-2.36
1,252.00	1.23	229.07	1,251.90	-10.71	-6.23	10.66	0.13	0.04	5.76
1,342.00	1.23	228.63	1,341.88	-11.98	-7.68	11.92	0.01	0.00	-0.49
1,432.00	1.32	230.30	1,431.86	-13.28	-9.21	13.21	0.11	0.10	1.86
1,521.00	1.41	236.72	1,520.84	-14.53	-10.91	14.45	0.20	0.10	7.21
1,611.00	1.27	237.77	1,610.81	-15.67	-12.68	15.58	0.16	-0.16	1.17
1,687.00	1.19	239.53	1,686.79	-16.52	-14.07	16.42	0.12	-0.11	2.32
1,786.00	0.66	191.89	1,785.78	-17.60	-15.08	17.49	0.90	-0.54	-48.12
1,876.00	0.62	207.27	1,875.78	-18.54	-15.41	18.42	0.20	-0.04	17.09
2,055.00	0.48	192.24	2,054.77	-20.14	-16.01	20.01	0.11	-0.08	-8.40
2,235.00	0.44	194.00	2,234.76	-21.54	-16.34	21.42	0.02	-0.02	0.98
2,324.00	0.35	193.04	2,323.76	-22.14	-16.48	22.01	0.10	-0.10	-1.08
2,503.00	0.26	164.47	2,502.76	-23.06	-16.49	22.94	0.10	-0.05	-15.96
2,593.00	0.35	130.19	2,592.76	-23.44	-16.23	23.31	0.22	0.10	-38.09
2,683.00	0.40	112.35	2,682.75	-23.74	-15.73	23.61	0.14	0.06	-19.82
2,772.00	0.44	102.60	2,771.75	-23.93	-15.11	23.81	0.09	0.04	-10.96
2,862.00	0.57	90.20	2,861.75	-24.01	-14.32	23.89	0.19	0.14	-13.78
2,952.00	0.62	89.50	2,951.74	-24.00	-13.39	23.90	0.06	0.06	-0.78
3,041.00	0.84	86.69	3,040.74	-23.96	-12.26	23.87	0.25	0.25	-3.16
3,131.00	1.05	85.19	3,130.72	-23.85	-10.78	23.77	0.23	0.23	-1.67
3,221.00	0.57	358.36	3,220.72	-23.34	-9.97	23.26	1.30	-0.53	-96.48
3,310.00	1.36	328.39	3,309.70	-21.99	-10.53	21.91	1.02	0.89	-33.67
3,400.00	1.14	342.80	3,399.68	-20.23	-11.36	20.14	0.42	-0.24	16.01
3,490.00	0.79	5.74	3,489.67	-18.76	-11.56	18.67	0.57	-0.39	25.49
3,579.00	0.75	4.07	3,578.66	-17.57	-11.46	17.48	0.05	-0.04	-1.88
3,669.00	0.70	358.01	3,668.66	-16.43	-11.44	16.34	0.10	-0.06	-6.73
3,758.00	0.70	355.90	3,757.65	-15.34	-11.49	15.25	0.03	0.00	-2.37
3,848.00	0.70	353.17	3,847.64	-14.25	-11.60	14.16	0.04	0.00	-3.03
3,938.00	0.79	353.70	3,937.63	-13.09	-11.73	13.00	0.10	0.10	0.59
4,027.00	0.62	1.52	4,026.63	-12.00	-11.79	11.90	0.22	-0.19	8.79
4,117.00	0.40	337.88	4,116.62	-11.22	-11.89	11.13	0.33	-0.24	-26.27
4,206.00	0.84	296.31	4,205.62	-10.64	-12.59	10.54	0.68	0.49	-46.71
4,296.00	0.84	311.78	4,295.61	-9.91	-13.68	9.80	0.25	0.00	17.19
4,385.00	0.79	324.52	4,384.60	-8.97	-14.52	8.86	0.21	-0.06	14.31
4,475.00	0.79	336.03	4,474.59	-7.90	-15.13	7.79	0.18	0.00	12.79
4,565.00	0.79	338.93	4,564.58	-6.76	-15.61	6.64	0.04	0.00	3.22
4,654.00	0.84	344.56	4,653.58	-5.55	-16.00	5.43	0.11	0.06	6.33
4,743.00	0.70	343.42	4,742.57	-4.40	-16.33	4.28	0.16	-0.16	-1.28
4,833.00	0.79	341.22	4,832.56	-3.29	-16.69	3.16	0.10	0.10	-2.44
4,923.00	0.84	344.12	4,922.55	-2.07	-17.07	1.94	0.07	0.06	3.22
5,012.00	0.79	342.63	5,011.54	-0.86	-17.43	0.72	0.06	-0.06	-1.67
5,192.00	0.79	346.58	5,191.52	1.54	-18.09	-1.67	0.03	0.00	2.19
5,285.00	0.70	353.88	5,284.52	2.72	-18.30	-2.86	0.14	-0.10	7.85

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
5,375.00	0.48	0.12	5,374.51	3.65	-18.35	-3.79	0.25	-0.24	6.93	
5,465.00	0.26	320.39	5,464.51	4.18	-18.48	-4.32	0.36	-0.24	-44.14	
5,554.00	0.22	243.66	5,553.51	4.26	-18.76	-4.41	0.34	-0.04	-86.21	
5,644.00	0.18	268.27	5,643.51	4.18	-19.06	-4.33	0.10	-0.04	27.34	
5,734.00	0.22	258.60	5,733.51	4.14	-19.37	-4.29	0.06	0.04	-10.74	
5,823.00	0.18	157.88	5,822.51	3.98	-19.49	-4.13	0.35	-0.04	-113.17	
5,913.00	0.18	149.35	5,912.51	3.73	-19.36	-3.88	0.03	0.00	-9.48	
6,002.00	0.31	137.66	6,001.51	3.43	-19.13	-3.58	0.16	0.15	-13.13	
6,092.00	0.26	135.56	6,091.51	3.10	-18.82	-3.25	0.06	-0.06	-2.33	
6,181.00	0.40	114.90	6,180.50	2.83	-18.40	-2.97	0.20	0.16	-23.21	
6,271.00	0.44	109.89	6,270.50	2.58	-17.79	-2.71	0.06	0.04	-5.57	
6,360.00	0.97	299.65	6,359.50	2.83	-18.12	-2.97	1.58	0.60	-191.28	
6,450.00	2.07	303.16	6,449.47	4.10	-20.14	-4.25	1.23	1.22	3.90	
6,540.00	3.82	301.05	6,539.34	6.54	-24.07	-6.72	1.95	1.94	-2.34	
6,629.00	5.49	296.66	6,628.05	9.98	-30.42	-10.21	1.92	1.88	-4.93	
6,719.00	6.02	293.14	6,717.59	13.76	-38.61	-14.06	0.71	0.59	-3.91	
6,808.00	5.89	293.06	6,806.11	17.38	-47.10	-17.75	0.15	-0.15	-0.09	
6,898.00	5.98	294.64	6,895.63	21.15	-55.61	-21.57	0.21	0.10	1.76	
6,988.00	5.98	295.96	6,985.14	25.15	-64.09	-25.65	0.15	0.00	1.47	
7,077.00	5.71	293.14	7,073.68	28.92	-72.32	-29.48	0.44	-0.30	-3.17	
7,167.00	5.41	290.42	7,163.25	32.16	-80.42	-32.78	0.44	-0.33	-3.02	
7,256.00	5.14	291.47	7,251.88	35.09	-88.06	-35.76	0.32	-0.30	1.18	
7,346.00	4.57	283.12	7,341.56	37.38	-95.30	-38.11	1.01	-0.63	-9.28	
7,436.00	5.14	277.15	7,431.23	38.69	-102.80	-39.48	0.85	0.63	-6.63	
7,526.00	6.15	278.82	7,520.80	39.93	-111.56	-40.79	1.14	1.12	1.86	
7,615.00	5.98	277.06	7,609.30	41.23	-120.87	-42.16	0.28	-0.19	-1.98	
7,705.00	4.97	277.67	7,698.89	42.33	-129.39	-43.32	1.12	-1.12	0.68	
7,795.00	4.62	276.53	7,788.57	43.26	-136.85	-44.31	0.40	-0.39	-1.27	
7,974.00	3.78	272.22	7,967.09	44.31	-149.91	-45.46	0.50	-0.47	-2.41	
8,153.00	4.79	279.70	8,145.59	45.80	-163.17	-47.05	0.64	0.56	4.18	
8,243.00	4.18	276.88	8,235.31	46.83	-170.14	-48.13	0.72	-0.68	-3.13	
8,333.00	4.31	283.83	8,325.06	48.03	-176.68	-49.38	0.59	0.14	7.72	
8,422.00	4.31	283.56	8,413.81	49.61	-183.17	-51.02	0.02	0.00	-0.30	
8,512.00	3.87	279.87	8,503.58	50.92	-189.45	-52.38	0.57	-0.49	-4.10	
8,601.00	4.57	295.34	8,592.34	52.96	-195.62	-54.46	1.49	0.79	17.38	
8,691.00	4.26	299.91	8,682.08	56.16	-201.76	-57.71	0.52	-0.34	5.08	
8,781.00	4.00	293.23	8,771.84	59.06	-207.54	-60.65	0.61	-0.29	-7.42	
8,870.00	3.96	290.77	8,860.63	61.38	-213.26	-63.01	0.20	-0.04	-2.76	
8,960.00	3.25	294.55	8,950.45	63.54	-218.49	-65.21	0.83	-0.79	4.20	
9,050.00	2.77	294.46	9,040.33	65.50	-222.79	-67.21	0.53	-0.53	-0.10	
9,140.00	3.47	294.37	9,130.19	67.52	-227.25	-69.27	0.78	0.78	-0.10	
9,229.00	2.95	294.64	9,219.05	69.59	-231.79	-71.37	0.58	-0.58	0.30	
9,319.00	3.69	293.41	9,308.90	71.71	-236.55	-73.52	0.83	0.82	-1.37	

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
9,409.00	3.52	288.22	9,398.72	73.72	-241.83	-75.58	0.41	-0.19	-5.77
9,498.00	3.08	286.29	9,487.58	75.25	-246.72	-77.14	0.51	-0.49	-2.17
9,588.00	2.64	278.20	9,577.46	76.22	-251.09	-78.15	0.66	-0.49	-8.99
9,678.00	3.30	296.13	9,667.34	77.66	-255.47	-79.62	1.26	0.73	19.92
9,767.00	3.47	302.72	9,756.19	80.24	-260.04	-82.23	0.48	0.19	7.40
9,857.00	3.03	308.61	9,846.04	83.20	-264.19	-85.22	0.61	-0.49	6.54
9,947.00	2.55	304.48	9,935.94	85.81	-267.70	-87.87	0.58	-0.53	-4.59
10,037.00	2.46	290.42	10,025.85	87.62	-271.16	-89.70	0.69	-0.10	-15.62
10,127.00	2.33	290.07	10,115.77	88.92	-274.68	-91.03	0.15	-0.14	-0.39
10,216.00	2.24	282.77	10,204.70	89.93	-278.08	-92.06	0.34	-0.10	-8.20
10,306.00	1.76	284.44	10,294.65	90.66	-281.13	-92.82	0.54	-0.53	1.86
10,395.00	1.14	274.95	10,383.62	91.08	-283.34	-93.25	0.74	-0.70	-10.66
10,485.00	1.05	256.49	10,473.60	90.96	-285.03	-93.15	0.40	-0.10	-20.51
10,575.00	1.85	260.71	10,563.57	90.54	-287.27	-92.74	0.90	0.89	4.69
10,664.00	0.70	265.37	10,652.55	90.26	-289.23	-92.48	1.30	-1.29	5.24
10,758.00	4.26	181.87	10,746.46	86.72	-289.92	-88.95	4.51	3.79	-88.83
10,847.00	14.59	175.81	10,834.14	72.20	-289.20	-74.42	11.64	11.61	-6.81
10,937.00	22.95	175.37	10,919.28	43.35	-286.95	-45.56	9.29	9.29	-0.49
11,027.00	31.82	181.08	10,999.13	2.05	-285.98	-4.25	10.27	9.86	6.34
11,116.00	39.34	182.75	11,071.46	-49.66	-287.78	47.45	8.52	8.45	1.88
11,206.00	50.51	185.56	11,135.09	-112.92	-292.53	110.67	12.60	12.41	3.12
11,296.00	63.60	182.49	11,183.94	-188.10	-297.67	185.80	14.82	14.54	-3.41
11,385.00	69.67	179.85	11,219.22	-269.73	-299.29	267.43	7.34	6.82	-2.97
11,475.00	70.77	177.22	11,249.68	-354.39	-297.12	352.09	3.01	1.22	-2.92
11,564.00	81.14	173.88	11,267.14	-423.91	-291.66	421.66	15.09	14.40	-4.64
11,654.00	84.04	174.40	11,269.46	-441.67	-289.84	439.43	16.36	16.11	2.89
11,744.00	89.49	177.74	11,274.48	-530.27	-283.76	528.08	7.18	6.12	3.75
11,833.00	89.88	177.83	11,274.97	-620.20	-280.28	618.03	0.44	0.43	0.10
11,923.00	90.20	177.39	11,274.91	-709.12	-276.57	706.98	0.61	0.36	-0.49
12,013.00	90.55	177.48	11,274.32	-799.03	-272.54	796.92	0.40	0.39	0.10
12,103.00	88.75	179.06	11,274.87	-888.98	-269.83	886.89	2.66	-2.00	1.76
12,192.00	88.79	179.06	11,276.78	-977.95	-268.37	975.86	0.04	0.04	0.00
12,282.00	88.62	179.15	11,278.82	-1,067.92	-266.96	1,065.84	0.21	-0.19	0.10
12,371.00	86.68	178.89	11,282.51	-1,157.82	-265.42	1,155.75	2.17	-2.16	-0.29
12,461.00	87.30	178.89	11,287.18	-1,246.68	-263.70	1,244.62	0.70	0.70	0.00
12,550.00	88.97	181.52	11,290.11	-1,336.62	-264.03	1,334.56	3.46	1.86	2.92
12,640.00	89.98	180.82	11,290.93	-1,425.60	-265.84	1,423.52	1.38	1.13	-0.79
12,729.00	90.77	180.82	11,290.34	-1,515.59	-267.13	1,513.49	0.88	0.88	0.00
12,819.00	91.16	179.76	11,288.84	-1,604.57	-267.58	1,602.47	1.27	0.44	-1.19
12,909.00	92.62	180.99	11,285.87	-1,694.52	-268.17	1,692.41	2.12	1.62	1.37
12,998.00	93.76	181.43	11,280.86	-1,784.36	-270.07	1,782.23	1.36	1.27	0.49
13,088.00	92.79	181.43	11,275.78	-1,873.18	-272.28	1,871.04	1.09	-1.09	0.00
13,178.00	91.60	180.47	11,272.33	-1,963.10	-273.78	1,960.94	1.70	-1.32	-1.07
13,268.00	91.87	180.64	11,269.61	-2,053.06	-274.65	2,050.89	0.35	0.30	0.19

Aim Directional Services, LLC

Survey Report

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Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
13,267.00	88.79	180.38	11,269.09	-2,142.04	-275.44	2,139.86	3.47	-3.46	-0.29
13,357.00	88.53	179.94	11,271.20	-2,232.02	-275.69	2,229.83	0.57	-0.29	-0.49
13,447.00	88.66	179.50	11,273.40	-2,321.99	-275.25	2,319.80	0.51	0.14	-0.49
13,536.00	88.70	179.15	11,275.45	-2,410.96	-274.20	2,408.78	0.40	0.04	-0.39
13,626.00	88.84	178.71	11,277.39	-2,500.92	-272.52	2,498.75	0.51	0.16	-0.49
13,715.00	88.84	178.45	11,279.19	-2,589.87	-270.32	2,587.72	0.29	0.00	-0.29
13,805.00	89.19	178.09	11,280.74	-2,679.82	-267.60	2,677.69	0.56	0.39	-0.40
13,895.00	88.26	179.06	11,282.74	-2,769.77	-265.36	2,767.65	1.49	-1.03	1.08
13,984.00	87.69	179.32	11,285.88	-2,858.70	-264.10	2,856.59	0.70	-0.64	0.29
14,074.00	87.69	179.15	11,289.51	-2,948.62	-262.90	2,946.52	0.19	0.00	-0.19
14,164.00	89.05	179.59	11,292.07	-3,038.58	-261.92	3,036.48	1.59	1.51	0.49
14,253.00	89.27	179.06	11,293.38	-3,127.56	-260.87	3,125.47	0.64	0.25	-0.60
14,343.00	90.11	179.76	11,293.86	-3,217.55	-259.94	3,215.46	1.21	0.93	0.78
14,432.00	90.24	179.32	11,293.59	-3,306.55	-259.23	3,304.46	0.52	0.15	-0.49
14,522.00	90.55	179.32	11,292.97	-3,396.54	-258.16	3,394.46	0.34	0.34	0.00
14,612.00	90.51	178.62	11,292.14	-3,486.52	-256.54	3,484.45	0.78	-0.04	-0.78
14,701.00	90.29	178.01	11,291.52	-3,575.48	-253.92	3,573.43	0.73	-0.25	-0.69
14,791.00	91.38	177.65	11,290.20	-3,665.41	-250.52	3,663.37	1.28	1.21	-0.40
14,881.00	89.41	182.14	11,289.58	-3,755.38	-250.35	3,753.34	5.45	-2.19	4.99
14,970.00	89.19	179.41	11,290.67	-3,844.35	-251.55	3,842.31	3.08	-0.25	-3.07
15,060.00	89.80	179.15	11,291.46	-3,934.34	-250.42	3,932.30	0.74	0.68	-0.29
15,150.00	89.58	178.80	11,291.95	-4,024.33	-248.81	4,022.30	0.46	-0.24	-0.39
15,239.00	89.45	178.71	11,292.70	-4,113.30	-246.88	4,111.28	0.18	-0.15	-0.10
15,329.00	89.98	178.27	11,293.15	-4,203.27	-244.51	4,201.27	0.77	0.59	-0.49
15,418.00	88.40	180.20	11,294.41	-4,292.25	-243.32	4,290.25	2.80	-1.78	2.17
15,508.00	88.48	180.20	11,296.86	-4,382.21	-243.63	4,380.21	0.09	0.09	0.00
15,598.00	88.48	179.68	11,299.25	-4,472.18	-243.54	4,470.18	0.58	0.00	-0.58
15,688.00	89.01	179.32	11,301.22	-4,562.15	-242.75	4,560.16	0.71	0.59	-0.40
15,778.00	89.01	178.53	11,302.77	-4,652.12	-241.07	4,650.14	0.88	0.00	-0.88
15,867.00	88.57	177.57	11,304.65	-4,741.05	-238.04	4,739.08	1.19	-0.49	-1.08
15,957.00	88.04	179.76	11,307.32	-4,830.98	-235.94	4,829.03	2.50	-0.59	2.43
16,047.00	87.25	181.08	11,311.01	-4,920.90	-236.60	4,918.94	1.71	-0.88	1.47
16,136.00	88.13	180.91	11,314.60	-5,009.81	-238.15	5,007.84	1.01	0.99	-0.19
16,226.00	89.23	180.12	11,316.68	-5,099.78	-238.95	5,097.80	1.50	1.22	-0.88
16,315.00	88.57	178.45	11,318.38	-5,188.76	-237.84	5,186.78	2.02	-0.74	-1.88
16,405.00	88.92	179.94	11,320.36	-5,278.72	-236.58	5,276.75	1.70	0.39	1.66
16,494.00	88.62	180.99	11,322.27	-5,367.70	-237.30	5,365.72	1.23	-0.34	1.18
16,584.00	89.23	181.26	11,323.95	-5,457.67	-239.07	5,455.67	0.74	0.68	0.30
16,674.00	87.56	180.12	11,326.47	-5,547.62	-240.15	5,545.61	2.25	-1.86	-1.27
16,763.00	89.01	181.08	11,329.14	-5,636.57	-241.08	5,634.55	1.95	1.63	1.08
16,853.00	90.81	181.61	11,329.28	-5,726.54	-243.20	5,724.51	2.08	2.00	0.59
16,943.00	89.05	180.55	11,329.39	-5,816.52	-244.89	5,814.47	2.28	-1.96	-1.18
17,033.00	87.74	179.59	11,331.91	-5,906.48	-245.00	5,904.43	1.80	-1.46	-1.07

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
17,122.00	88.22	181.17	11,335.05	-5,995.42	-245.59	5,993.36	1.85	0.54	1.78	
17,212.00	88.70	181.35	11,337.47	-6,085.37	-247.57	6,083.29	0.57	0.53	0.20	
17,302.00	90.81	181.17	11,337.85	-6,175.34	-249.55	6,173.24	2.35	2.34	-0.20	
17,392.00	91.21	180.91	11,336.26	-6,265.31	-251.18	6,263.20	0.53	0.44	-0.29	
17,481.00	91.52	180.55	11,334.14	-6,354.28	-252.32	6,352.15	0.53	0.35	-0.40	
17,571.00	90.77	179.59	11,332.35	-6,444.26	-252.43	6,442.13	1.35	-0.83	-1.07	
17,661.00	91.25	179.15	11,330.76	-6,534.24	-251.44	6,532.12	0.72	0.53	-0.49	
17,750.00	88.04	178.53	11,331.31	-6,623.21	-249.64	6,621.09	3.67	-3.61	-0.70	
17,840.00	87.08	178.09	11,335.14	-6,713.08	-246.98	6,710.99	1.17	-1.07	-0.49	
17,930.00	86.90	177.92	11,339.87	-6,802.91	-243.86	6,800.83	0.27	-0.20	-0.19	
18,020.00	87.43	178.62	11,344.32	-6,892.75	-241.14	6,890.70	0.97	0.59	0.78	
18,110.00	88.62	179.41	11,347.42	-6,982.69	-239.60	6,980.64	1.59	1.32	0.88	
18,199.00	87.16	178.45	11,350.70	-7,071.61	-237.94	7,069.57	1.96	-1.64	-1.08	
18,289.00	86.46	177.57	11,355.71	-7,161.41	-234.82	7,159.40	1.25	-0.78	-0.98	
18,379.00	86.68	177.39	11,361.09	-7,251.16	-230.87	7,249.18	0.32	0.24	-0.20	
18,469.00	89.32	178.62	11,364.23	-7,341.04	-227.74	7,339.08	3.24	2.93	1.37	
18,559.00	90.07	178.97	11,364.71	-7,431.02	-225.84	7,429.07	0.92	0.83	0.39	
18,648.00	90.81	178.53	11,364.03	-7,520.00	-223.90	7,518.06	0.97	0.83	-0.49	
18,738.00	91.25	178.45	11,362.41	-7,609.95	-221.53	7,608.03	0.50	0.49	-0.09	
18,828.00	89.01	179.76	11,362.21	-7,699.93	-220.12	7,698.01	2.88	-2.49	1.46	
18,917.00	90.42	180.12	11,362.65	-7,788.93	-220.03	7,787.01	1.64	1.58	0.40	
19,007.00	93.93	180.82	11,359.23	-7,878.85	-220.77	7,876.92	3.98	3.90	0.78	
19,097.00	90.24	181.08	11,355.96	-7,968.76	-222.26	7,966.82	4.11	-4.10	0.29	
19,187.00	88.26	180.73	11,357.14	-8,058.73	-223.68	8,056.78	2.23	-2.20	-0.39	
19,277.00	88.22	180.64	11,359.90	-8,148.69	-224.76	8,146.72	0.11	-0.04	-0.10	
19,367.00	88.40	180.12	11,362.56	-8,238.64	-225.35	8,236.67	0.61	0.20	-0.58	
19,456.00	88.26	179.85	11,365.15	-8,327.61	-225.33	8,325.63	0.34	-0.16	-0.30	
19,546.00	87.52	178.89	11,368.46	-8,417.54	-224.34	8,415.57	1.35	-0.82	-1.07	
19,636.00	86.24	178.71	11,373.36	-8,507.38	-222.46	8,505.42	1.44	-1.42	-0.20	
19,726.00	89.10	178.89	11,377.02	-8,597.28	-220.58	8,595.33	3.18	3.18	0.20	
19,816.00	89.98	179.06	11,377.74	-8,687.26	-218.97	8,685.32	1.00	0.98	0.19	
19,905.00	89.93	179.24	11,377.81	-8,776.25	-217.65	8,774.32	0.21	-0.06	0.20	
19,995.00	89.80	179.15	11,378.03	-8,866.24	-216.38	8,864.32	0.18	-0.14	-0.10	
20,085.00	90.42	178.53	11,377.85	-8,956.22	-214.56	8,954.31	0.97	0.69	-0.69	
20,175.00	90.73	178.18	11,376.95	-9,046.18	-211.98	9,044.29	0.52	0.34	-0.39	
20,264.00	88.48	177.30	11,377.56	-9,135.10	-208.47	9,133.23	2.71	-2.53	-0.99	
20,354.00	87.87	176.69	11,380.43	-9,224.93	-203.75	9,223.10	0.96	-0.68	-0.68	
20,444.00	88.22	178.53	11,383.50	-9,314.80	-200.00	9,312.99	2.08	0.39	2.04	
20,534.00	88.44	179.76	11,386.12	-9,404.75	-198.66	9,402.95	1.39	0.24	1.37	
20,623.00	89.19	179.41	11,387.96	-9,493.73	-198.01	9,491.93	0.93	0.84	-0.39	
20,713.00	89.05	179.24	11,389.35	-9,583.71	-196.95	9,581.91	0.24	-0.16	-0.19	
20,803.00	89.01	178.53	11,390.87	-9,673.68	-195.20	9,671.89	0.79	-0.04	-0.79	
20,893.00	89.58	180.99	11,391.98	-9,763.66	-194.83	9,761.88	2.81	0.63	2.73	

Aim Directional Services, LLC

Survey Report

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 551H
Project:	Lea County, New Mexico	TVD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Site:	Merchant State Unit 551H	MD Reference:	3684'GL+25.5'KB @ 3709.50usft (H&P 389)
Well:	#551H	North Reference:	Grid
Wellbore:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
20,982.00	89.05	181.26	11,393.04	-9,852.64	-196.57	9,850.84	0.67	-0.60	0.30
21,072.00	86.95	180.99	11,396.18	-9,942.56	-198.34	9,940.75	2.35	-2.33	-0.30
21,162.00	88.26	179.68	11,399.94	-10,032.48	-198.86	10,030.66	2.06	1.46	-1.46
21,252.00	88.62	179.15	11,402.39	-10,122.44	-197.95	10,120.62	0.71	0.40	-0.59
21,342.00	89.63	179.06	11,403.77	-10,212.42	-196.54	10,210.61	1.13	1.12	-0.10
21,387.00	90.20	178.80	11,403.83	-10,257.41	-195.70	10,255.60	1.39	1.27	-0.58
Last Aim MWD Survey									
21,455.00	90.20	178.80	11,403.60	-10,325.39	-194.28	10,323.60	0.00	0.00	0.00
Projection to BHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
141.00	141.00	-0.10	0.12	First Aim MWD Survey
21,387.00	11,403.83	-10,257.41	-195.70	Last Aim MWD Survey
21,455.00	11,403.60	-10,325.39	-194.28	Projection to BHL



BHA Reports

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #1 - BHA #1 17.5" (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	8.00	Date In	2019-09-16 01:00
Lobe/Stage	7/8, 5.9	Depth In (ft)	140.00
Bend Angle	1.50	Date Out	2019-09-17 00:00
Speed (rev/gal)	0.17	Depth Out (ft)	1760.00
Wear Pad OD (in)	8.000	Distance Slid (ft)	0.00
Incident	No	Distance Rotated (ft)	1620.00
Motor Results		% Distance Sliding	0.00%
Average Total ROP (ft/h)	206.81	% Distance Rotating	100.00%
Average Slide ROP (ft/h)	0.00		
Average Rotating ROP (ft/h)	206.81		

BHA Objective
DRILL SURFACE

Bit Details		POOH Reason/Notes
OD (in)	17.500	Total Depth/Casing Point
Vendor	Hughes	
S/N	5293469	
Nozzles	9X12	
Total Flow Area (in²)	0.990	

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

Bit Distances		Comments
Bit To Bend: 6.10 ft, Survey: 73.00 ft		Directional: Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #6

Mud Properties		Parameters
Type	Water	Flow Rate (gpm)
WT	9.00	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: 17 1/2 Hughes DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Hughes	5293469	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 17" STAB.	DR	DR39417	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.250		8.29	47.66
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	51.63
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.99
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	112.13
Crossover Sub Description: X-O 4 1/2 IF BOX - 6 5/8 REG PIN, Type: Steel	DR	DR24907	4 1/2" IF Box	6 5/8" Reg Pin	2.875	6.750		2.40	114.53
Crossover Sub Description: XO - (Everdril54-B x 4 1/2 IF-P), Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		4.64	119.17
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	877.55





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	2019-09-17 17:00
Lobe/Stage	7/8, 5.9	Depth In (ft)	1760.00
Bend Angle	1.50	Date Out	2019-09-19 08:45
Speed (rev/gal)	0.17	Depth Out (ft)	5280.00
Wear Pad OD (in)	8.000	Distance Slid (ft)	20.00
Incident	No	Distance Rotated (ft)	3500.00
Motor Results		% Distance Sliding	0.57%
Average Total ROP (ft/h)	126.09	% Distance Rotating	99.43%
Average Slide ROP (ft/h)	80.00		
Average Rotating ROP (ft/h)	126.51		

BHA Objective
Drill Intermediate Section to Casing Point

Bit Details		POOH Reason/Notes
OD (in)	12.250	
Vendor	REED	
S/N	A266235	Total Depth/Casing Point: TD / CASING POINT
Nozzles	6x12	
Total Flow Area (in²)	0.660	

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

Bit Distances		Comments
Bit To Bend: 6.10 ft, Survey: 72.00 ft		Directional: Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #1

Mud Properties		Parameters
Type	Brine	Flow Rate (gpm)
WT	10.20	On Bottom Pressure (psi)
VIS	27.00	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: 12 1/4" TKC66 , Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	REED	A266235	6 5/8" Reg Pin			12.250		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 12" STAB.	DR	35162	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.48	46.85
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	50.82
Drill Collar Description: 8" NMDC (MWD), Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.18
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	111.32
Crossover Sub Description: X-O (4 1/2 XH BOX - 6 5/8 REG PIN), Type: Steel	GT	GT10366	4 1/2" XH Box	6 5/8" Reg Pin	2.875	6.500		4.16	115.48
Drill Collar Description: 12- 6.5" DC (4 STANDS), Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	469.31
Crossover Sub Description: XO - (Everdrl54-B x 4 1/2 XH-P), Type: Steel	Black Diamond	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	472.85
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1231.23





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #3 - 8.5" INTERMEDIATE (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-09-20 00:45
Lobe/Stage	7/8, 8.5	Depth In (ft)	5280.00
Bend Angle	1.50	Date Out	2019-09-20 19:00
Speed (rev/gal)	0.26	Depth Out (ft)	7261.00
Wear Pad OD (in)	7.210	Distance Slid (ft)	82.00
Incident	No	Distance Rotated (ft)	1899.00
Motor Results		% Distance Sliding	4.14%
Average Total ROP (ft/h)	312.79	% Distance Rotating	95.86%
Average Slide ROP (ft/h)	61.50		
Average Rotating ROP (ft/h)	379.80		

Bit Details		BHA Objective
OD (in)	8.500	DRILL 8.5" INTERMEDIATE SECTION TO KOP
Vendor	SECURITY	

S/N	12979092	POOH Reason/Notes
Nozzles	6x12	Penetration Rate: ROP dropped off POOH to inspect motor and bit
Total Flow Area (in²)	0.660	

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: Bit cored and cutters ripped out.
		MWD:

Bit Distances		Comments
Bit To N/A		Directional: Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs #3

Mud Properties		Parameters
Type	Brine	Flow Rate (gpm)
WT	9.20	On Bottom Pressure (psi)
VIS	37.00	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: 8.5" SECURITY GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	12979092	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-034	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.16	37.16
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.76
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.83
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.41
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.41
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.60
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.43
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	467.97
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1226.35





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #4 - 8.5" INTERMEDIATE (Directional)

Motor Details		Date/Depth/Distances		Hours	
Size(in)	7.00	Date In	2019-09-20 19:00	Downhole Hours	37.25
Lobe/Stage	7/8, 8.5	Depth In (ft)	7261.00	Drilling/Circulating Hours	23.75
Bend Angle	1.50	Date Out	2019-09-22 08:15	Drilling Hours	23.50
Speed (rev/gal)	0.26	Depth Out (ft)	10729.00	Circulating Hours	0.25
Wear Pad OD (in)	7.250	Distance Slid (ft)	155.00	Sliding Hours	2.92
Incident	No	Distance Rotated (ft)	3313.00	Rotating Hours	20.58
Motor Results		% Distance Sliding	4.47%	% Hours Sliding	12.41%
Average Total ROP (ft/h)	147.57	% Distance Rotating	95.53%	% Hours Rotating	87.59%
Average Slide ROP (ft/h)	53.14	BHA Objective			
Average Rotating ROP (ft/h)	160.96	DRILL 8.5" INTERMEDIATE SECTION TO KOP			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Change Bottom Hole Assembly: POOH FOR CURVE ASSEMBLY	
Vendor	SECURITY		
S/N	13273856		
Nozzles	6x12		
Total Flow Area (in²)	0.660		

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

Bit Distances		Comments	
Bit To Survey ('): 63.00 ft, Bend ('): 5.35 ft		Directional: Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs # 1	

Mud Properties		Parameters	
Type	Brine	Flow Rate (gpm)	700.00 - 750.00
WT	9.00	On Bottom Pressure (psi)	2900.00 - 3400.00
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
		Motor RPM	0.00 - 0.00
		Surface RPM	30.00 - 40.00
		Rotating WOB (klbs)	45.00 - 50.00
		Sliding WOB (klbs)	20.00 - 30.00
		Temp (°F)	127.00 - 127.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GT65DM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13273856	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.84
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.91
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.49
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.49
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.68
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	468.05
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1226.43





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #5 - Curve (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.50	Date In	2019-09-22 08:15
Lobe/Stage	7/8, 5.0	Depth In (ft)	10729.00
Bend Angle	2.12	Date Out	2019-09-22 22:45
Speed (rev/gal)	0.26	Depth Out (ft)	10819.00
Wear Pad OD (in)	7.100	Distance Slid (ft)	90.00
Incident	No	Distance Rotated (ft)	0.00
Motor Results		% Distance Sliding	100.00%
Average Total ROP (ft/h)	60.00	% Distance Rotating	0.00%
Average Slide ROP (ft/h)	60.00		
Average Rotating ROP (ft/h)	0.00		

BHA Objective
Drill curve

Bit Details		POOH Reason/Notes
OD (in)	8.500	
Vendor	SECURITY	
S/N	13184324	
Nozzles	6x22	
Total Flow Area (in²)	2.230	

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

Bit Distances		Comments
Bit To Survey ('): 61.00 ft, Bend ('): 4.25 ft, Gamma ('): 39.00 ft, Resistivity: 49.00 ft		Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	585.00 - 585.00
WT	9.10	On Bottom Pressure (psi)	3000.00 - 3000.00
VIS	54.00	Off Bottom Pressure (psi)	2400.00 - 2400.00
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: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13184324	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1005	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		31.35	58.45
Other Description: MWD Battery	Benchtree	B6001	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.48	75.93
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.51
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.15
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.04
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.42





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #6 - Curve (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.50	Date In	2019-09-22 22:45
Lobe/Stage	7/8, 5.0	Depth In (ft)	10817.00
Bend Angle	2.12	Date Out	2019-09-24 03:00
Speed (rev/gal)	0.26	Depth Out (ft)	11603.00
Wear Pad OD (in)	7.100	Distance Slid (ft)	560.00
Incident	No	Distance Rotated (ft)	229.00
Motor Results		% Distance Sliding	70.98%
Average Total ROP (ft/h)	64.41	% Distance Rotating	29.02%
Average Slide ROP (ft/h)	64.62		
Average Rotating ROP (ft/h)	63.91		

BHA Objective
Drill curve

Bit Details		POOH Reason/Notes
OD (in)	8.500	
Vendor	SECURITY	
S/N	13241997	Total Depth/Casing Point
Nozzles	6x22	
Total Flow Area (in²)	2.230	

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

Bit Distances		Comments
Bit To Survey ('): 61.00 ft, Bend ('): 4.25 ft, Gamma ('): 39.00 ft, Resistivity: 49.00 ft		Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.30	On Bottom Pressure (psi)
VIS	53.00	Off Bottom Pressure (psi)
PV	0.00	Stall Pressure (psi)
YP	0.00	Stalls
		NPT
		Motor RPM
		Surface RPM
		Rotating WOB (klbs)
		Sliding WOB (klbs)
		Temp (°F)

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13241997	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.770		31.39	58.49
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	75.95
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.53
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.17
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.06
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.44





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #7 - 8.5" Lateral (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	6.50	Date In	2019-09-24 03:00
Lobe/Stage	7/8, 8.5	Depth In (ft)	11603.00
Bend Angle	1.75	Date Out	2019-09-27 03:00
Speed (rev/gal)	0.26	Depth Out (ft)	15760.00
Wear Pad OD (in)	7.710	Distance Slid (ft)	375.00
Incident	No	Distance Rotated (ft)	3777.00
Motor Results		% Distance Sliding	9.03%
Average Total ROP (ft/h)	76.65	% Distance Rotating	90.97%
Average Slide ROP (ft/h)	42.06		
Average Rotating ROP (ft/h)	83.47		

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

S/N	593516	POOH Reason/Notes
Nozzles	6x22	Pressure Spike: POOH after gaining 1300 PSI
Total Flow Area (in²)	2.230	

MWD		Incident Notes
Max Downhole Temp (°F)	N/A	Directional: Gained 1300psi of pressure off bottom, Agitator seemed to be the culprit of the PSI increase.
		MWD:

Bit Distances		Comments
Bit To Survey ('): 71.00 ft, Bend ('): 4.75 ft, Gamma ('): 49.00 ft, Resistivity: 59.00 ft		Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1

Mud Properties		Parameters
Type	Oil Based	Flow Rate (gpm)
WT	9.40	On Bottom Pressure (psi)
VIS	51.00	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: 8.5" DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	HUGHES	593516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" DYNOMAX 7/8, 8.5 FXD @ 1.75 ° w/ SS, Size (in): 6.50, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	DYNOMAX	DM40852-02	4 1/2" IF Box	4 1/2" Reg Box		7.000		35.90	36.90
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.38
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	85.84
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.42
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.06
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2689.24	2810.30
Crossover Sub Description: XO (4 1/2 IF-B x EVERDRL54-P), Type: Steel	BLACK DIAMOND	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2813.75
Agitator Description: Agitator, Size (in): 6.50	RUBICON	RSX 650-029	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.24	2847.99
Crossover Sub Description: XO (EVERDRL54-B x 4 1/2 IF-P, Type: Steel	BLACK DIAMOND	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2852.84





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	2019-09-27 04:15	Downhole Hours	85.50
Lobe/Stage	7/8, 8.5	Depth In (ft)	15760.00	Drilling/Circulating Hours	64.58
Bend Angle	1.75	Date Out	2019-09-30 17:45	Drilling Hours	63.42
Speed (rev/gal)	0.26	Depth Out (ft)	19944.00	Circulating Hours	1.17
Wear Pad OD (in)	7.375	Distance Slid (ft)	361.00	Sliding Hours	13.00
Incident	No	Distance Rotated (ft)	3824.00	Rotating Hours	50.42
Motor Results		% Distance Sliding	8.63%	% Hours Sliding	20.50%
Average Total ROP (ft/h)	65.99	% Distance Rotating	91.37%	% Hours Rotating	79.50%
Average Slide ROP (ft/h)	27.77	BHA Objective			
Average Rotating ROP (ft/h)	75.85	Continue Drilling Lateral to TD			

Bit Details		POOH Reason/Notes	
OD (in)	8.500	Penetration Rate: BIT GRADE: 1-3	
Vendor	Baker Hughes		
S/N	5294400		
Nozzles	6x22's		
Total Flow Area (in²)	2.230		

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

Bit Distances		Comments	
Bit To Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft		Directional: Directional: Flow Rate: 500-750, Max Diff: 1910 psi, Max Torque: 18,710 ft-lbs BIT Runs: 2	

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	700.00 - 707.00
WT	9.40	On Bottom Pressure (psi)	4500.00 - 5000.00
VIS	32.00	Off Bottom Pressure (psi)	3800.00 - 4400.00
PV	0.00	Stall Pressure (psi)	0.00
YP	0.00	Stalls	0
		NPT	0.0
		Motor RPM	0.00 - 0.00
		Surface RPM	40.00 - 60.00
		Rotating WOB (klbs)	40.00 - 52.00
		Sliding WOB (klbs)	50.00 - 50.00
		Temp (°F)	87.00 - 132.00

Items (Directional)									
Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker Hughes	5294400	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 7/8 8.5 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Contender	700-40-013	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.63
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	86.09
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.67
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.31
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2810.55
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2814.00
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2848.66
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2853.51





Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

BHA #9 - 8.5" LATERAL (Directional)

Motor Details		Date/Depth/Distances	Hours
Size(in)	7.00	Date In	2019-09-30 20:30
Lobe/Stage	6/7, 8.4	Depth In (ft)	19944.00
Bend Angle	1.75	Date Out	2019-10-04 04:45
Speed (rev/gal)	0.26	Depth Out (ft)	21455.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	100.00
Incident	No	Distance Rotated (ft)	1411.00
Motor Results		% Distance Sliding	6.62%
Average Total ROP (ft/h)	54.29	% Distance Rotating	93.38%
Average Slide ROP (ft/h)	18.75		
Average Rotating ROP (ft/h)	62.71		

BHA Objective
DRILL LATERAL TO TD.

Bit Details		POOH Reason/Notes
OD (in)	8.500	
Vendor	Baker Hughes	
S/N	5293281	Total Depth/Casing Point
Nozzles	6x22's	
Total Flow Area (in²)	2.230	

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

Bit Distances		Comments
Bit To Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00 ft, Bend: 5.29 ft		Directional: Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3

Mud Properties		Parameters	
Type	Oil Based	Flow Rate (gpm)	700.00 - 707.00
WT	9.40	On Bottom Pressure (psi)	4700.00 - 5550.00
VIS	32.00	Off Bottom Pressure (psi)	4400.00 - 5000.00
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: DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41





Mud Motor Reports

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 1 (BHA #1 17.5")

Motor Details		Date/Depth/Distances		Hours	
S/N	80040-002	Date In	2019-09-16 01:00	Downhole Hours	23.00
Size (in)	8.0	Depth In (ft)	140.00	Drilling/Circulating Hours	9.17
Lobe/Stage	7/8, 5.90	Date Out	2019-09-17 00:00		
Bend Angle	1.5	Depth Out (ft)	1760.00	Circulating Hours	1.33
Speed (rev/gal)	0.17	Total Drilled (ft)	1620.00	Drilling Hours	7.83
Wear Pad OD (in)	8.000	Distance Slid (ft)	0.00	Sliding Hours	0.00
Manufacturer	N/A	Distance Rotated (ft)	1620.00	Rotating Hours	7.83
Motor Results		% Distance Sliding	0.00%	% Hours Rotating	100.00%
Motor Incident		% Distance Rotating	100.00%	% Hours Sliding	0.00%
Average Total ROP (ft/h)	206.81	BHA Parameters			
Average Slide ROP (ft/h)	0.00	Flow Rate (gpm)	500.00 - 750.00	Motor RPM	83.00 - 125.00
Average Rotating ROP (ft/h)	206.81	Stalls	0	Surface RPM	50.00 - 50.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	20.00 - 40.00
OD (in)	17.500	On Bottom Pressure (psi)	1150.00 - 2800.00	Sliding WOB (klbs)	0.00 - 0.00
Vendor	Hughes	Off Bottom Pressure (psi)	700.00 - 1700.00	Temp (°F)	87.00 - 87.00
S/N	5293469	NPT	0.0		
Nozzles	9X12	BHA Objective			
Total Flow Area (in²)	0.990	DRILL SURFACE			
Bit Type	PDC				
Bit Distances					
Bend: 6.10 ft, Survey: 73.00 ft					
Mud Properties					
Type	Water				
WT	9.00				
VIS	0.00				
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: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #6					
MWD:					



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	80040-002	Date In	2019-09-17 17:00
Size (in)	8.0	Depth In (ft)	1760.00
Lobe/Stage	7/8, 5.90	Date Out	2019-09-19 08:45
Bend Angle	1.5	Depth Out (ft)	5280.00
Speed (rev/gal)	0.17	Total Drilled (ft)	3520.00
Wear Pad OD (in)	8.000	Distance Slid (ft)	20.00
Manufacturer	N/A	Distance Rotated (ft)	3500.00
Motor Results		% Distance Sliding	0.57%
Motor Incident	No	% Distance Rotating	99.43%
Average Total ROP (ft/h)	126.09		
Average Slide ROP (ft/h)	80.00		
Average Rotating ROP (ft/h)	126.51		
Bit Details			
OD (in)	12.250	On Bottom Pressure (psi)	2200.00 - 3150.00
Vendor	REED	Off Bottom Pressure (psi)	1800.00 - 2500.00
S/N	A266235	NPT	0.0
Nozzles	6x12		
Total Flow Area (in²)	0.660		
Bit Type	PDC		
Bit Distances			
Bend: 6.10 ft, Survey: 72.00 ft			
Mud Properties			
Type	Brine		
WT	10.20		
VIS	27.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Total Depth/Casing Point: TD / CASING POINT			
Incident Notes			
Directional: N/A			
MWD:			
Comments			
Directional: Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #1			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 3 (8.5" INTERMEDIATE)

Motor Details		Date/Depth/Distances	Hours
S/N	700-40-034	Date In	2019-09-20 00:45
Size (in)	7.0	Depth In (ft)	5280.00
Lobe/Stage	7/8, 8.50	Date Out	2019-09-20 19:00
Bend Angle	1.5	Depth Out (ft)	7261.00
Speed (rev/gal)	0.26	Total Drilled (ft)	1981.00
Wear Pad OD (in)	7.210	Distance Slid (ft)	82.00
Manufacturer	N/A	Distance Rotated (ft)	1899.00
Motor Results		% Distance Sliding	4.14%
Motor Incident	No	% Distance Rotating	95.86%
Average Total ROP (ft/h)	312.79	BHA Parameters	
Average Slide ROP (ft/h)	61.50	Flow Rate (gpm)	705.00 - 750.00
Average Rotating ROP (ft/h)	379.80	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	3200.00 - 3400.00
Vendor	SECURITY	Off Bottom Pressure (psi)	2450.00 - 2700.00
S/N	12979092	NPT	0.0
Nozzles	6x12	BHA Objective	
Total Flow Area (in²)	0.660	DRILL 8.5" INTERMEDIATE SECTION TO KOP	
Bit Type	PDC		
Bit Distances			
N/A			
Mud Properties			
Type	Brine		
WT	9.20		
VIS	37.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Penetration Rate: ROP dropped off POOH to inspect motor and bit			
Incident Notes			
Directional: Bit cored and cutters ripped out.			
MWD:			
Comments			
Directional: Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs #3			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 4 (8.5" INTERMEDIATE)

Motor Details		Date/Depth/Distances	Hours
S/N	700-40-001	Date In	2019-09-20 19:00
Size (in)	7.0	Depth In (ft)	7261.00
Lobe/Stage	7/8, 8.50	Date Out	2019-09-22 08:15
Bend Angle	1.5	Depth Out (ft)	10729.00
Speed (rev/gal)	0.26	Total Drilled (ft)	3468.00
Wear Pad OD (in)	7.250	Distance Slid (ft)	155.00
Manufacturer	N/A	Distance Rotated (ft)	3313.00
Motor Results		% Distance Sliding	4.47%
Motor Incident	No	% Distance Rotating	95.53%
Average Total ROP (ft/h)	147.57	BHA Parameters	
Average Slide ROP (ft/h)	53.14	Flow Rate (gpm)	700.00 - 750.00
Average Rotating ROP (ft/h)	160.96	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	2900.00 - 3400.00
Vendor	SECURITY	Off Bottom Pressure (psi)	2700.00 - 3000.00
S/N	13273856	NPT	0.0
Nozzles	6x12	BHA Objective	
Total Flow Area (in²)	0.660	DRILL 8.5" INTERMEDIATE SECTION TO KOP	
Bit Type	PDC		
Bit Distances			
Survey (°): 63.00 ft, Bend (°): 5.35 ft			
Mud Properties			
Type	Brine		
WT	9.00		
VIS	27.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Change Bottom Hole Assembly: POOH FOR CURVE ASSEMBLY			
Incident Notes			
Directional: N/A			
MWD:			
Comments			
Directional: Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs # 1			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 5 (Curve)

Motor Details		Date/Depth/Distances	Hours
S/N	CDM-650-018	Date In	2019-09-22 08:15
Size (in)	6.5	Depth In (ft)	10729.00
Lobe/Stage	7/8, 5.00	Date Out	2019-09-22 22:45
Bend Angle	2.12	Depth Out (ft)	10819.00
Speed (rev/gal)	0.26	Total Drilled (ft)	90.00
Wear Pad OD (in)	7.100	Distance Slid (ft)	90.00
Manufacturer	N/A	Distance Rotated (ft)	0.00
Motor Results		% Distance Sliding	100.00%
Motor Incident	No	% Distance Rotating	0.00%
Average Total ROP (ft/h)	60.00	BHA Parameters	
Average Slide ROP (ft/h)	60.00	Flow Rate (gpm)	585.00 - 585.00
Average Rotating ROP (ft/h)	0.00	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	3000.00 - 3000.00
Vendor	SECURITY	Off Bottom Pressure (psi)	2400.00 - 2400.00
S/N	13184324	NPT	0.0
Nozzles	6x22	BHA Objective	
Total Flow Area (in ²)	2.230	Drill curve	
Bit Type	PDC		
Bit Distances			
Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00 ft, Resistivity: 49.00 ft			
Mud Properties			
Type	Oil Based		
WT	9.10		
VIS	54.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
MWD Incident: GR only pumping up 255 API. Failed probe			
Incident Notes			
Directional: Failed GR			
MWD:			
Comments			
Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 6 (Curve)

Motor Details		Date/Depth/Distances	Hours
S/N	CDM-650-018	Date In	2019-09-22 22:45
Size (in)	6.5	Depth In (ft)	10817.00
Lobe/Stage	7/8, 5.00	Date Out	2019-09-24 03:00
Bend Angle	2.12	Depth Out (ft)	11603.00
Speed (rev/gal)	0.26	Total Drilled (ft)	789.00
Wear Pad OD (in)	7.100	Distance Slid (ft)	560.00
Manufacturer	N/A	Distance Rotated (ft)	229.00
Motor Results		% Distance Sliding	70.98%
Motor Incident	No	% Distance Rotating	29.02%
Average Total ROP (ft/h)	64.41	BHA Parameters	
Average Slide ROP (ft/h)	64.62	Flow Rate (gpm)	60.00 - 590.00
Average Rotating ROP (ft/h)	63.91	Stalls	0
Bit Details		Stall Pressure (psi)	0.00
OD (in)	8.500	On Bottom Pressure (psi)	3050.00 - 3400.00
Vendor	SECURITY	Off Bottom Pressure (psi)	2450.00 - 2850.00
S/N	13241997	NPT	0.0
Nozzles	6x22	BHA Objective	
Total Flow Area (in ²)	2.230	Drill curve	
Bit Type	PDC		
Bit Distances			
Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00 ft, Resistivity: 49.00 ft			
Mud Properties			
Type	Oil Based		
WT	9.30		
VIS	53.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Total Depth/Casing Point			
Incident Notes			
Directional:			
MWD:			
Comments			
Directional: Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 7 (8.5" Lateral)

Motor Details		Date/Depth/Distances	Hours
S/N	DM40852-02	Date In	2019-09-24 03:00
Size (in)	6.5	Depth In (ft)	11603.00
Lobe/Stage	7/8, 8.50	Date Out	2019-09-27 03:00
Bend Angle	1.75	Depth Out (ft)	15760.00
Speed (rev/gal)	0.26	Total Drilled (ft)	4152.00
Wear Pad OD (in)	7.710	Distance Slid (ft)	375.00
Manufacturer	N/A	Distance Rotated (ft)	3777.00
Motor Results		% Distance Sliding	9.03%
Motor Incident	No	% Distance Rotating	90.97%
Average Total ROP (ft/h)	76.65	BHA Parameters	
Average Slide ROP (ft/h)	42.06	Flow Rate (gpm)	675.00 - 707.00
Average Rotating ROP (ft/h)	83.47	Stalls	1
Bit Details		Stall Pressure (psi)	1299.97
OD (in)	8.500	On Bottom Pressure (psi)	4000.00 - 4500.00
Vendor	HUGHES	Off Bottom Pressure (psi)	3600.00 - 3900.00
S/N	593516	NPT	0.0
Nozzles	6x22	BHA Objective	
Total Flow Area (in²)	2.230	Drill Lateral to TD	
Bit Type	PDC		
Bit Distances			
Survey (°): 71.00 ft, Bend (°): 4.75 ft, Gamma (°): 49.00 ft, Resistivity: 59.00 ft			
Mud Properties			
Type	Oil Based		
WT	9.40		
VIS	51.00		
PV	0.00		
YP	0.00		
POOH Reason/Notes			
Pressure Spike: POOH after gaining 1300 PSI			
Incident Notes			
Directional: Gained 1300psi of pressure off bottom, Agitator seemed to be the culprit of the PSI increase.			
MWD:			
Comments			
Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1			
MWD:			



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	700-40-013	Date In	2019-09-27 04:15	Downhole Hours	85.50
Size (in)	7.0	Depth In (ft)	15760.00	Drilling/Circulating Hours	64.58
Lobe/Stage	7/8, 8.50	Date Out	2019-09-30 17:45		
Bend Angle	1.75	Depth Out (ft)	19944.00	Circulating Hours	1.17
Speed (rev/gal)	0.26	Total Drilled (ft)	4185.00	Drilling Hours	63.42
Wear Pad OD (in)	7.375	Distance Slid (ft)	361.00	Sliding Hours	13.00
Manufacturer	N/A	Distance Rotated (ft)	3824.00	Rotating Hours	50.42
Motor Results		% Distance Sliding	8.63%	% Hours Rotating	79.50%
Motor Incident	No	% Distance Rotating	91.37%	% Hours Sliding	20.50%
Average Total ROP (ft/h)	65.99	BHA Parameters			
Average Slide ROP (ft/h)	27.77	Flow Rate (gpm)	700.00 - 707.00	Motor RPM	0.00 - 0.00
Average Rotating ROP (ft/h)	75.85	Stalls	0	Surface RPM	40.00 - 60.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	40.00 - 52.00
OD (in)	8.500	On Bottom Pressure (psi)	4500.00 - 5000.00	Sliding WOB (klbs)	50.00 - 50.00
Vendor	Baker Hughes	Off Bottom Pressure (psi)	3800.00 - 4400.00	Temp (°F)	87.00 - 132.00
S/N	5294400	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.230	Continue Drilling Lateral to TD			
Bit Type	PDC				
Bit Distances					
Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	32.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Penetration Rate: BIT GRADE: 1-3					
Incident Notes					
Directional: N/A					
MWD:					
Comments					
Directional: Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 2					
MWD:					



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Mud Motor Report - BHA 9 (8.5" LATERAL)

Motor Details		Date/Depth/Distances		Hours	
S/N	700-40-026	Date In	2019-09-30 20:30	Downhole Hours	80.25
Size (in)	7.0	Depth In (ft)	19944.00	Drilling/Circulating Hours	42.42
Lobe/Stage	6/7, 8.40	Date Out	2019-10-04 04:45		
Bend Angle	1.75	Depth Out (ft)	21455.00	Circulating Hours	14.58
Speed (rev/gal)	0.26	Total Drilled (ft)	1511.00	Drilling Hours	27.83
Wear Pad OD (in)	7.250	Distance Slid (ft)	100.00	Sliding Hours	5.33
Manufacturer	N/A	Distance Rotated (ft)	1411.00	Rotating Hours	22.50
Motor Results		% Distance Sliding	6.62%	% Hours Rotating	80.84%
Motor Incident	No	% Distance Rotating	93.38%	% Hours Sliding	19.16%
Average Total ROP (ft/h)	54.29	BHA Parameters			
Average Slide ROP (ft/h)	18.75	Flow Rate (gpm)	700.00 - 707.00	Motor RPM	140.00 - 180.00
Average Rotating ROP (ft/h)	62.71	Stalls	0	Surface RPM	50.00 - 60.00
Bit Details		Stall Pressure (psi)	0.00	Rotating WOB (klbs)	50.00 - 52.00
OD (in)	8.500	On Bottom Pressure (psi)	4700.00 - 5550.00	Sliding WOB (klbs)	50.00 - 55.00
Vendor	Baker Hughes	Off Bottom Pressure (psi)	4400.00 - 5000.00	Temp (°F)	150.00 - 200.00
S/N	5293281	NPT	0.0		
Nozzles	6x22's	BHA Objective			
Total Flow Area (in²)	2.230	DRILL LATERAL TO TD.			
Bit Type	PDC				
Bit Distances					
Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00 ft, Bend: 5.29 ft					
Mud Properties					
Type	Oil Based				
WT	9.40				
VIS	32.00				
PV	0.00				
YP	0.00				
POOH Reason/Notes					
Total Depth/Casing Point					
Incident Notes					
Directional:					
MWD:					
Comments					
Directional: Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3					
MWD:					



Slide/Rotate Reports

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #1 (BHA #1 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	09-16	01:00	02:05	09-16	1.08	140.00	214.00	74.00	68.31	N/A	500.00	50.0	20.00	1150.00	700.00	
Rotate	09-16	11:50	12:10	09-16	0.33	214.00	404.00	190.00	570.00	N/A	500.00	50.0	20.00	1150.00	700.00	
Rotate	09-16	12:15	12:30	09-16	0.25	404.00	498.00	94.00	376.00	N/A	500.00	50.0	20.00	1150.00	700.00	
Rotate	09-16	12:35	13:15	09-16	0.67	498.00	688.00	190.00	285.00	N/A	500.00	50.0	20.00	1150.00	700.00	
Rotate	09-16	13:20	13:40	09-16	0.33	688.00	782.00	94.00	282.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	13:45	14:00	09-16	0.25	782.00	877.00	95.00	380.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	14:05	14:30	09-16	0.42	877.00	967.00	90.00	216.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	14:35	14:50	09-16	0.25	967.00	1056.00	89.00	356.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	14:55	15:15	09-16	0.33	1056.00	1146.00	90.00	270.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	15:20	15:40	09-16	0.33	1146.00	1235.00	89.00	267.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	15:45	16:35	09-16	0.83	1235.00	1325.00	90.00	108.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	16:40	17:25	09-16	0.75	1325.00	1415.00	90.00	120.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	17:30	18:05	09-16	0.58	1415.00	1505.00	90.00	154.29	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	18:10	18:40	09-16	0.5	1505.00	1594.00	89.00	178.00	N/A	750.00	50.0	20.00	2250.00	1400.00	
Rotate	09-16	18:45	19:05	09-16	0.33	1594.00	1684.00	90.00	270.00	N/A	750.00	50.0	40.00	2800.00	1700.00	
Rotate	09-16	19:10	19:45	09-16	0.58	1684.00	1760.00	76.00	130.29	N/A	750.00	50.0	40.00	2800.00	1700.00	



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	09-17	21:20	22:30	09-17	1.17	1760.00	1858.00	98.00	84.00	N/A	710.00	40.0	40.00	2200.00	1800.00	
Rotate	09-17	22:35	22:50	09-17	0.25	1858.00	1948.00	90.00	360.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-17	22:55	00:00	09-18	1.08	1948.00	2038.00	90.00	83.08	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	00:00	00:40	09-18	0.67	2038.00	2127.00	89.00	133.50	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	00:45	01:50	09-18	1.08	2127.00	2307.00	180.00	166.15	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	01:55	02:35	09-18	0.67	2307.00	2396.00	89.00	133.50	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	02:40	03:45	09-18	1.08	2396.00	2575.00	179.00	165.23	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	03:50	04:25	09-18	0.58	2575.00	2665.00	90.00	154.29	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	04:30	04:55	09-18	0.42	2665.00	2755.00	90.00	216.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	05:00	05:35	09-18	0.58	2755.00	2844.00	89.00	152.57	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	05:40	06:10	09-18	0.5	2844.00	2934.00	90.00	180.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	06:15	06:40	09-18	0.42	2934.00	3024.00	90.00	216.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	06:45	07:10	09-18	0.42	3024.00	3113.00	89.00	213.60	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	07:15	07:50	09-18	0.58	3113.00	3203.00	90.00	154.29	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	07:55	08:00	09-18	0.08	3203.00	3208.00	5.00	60.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Slide	09-18	08:00	08:15	09-18	0.25	3208.00	3228.00	20.00	80.00	265.0	750.00	N/A	25.00	2450.00	2050.00	
Rotate	09-18	08:15	08:40	09-18	0.42	3228.00	3293.00	65.00	156.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	08:45	09:10	09-18	0.42	3293.00	3382.00	89.00	213.60	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	09:15	09:45	09-18	0.5	3382.00	3472.00	90.00	180.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	09:50	10:25	09-18	0.58	3472.00	3562.00	90.00	154.29	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	10:30	11:15	09-18	0.75	3562.00	3651.00	89.00	118.67	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	11:20	11:55	09-18	0.58	3651.00	3741.00	90.00	154.29	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	12:00	12:50	09-18	0.83	3741.00	3830.00	89.00	106.80	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	12:55	13:55	09-18	1.0	3830.00	3920.00	90.00	90.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	14:00	14:45	09-18	0.75	3920.00	4010.00	90.00	120.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	14:50	15:30	09-18	0.67	4010.00	4099.00	89.00	133.50	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	15:35	16:00	09-18	0.42	4099.00	4189.00	90.00	216.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	16:05	16:30	09-18	0.42	4189.00	4278.00	89.00	213.60	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	16:35	17:00	09-18	0.42	4278.00	4368.00	90.00	216.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	17:05	17:35	09-18	0.5	4368.00	4457.00	89.00	178.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	17:55	18:45	09-18	0.83	4457.00	4547.00	90.00	108.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	18:50	19:30	09-18	0.67	4547.00	4637.00	90.00	135.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	19:35	20:35	09-18	1.0	4637.00	4726.00	89.00	89.00	N/A	750.00	40.0	40.00	2400.00	2000.00	
Rotate	09-18	20:40	21:30	09-18	0.83	4726.00	4815.00	89.00	106.80	N/A	850.00	40.0	50.00	3150.00	2500.00	
Rotate	09-18	21:35	22:15	09-18	0.67	4815.00	4905.00	90.00	135.00	N/A	850.00	40.0	50.00	3150.00	2500.00	
Rotate	09-18	22:20	23:00	09-18	0.67	4905.00	4995.00	90.00	135.00	N/A	850.00	40.0	50.00	3150.00	2500.00	
Rotate	09-18	23:05	00:00	09-19	0.92	4995.00	5084.00	89.00	97.09	N/A	850.00	40.0	50.00	3150.00	2500.00	
Rotate	09-19	00:10	03:55	09-19	3.75	5084.00	5264.00	180.00	48.00	N/A	850.00	40.0	50.00	3150.00	2500.00	
Rotate	09-19	04:00	04:30	09-19	0.5	5264.00	5280.00	16.00	32.00	N/A	850.00	40.0	50.00	3150.00	2500.00	



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	09-20	07:10	07:25	09-20	0.25	5280.00	5348.00	68.00	272.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	07:30	07:40	09-20	0.17	5348.00	5438.00	90.00	540.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	07:45	08:00	09-20	0.25	5438.00	5528.00	90.00	360.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	08:05	08:20	09-20	0.25	5528.00	5617.00	89.00	356.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	08:25	08:35	09-20	0.17	5617.00	5707.00	90.00	540.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	08:40	08:50	09-20	0.17	5707.00	5797.00	90.00	540.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	08:55	09:10	09-20	0.25	5797.00	5886.00	89.00	356.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	09:15	09:25	09-20	0.17	5886.00	5976.00	90.00	540.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	09:30	09:40	09-20	0.17	5976.00	6065.00	89.00	534.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	09:45	09:50	09-20	0.08	6065.00	6155.00	90.00	1080.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	09:55	10:05	09-20	0.17	6155.00	6244.00	89.00	534.00	N/A	705.00	40.0	45.00	3200.00	2450.00	
Rotate	09-20	10:10	10:20	09-20	0.17	6244.00	6334.00	90.00	540.00	N/A						
Slide	09-20	10:25	10:40	09-20	0.25	6334.00	6354.00	20.00	80.00	288.0		N/A				
Rotate	09-20	10:40	10:50	09-20	0.17	6354.00	6423.00	69.00	414.00	N/A						
Slide	09-20	10:55	11:30	09-20	0.58	6423.00	6448.00	25.00	42.86	280.0		N/A				
Rotate	09-20	11:30	11:40	09-20	0.17	6448.00	6513.00	65.00	390.00	N/A						
Slide	09-20	11:45	12:00	09-20	0.25	6513.00	6535.00	22.00	88.00	280.0		N/A				
Rotate	09-20	12:00	12:10	09-20	0.17	6535.00	6603.00	68.00	408.00	N/A						
Slide	09-20	12:15	12:30	09-20	0.25	6603.00	6618.00	15.00	60.00	250.0		N/A				
Rotate	09-20	12:30	12:50	09-20	0.33	6618.00	6692.00	74.00	222.00	N/A						
Rotate	09-20	12:55	13:10	09-20	0.25	6692.00	6782.00	90.00	360.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	13:15	13:25	09-20	0.17	6782.00	6871.00	89.00	534.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	14:25	14:40	09-20	0.25	6871.00	6961.00	90.00	360.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	14:45	15:00	09-20	0.25	6961.00	7051.00	90.00	360.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	15:05	15:20	09-20	0.25	7051.00	7140.00	89.00	356.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	15:25	15:40	09-20	0.25	7140.00	7230.00	90.00	360.00	N/A	750.00	40.0	50.00	3400.00	2700.00	
Rotate	09-20	15:45	16:15	09-20	0.5	7230.00	7261.00	31.00	62.00	N/A	750.00	40.0	50.00	3400.00	2700.00	



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

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

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	09-20	23:25	23:45	09-20	0.33	7261.00	7319.00	58.00	174.00	N/A	750.00	40.0	50.00	3400.00	2850.00	
Rotate	09-20	23:50	00:00	09-21	0.17	7319.00	7380.00	61.00	366.00	N/A	750.00	40.0	50.00	3400.00	2850.00	
Rotate	09-21	00:00	00:05	09-21	0.08	7380.00	7409.00	29.00	348.00	N/A	750.00	40.0	50.00	3400.00	2850.00	
Rotate	09-21	00:10	00:15	09-21	0.08	7409.00	7440.00	31.00	372.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Slide	09-21	00:15	00:35	09-21	0.33	7440.00	7460.00	20.00	60.00	290.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	00:35	00:45	09-21	0.17	7460.00	7499.00	39.00	234.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Rotate	09-21	00:50	01:05	09-21	0.25	7499.00	7589.00	90.00	360.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Rotate	09-21	01:10	01:25	09-21	0.25	7589.00	7678.00	89.00	356.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Rotate	09-21	01:30	01:50	09-21	0.33	7678.00	7768.00	90.00	270.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Rotate	09-21	01:55	02:05	09-21	0.17	7768.00	7858.00	90.00	540.00	N/A	750.00	30.0	50.00	3400.00	2850.00	
Rotate	09-21	02:10	02:25	09-21	0.25	7858.00	8037.00	179.00	716.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	02:50	02:55	09-21	0.08	8037.00	8046.00	9.00	108.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	02:55	03:10	09-21	0.25	8046.00	8061.00	15.00	60.00	315.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	03:10	03:45	09-21	0.58	8061.00	8216.00	155.00	265.71	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	03:50	04:05	09-21	0.25	8216.00	8306.00	90.00	360.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	04:10	04:15	09-21	0.08	8306.00	8321.00	15.00	180.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	04:15	04:35	09-21	0.33	8321.00	8341.00	20.00	60.00	0.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	04:35	04:45	09-21	0.17	8341.00	8396.00	55.00	330.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	04:50	05:10	09-21	0.33	8396.00	8485.00	89.00	267.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	05:15	05:30	09-21	0.25	8485.00	8575.00	90.00	360.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	05:35	05:40	09-21	0.08	8575.00	8581.00	6.00	72.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	05:40	06:00	09-21	0.33	8581.00	8601.00	20.00	60.00	350.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	06:00	06:15	09-21	0.25	8601.00	8664.00	63.00	252.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	06:20	06:50	09-21	0.5	8664.00	8754.00	90.00	180.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	06:55	07:20	09-21	0.42	8754.00	8844.00	90.00	216.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	07:25	08:05	09-21	0.67	8844.00	8933.00	89.00	133.50	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	08:10	08:50	09-21	0.67	8933.00	9023.00	90.00	135.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	08:55	09:25	09-21	0.5	9023.00	9113.00	90.00	180.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	09:30	09:35	09-21	0.08	9113.00	9120.00	7.00	84.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	09:35	10:00	09-21	0.42	9120.00	9140.00	20.00	48.00	295.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	10:00	10:25	09-21	0.42	9140.00	9203.00	63.00	151.20	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	10:30	11:15	09-21	0.75	9203.00	9292.00	89.00	118.67	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	11:20	11:25	09-21	0.08	9292.00	9302.00	10.00	120.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	11:25	11:45	09-21	0.33	9302.00	9322.00	20.00	60.00	295.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	11:45	12:10	09-21	0.42	9322.00	9382.00	60.00	144.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	12:15	12:55	09-21	0.67	9382.00	9472.00	90.00	135.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	13:15	13:50	09-21	0.58	9472.00	9561.00	89.00	152.57	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	13:55	14:30	09-21	0.58	9561.00	9651.00	90.00	154.29	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	14:35	14:40	09-21	0.08	9651.00	9662.00	11.00	132.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-21	14:40	15:10	09-21	0.5	9662.00	9682.00	20.00	40.00	350.0	750.00	N/A	20.00	3400.00	3000.00	
Rotate	09-21	15:10	15:35	09-21	0.42	9682.00	9741.00	59.00	141.60	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	15:40	16:15	09-21	0.58	9741.00	9830.00	89.00	152.57	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	16:20	17:00	09-21	0.67	9830.00	9920.00	90.00	135.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	17:05	18:00	09-21	0.92	9920.00	10010.00	90.00	98.18	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	18:05	18:55	09-21	0.83	10010.00	10100.00	90.00	108.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	19:00	19:45	09-21	0.75	10100.00	10190.00	90.00	120.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	19:50	20:50	09-21	1.0	10190.00	10279.00	89.00	89.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	20:55	21:50	09-21	0.92	10279.00	10369.00	90.00	98.18	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	21:55	23:05	09-21	1.17	10369.00	10458.00	89.00	76.29	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-21	23:10	00:00	09-22	0.83	10458.00	10528.00	70.00	84.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-22	00:00	00:10	09-22	0.17	10528.00	10548.00	20.00	120.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-22	00:15	01:10	09-22	0.92	10548.00	10638.00	90.00	98.18	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-22	01:15	01:20	09-22	0.08	10638.00	10642.00	4.00	48.00	N/A	750.00	30.0	45.00	3400.00	2850.00	
Slide	09-22	01:20	01:45	09-22	0.42	10642.00	10662.00	20.00	48.00	80.0	700.00	N/A	30.00	2900.00	2700.00	
Rotate	09-22	01:45	02:25	09-22	0.67	10662.00	10727.00	65.00	97.50	N/A	750.00	30.0	45.00	3400.00	2850.00	
Rotate	09-22	02:30	02:35	09-22	0.08	10727.00	10729.00	2.00	24.00	N/A	750.00	30.0	45.00	3400.00	2850.00	

	Job Number WT-19-146	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-09-14	Well Name Merchant State Unit 551H		Legal Well Name AFE Merchant State Unit 551H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Slide/Rotate Report - BHA #5 (Curve)

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Slide	09-22	13:45	14:15	09-22	0.5	10729.00	10754.00	25.00	50.00	178.0		N/A				
Slide	09-22	15:05	16:05	09-22	1.0	10754.00	10819.00	65.00	65.00	178.0		N/A				



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #6 (Curve)

Activity	Start Date	Start Time	End Time	End Date	Hours	Start Depth (ft)	End Depth (ft)	Distance (ft)	RoP (ft/h)	Toolface	Flow Rate (gpm)	Surface RPM	WOB (klbs)	Press On (psi)	Press Off (psi)	Hole Section Type
Rotate	09-23	07:00	07:30	09-23	0.5	10819.00	10839.00	20.00	40.00	N/A	590.00	25.0	35.00	3400.00	2850.00	
Slide	09-23	07:30	08:35	09-23	1.08	10839.00	10908.00	69.00	63.69	0.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	08:40	09:10	09-23	0.5	10908.00	10943.00	35.00	70.00	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	09:10	10:05	09-23	0.92	10943.00	10998.00	55.00	60.00	20.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	10:10	10:35	09-23	0.42	10998.00	11023.00	25.00	60.00	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	10:35	11:25	09-23	0.83	11023.00	11088.00	65.00	78.00	0.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	11:35	12:05	09-23	0.5	11088.00	11123.00	35.00	70.00	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	12:05	12:50	09-23	0.75	11123.00	11177.00	54.00	72.00	0.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	13:00	13:05	09-23	0.08	11177.00	11187.00	10.00	120.00	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	13:05	14:05	09-23	1.0	11187.00	11267.00	80.00	80.00	340.0	590.00	N/A	40.00	3050.00	2450.00	
Slide	09-23	14:15	14:40	09-23	0.42	11267.00	11287.00	20.00	48.00	280.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	14:40	14:55	09-23	0.25	11287.00	11302.00	15.00	60.00	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	14:55	16:20	09-23	1.42	11302.00	11357.00	55.00	38.82	340.0	590.00	N/A	40.00	3050.00	2450.00	
Rotate	09-23	16:30	17:50	09-23	1.33	11357.00	11446.00	89.00	66.75	N/A	590.00	25.0	35.00	3050.00	2450.00	
Slide	09-23	18:00	19:15	09-23	1.25	11446.00	11536.00	90.00	72.00	0.0	590.00	N/A	40.00	3050.00	2450.00	
Slide	09-23	19:30	20:30	09-23	1.0	11536.00	11608.00	72.00	72.00	0.0	60.00	N/A	40.00	3050.00	2450.00	



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - 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
Slide	09-24	09:30	10:00	09-24	0.5	11608.00	11636.00	28.00	56.00	90.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	10:15	11:35	09-24	1.33	11636.00	11725.00	89.00	66.75	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	11:40	11:45	09-24	0.08	11725.00	11731.00	6.00	72.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-24	12:00	12:45	09-24	0.75	11731.00	11756.00	25.00	33.33	100.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	12:45	13:00	09-24	0.25	11756.00	11815.00	59.00	236.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	13:05	13:50	09-24	0.75	11815.00	11904.00	89.00	118.67	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	14:10	14:15	09-24	0.08	11904.00	11912.00	8.00	96.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-24	14:15	14:45	09-24	0.5	11912.00	11942.00	30.00	60.00	120.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	14:45	15:05	09-24	0.33	11942.00	11994.00	52.00	156.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-24	15:10	15:35	09-24	0.42	11994.00	12024.00	30.00	72.00	150.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	15:35	16:00	09-24	0.42	12024.00	12084.00	60.00	144.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	16:05	16:50	09-24	0.75	12084.00	12173.00	89.00	118.67	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-24	16:55	17:40	09-24	0.75	12173.00	12210.00	37.00	49.33	150.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	17:40	18:00	09-24	0.33	12210.00	12263.00	53.00	159.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	18:05	19:00	09-24	0.92	12263.00	12353.00	90.00	98.18	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-24	19:05	19:20	09-24	0.25	12353.00	12373.00	20.00	80.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Slide	09-24	19:20	20:05	09-24	0.75	12373.00	12408.00	35.00	46.67	65.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-24	20:05	20:20	09-24	0.25	12408.00	12442.00	34.00	136.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-24	20:25	21:10	09-24	0.75	12442.00	12532.00	90.00	120.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-24	21:15	21:50	09-24	0.58	12532.00	12621.00	89.00	152.57	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-24	21:55	22:50	09-24	0.92	12621.00	12711.00	90.00	98.18	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-24	22:55	23:55	09-24	1.0	12711.00	12800.00	89.00	89.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-25	00:00	00:10	09-25	0.17	12800.00	12805.00	5.00	30.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Slide	09-25	00:10	00:40	09-25	0.5	12805.00	12820.00	15.00	30.00	60.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-25	00:40	01:30	09-25	0.83	12820.00	12890.00	70.00	84.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-25	01:35	03:05	09-25	1.5	12890.00	12980.00	90.00	60.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-25	03:10	03:20	09-25	0.17	12980.00	12985.00	5.00	30.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Slide	09-25	03:20	03:50	09-25	0.5	12985.00	13005.00	20.00	40.00	180.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-25	03:50	04:20	09-25	0.5	13005.00	13069.00	64.00	128.00	N/A	690.00	30.0	40.00	4500.00	3800.00	
Rotate	09-25	04:25	04:30	09-25	0.08	13069.00	13070.00	1.00	12.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-25	04:30	05:05	09-25	0.58	13070.00	13090.00	20.00	34.29	180.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-25	05:05	05:40	09-25	0.58	13090.00	13159.00	69.00	118.29	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	05:45	06:55	09-25	1.17	13159.00	13249.00	90.00	77.14	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-25	07:05	07:45	09-25	0.67	13249.00	13274.00	25.00	37.50	180.0	675.00	N/A	40.00	4000.00	3600.00	
Rotate	09-25	07:45	08:40	09-25	0.92	13274.00	13338.00	64.00	69.82	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	08:45	10:25	09-25	1.67	13338.00	13428.00	90.00	54.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	10:30	11:40	09-25	1.17	13428.00	13518.00	90.00	77.14	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	11:45	13:00	09-25	1.25	13518.00	13607.00	89.00	71.20	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	13:05	14:15	09-25	1.17	13607.00	13697.00	90.00	77.14	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	14:20	15:30	09-25	1.17	13697.00	13786.00	89.00	76.29	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	15:35	16:50	09-25	1.25	13786.00	13876.00	90.00	72.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	16:55	17:00	09-25	0.08	13876.00	13885.00	9.00	108.00	N/A	690.00	40.0	40.00	4500.00	3800.00	
Slide	09-25	17:00	17:30	09-25	0.5	13885.00	13905.00	20.00	40.00	90.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-25	17:30	17:55	09-25	0.42	13905.00	13966.00	61.00	146.40	N/A	690.00	40.0	40.00	4500.00	3800.00	
Rotate	09-25	18:00	18:50	09-25	0.83	13966.00	14055.00	89.00	106.80	N/A	690.00	50.0	53.00	4500.00	3800.00	
Rotate	09-25	18:55	19:40	09-25	0.75	14055.00	14145.00	90.00	120.00	N/A	690.00	50.0	53.00	4500.00	3800.00	
Rotate	09-25	19:45	19:50	09-25	0.08	14145.00	14150.00	5.00	60.00	N/A	690.00	50.0	53.00	4500.00	3800.00	
Slide	09-25	19:50	20:15	09-25	0.42	14150.00	14170.00	20.00	48.00	40.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-25	20:15	21:00	09-25	0.75	14170.00	14235.00	65.00	86.67	N/A	690.00	40.0	53.00	4500.00	3800.00	
Rotate	09-25	21:05	22:25	09-25	1.33	14235.00	14324.00	89.00	66.75	N/A	690.00	40.0	53.00	4500.00	3800.00	
Rotate	09-25	22:30	22:35	09-25	0.08	14324.00	14326.00	2.00	24.00	N/A	690.00	40.0	53.00	4500.00	3800.00	
Slide	09-25	22:35	23:10	09-25	0.58	14326.00	14341.00	15.00	25.71	60.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-25	23:10	00:10	09-26	1.0	14341.00	14414.00	73.00	73.00	N/A	690.00	40.0	53.00	4500.00	3800.00	
Rotate	09-26	00:15	01:35	09-26	1.33	14414.00	14503.00	89.00	66.75	N/A	707.00	40.0	53.00	4300.00	3900.00	
Rotate	09-26	01:40	03:10	09-26	1.5	14503.00	14593.00	90.00	60.00	N/A	707.00	40.0	53.00	4300.00	3900.00	
Rotate	09-26	03:15	04:30	09-26	1.25	14593.00	14683.00	90.00	72.00	N/A						
Rotate	09-26	04:45	06:00	09-26	1.25	14683.00	14772.00	89.00	71.20	N/A	705.00	50.0	50.00	4500.00	3800.00	
Rotate	09-26	06:05	07:25	09-26	1.33	14772.00	14862.00	90.00	67.50	N/A						
Slide	09-26	07:30	08:20	09-26	0.83	14862.00	14892.00	30.00	36.00	120.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-26	08:20	08:55	09-26	0.58	14892.00	14952.00	60.00	102.86	N/A	705.00	60.0	50.00	4500.00	3800.00	
Rotate	09-26	09:00	10:05	09-26	1.08	14952.00	15041.00	89.00	82.15	N/A	705.00	60.0	50.00	4500.00	3800.00	
Rotate	09-26	10:10	11:10	09-26	1.0	15041.00	15131.00	90.00	90.00	N/A	705.00	60.0	50.00	4500.00	3800.00	
Rotate	09-26	11:15	12:10	09-26	0.92	15131.00	15221.00	90.00	98.18	N/A	705.00	60.0	50.00	4500.00	3800.00	
Rotate	09-26	12:15	13:20	09-26	1.08	15221.00	15310.00	89.00	82.15	N/A	705.00	60.0	50.00	4500.00	3800.00	

Rotate	09-26	13:25	14:55	09-26	1.5	15310.00	15400.00	90.00	60.00	N/A	705.00	60.0	50.00	4500.00	3800.00
Slide	09-26	15:00	15:40	09-26	0.67	15400.00	15425.00	25.00	37.50	120.0	700.00	N/A	50.00	4500.00	3800.00
Rotate	09-26	15:40	16:40	09-26	1.0	15425.00	15489.00	64.00	64.00	N/A	705.00	60.0	50.00	4500.00	3800.00
Rotate	09-26	16:45	17:45	09-26	1.0	15489.00	15579.00	90.00	90.00	N/A	705.00	60.0	50.00	4500.00	3800.00
Rotate	09-26	17:55	19:10	09-26	1.25	15579.00	15669.00	90.00	72.00	N/A	705.00	60.0	50.00	4500.00	3800.00
Rotate	09-26	19:15	20:25	09-26	1.17	15669.00	15758.00	89.00	76.29	N/A	705.00	60.0	50.00	4500.00	3800.00
Rotate	09-26	20:30	20:35	09-26	0.08	15758.00	15760.00	2.00	24.00	N/A	705.00	60.0	50.00	4500.00	3800.00



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
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	09-27	13:15	14:10	09-27	0.92	15759.00	15849.00	90.00	98.18	N/A	705.00	60.0	50.00	4500.00	3800.00	
Rotate	09-27	14:15	15:20	09-27	1.08	15849.00	15938.00	89.00	82.15	N/A						
Slide	09-27	15:30	16:10	09-27	0.67	15938.00	15968.00	30.00	45.00	90.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-27	16:10	17:10	09-27	1.0	15968.00	16028.00	60.00	60.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-27	17:15	18:20	09-27	1.08	16028.00	16118.00	90.00	83.08	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-27	18:25	18:30	09-27	0.08	16118.00	16120.00	2.00	24.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Slide	09-27	18:30	19:25	09-27	0.92	16120.00	16140.00	20.00	21.82	0.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-27	19:25	20:10	09-27	0.75	16140.00	16207.00	67.00	89.33	N/A	700.00	60.0	40.00	4950.00	4400.00	
Slide	09-27	20:15	20:40	09-27	0.42	16207.00	16222.00	15.00	36.00	0.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-27	20:40	21:40	09-27	1.0	16222.00	16297.00	75.00	75.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-27	21:45	22:25	09-27	0.67	16297.00	16386.00	89.00	133.50	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-27	22:30	22:35	09-27	0.08	16386.00	16389.00	3.00	36.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Slide	09-27	22:35	23:10	09-27	0.58	16389.00	16414.00	25.00	42.86	70.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-27	23:10	23:40	09-27	0.5	16414.00	16464.00	50.00	100.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-27	23:55	00:00	09-28	0.08	16464.00	16476.00	12.00	144.00	N/A	700.00	60.0	40.00	4950.00	4400.00	
Rotate	09-28	00:05	01:05	09-28	1.0	16476.00	16565.00	89.00	89.00	N/A	707.00	40.0	52.00	5000.00	4400.00	
Slide	09-28	01:10	01:55	09-28	0.75	16565.00	16580.00	15.00	20.00	0.0	700.00	N/A	50.00	4500.00	3800.00	
Rotate	09-28	01:55	02:50	09-28	0.92	16580.00	16655.00	75.00	81.82	N/A	707.00	40.0	52.00	5000.00	4400.00	
Rotate	09-28	02:55	04:10	09-28	1.25	16655.00	16745.00	90.00	72.00	N/A	707.00	40.0	52.00	5000.00	4400.00	
Slide	09-28	04:15	05:25	09-28	1.17	16745.00	16780.00	35.00	30.00	20.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-28	05:25	06:15	09-28	0.83	16780.00	16834.00	54.00	64.80	N/A	707.00	40.0	52.00	5000.00	4400.00	
Rotate	09-28	06:20	07:15	09-28	0.92	16834.00	16924.00	90.00	98.18	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	07:20	08:00	09-28	0.67	16924.00	17014.00	90.00	135.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	08:05	08:45	09-28	0.67	17014.00	17104.00	90.00	135.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	08:50	08:55	09-28	0.08	17104.00	17111.00	7.00	84.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Slide	09-28	08:55	09:15	09-28	0.33	17111.00	17123.00	12.00	36.00	40.0	700.00	N/A	50.00	4700.00	4400.00	
Slide	09-28	09:20	09:45	09-28	0.42	17123.00	17136.00	13.00	31.20	40.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-28	09:45	10:10	09-28	0.42	17136.00	17193.00	57.00	136.80	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	10:15	11:00	09-28	0.75	17193.00	17283.00	90.00	120.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Slide	09-28	11:10	11:45	09-28	0.58	17283.00	17308.00	25.00	42.86	0.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-28	11:45	12:20	09-28	0.58	17308.00	17373.00	65.00	111.43	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	12:25	13:15	09-28	0.83	17373.00	17463.00	90.00	108.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	13:20	14:10	09-28	0.83	17463.00	17552.00	89.00	106.80	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	14:15	15:05	09-28	0.83	17552.00	17642.00	90.00	108.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	15:10	15:50	09-28	0.67	17642.00	17732.00	90.00	135.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Slide	09-28	16:00	16:35	09-28	0.58	17732.00	17757.00	25.00	42.86	160.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-28	16:35	17:00	09-28	0.42	17757.00	17821.00	64.00	153.60	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	17:20	18:05	09-28	0.75	17821.00	17911.00	90.00	120.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	18:10	19:00	09-28	0.83	17911.00	18001.00	90.00	108.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Slide	09-28	19:05	19:50	09-28	0.75	18001.00	18019.00	18.00	24.00	60.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-28	19:50	20:35	09-28	0.75	18019.00	18091.00	72.00	96.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	20:40	21:25	09-28	0.75	18091.00	18181.00	90.00	120.00	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	21:30	22:10	09-28	0.67	18181.00	18270.00	89.00	133.50	N/A	707.00	50.0	52.00	5000.00	4400.00	
Rotate	09-28	22:15	23:15	09-28	1.0	18270.00	18360.00	90.00	90.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-28	23:20	00:50	09-29	1.5	18360.00	18450.00	90.00	60.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Slide	09-29	00:55	02:25	09-29	1.5	18450.00	18475.00	25.00	16.67	50.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-29	02:25	03:30	09-29	1.08	18475.00	18540.00	65.00	60.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	03:35	05:10	09-29	1.58	18540.00	18630.00	90.00	56.84	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	05:15	06:50	09-29	1.58	18630.00	18719.00	89.00	56.21	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	06:55	08:30	09-29	1.58	18719.00	18809.00	90.00	56.84	N/A	707.00	60.0	52.00	5000.00	4400.00	
Slide	09-29	08:40	09:35	09-29	0.92	18809.00	18829.00	20.00	21.82	120.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-29	09:35	11:00	09-29	1.42	18829.00	18899.00	70.00	49.41	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	11:30	11:45	09-29	0.25	18899.00	18912.00	13.00	52.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Slide	09-29	11:45	12:30	09-29	0.75	18912.00	18930.00	18.00	24.00	40.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-29	12:30	13:45	09-29	1.25	18930.00	18988.00	58.00	46.40	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	13:50	15:00	09-29	1.17	18988.00	19078.00	90.00	77.14	N/A	707.00	60.0	52.00	5000.00	4400.00	
Slide	09-29	15:10	16:10	09-29	1.0	19078.00	19118.00	40.00	40.00	180.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-29	16:10	16:50	09-29	0.67	19118.00	19168.00	50.00	75.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	16:55	18:15	09-29	1.33	19168.00	19258.00	90.00	67.50	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	18:20	19:20	09-29	1.0	19258.00	19348.00	90.00	90.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	19:25	20:40	09-29	1.25	19348.00	19438.00	90.00	72.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	20:45	22:30	09-29	1.75	19438.00	19527.00	89.00	50.86	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-29	22:35	00:50	09-30	2.25	19527.00	19617.00	90.00	40.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-30	00:55	03:15	09-30	2.33	19617.00	19707.00	90.00	38.57	N/A	707.00	60.0	52.00	5000.00	4400.00	

Slide	09-30	03:20	05:00	09-30	1.67	19707.00	19732.00	25.00	15.00	30.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	09-30	05:00	06:20	09-30	1.33	19732.00	19797.00	65.00	48.75	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-30	06:25	08:35	09-30	2.17	19797.00	19887.00	90.00	41.54	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	09-30	08:40	09:55	09-30	1.25	19887.00	19944.00	57.00	45.60	N/A	707.00	60.0	52.00	5000.00	4400.00	



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Slide/Rotate Report - BHA #9 (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	10-01	10:30	11:00	10-01	0.5	19944.00	19973.00	29.00	58.00	N/A	707.00	60.0	52.00	5000.00	4400.00	
Rotate	10-01	11:05	12:25	10-01	1.33	19973.00	20063.00	90.00	67.50	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	12:30	13:50	10-01	1.33	20063.00	20153.00	90.00	67.50	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	13:55	15:00	10-01	1.08	20153.00	20243.00	90.00	83.08	N/A	707.00	60.0	52.00	5400.00	5000.00	
Slide	10-01	15:10	16:05	10-01	0.92	20243.00	20263.00	20.00	21.82	140.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	10-01	16:05	16:55	10-01	0.83	20263.00	20332.00	69.00	82.80	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	17:00	18:05	10-01	1.08	20332.00	20422.00	90.00	83.08	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	18:10	18:15	10-01	0.08	20422.00	20429.00	7.00	84.00	N/A	707.00	60.0	52.00	5400.00	5000.00	
Slide	10-01	18:15	19:20	10-01	1.08	20429.00	20459.00	30.00	27.69	85.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	10-01	19:20	20:05	10-01	0.75	20459.00	20512.00	53.00	70.67	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	20:10	21:30	10-01	1.33	20512.00	20602.00	90.00	67.50	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	21:35	23:00	10-01	1.42	20602.00	20691.00	89.00	62.82	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-01	23:05	00:35	10-02	1.5	20691.00	20781.00	90.00	60.00	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-02	00:40	02:10	10-02	1.5	20781.00	20871.00	90.00	60.00	N/A	707.00	60.0	52.00	5400.00	5000.00	
Slide	10-02	02:15	03:40	10-02	1.42	20871.00	20891.00	20.00	14.12	80.0	700.00	N/A	50.00	4700.00	4400.00	
Rotate	10-02	03:40	04:45	10-02	1.08	20891.00	20961.00	70.00	64.62	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-02	04:50	06:00	10-02	1.17	20961.00	21050.00	89.00	76.29	N/A	707.00	60.0	52.00	5400.00	5000.00	
Rotate	10-02	06:05	07:45	10-02	1.67	21050.00	21140.00	90.00	54.00	N/A						
Slide	10-02	07:50	09:15	10-02	1.42	21140.00	21162.00	22.00	15.53	0.0		N/A				
Rotate	10-02	09:15	11:00	10-02	1.75	21162.00	21230.00	68.00	38.86	N/A						
Rotate	10-02	11:05	11:45	10-02	0.67	21230.00	21260.00	30.00	45.00	N/A	700.00	50.0	50.00	5550.00	5000.00	
Slide	10-02	11:45	12:15	10-02	0.5	21260.00	21268.00	8.00	16.00	0.0	700.00	N/A	55.00	5200.00	5000.00	
Rotate	10-02	12:15	13:15	10-02	1.0	21268.00	21320.00	52.00	52.00	N/A	700.00	50.0	50.00	5550.00	5000.00	
Rotate	10-02	13:20	15:00	10-02	1.67	21320.00	21410.00	90.00	54.00	N/A	700.00	50.0	50.00	5550.00	5000.00	
Rotate	10-02	15:05	15:50	10-02	0.75	21410.00	21455.00	45.00	60.00	N/A	700.00	50.0	50.00	5550.00	5000.00	



Daily Reports

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)

	Job Number WT-19-146	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-09-14	Well Name Merchant State Unit 551H		Legal Well Name AFE Merchant State Unit 551H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Sep 14 00:00 - 23:59 (Day of 24) Billing: \$9,000.00 (\$279,097.41 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
No BHAs	

Directional Activities
No Activities
MWD Activities
No Activities

	Job Number WT-19-146	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-09-14	Well Name Merchant State Unit 551H		Legal Well Name AFE Merchant State Unit 551H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Sep 15 00:00 - 23:59 (Day 1 of 24) Billing: \$2,100.00 (\$279,097.41 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

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	09-15	00:00	23:00	09-15			Standby while MOVING RIG
Change BHA	6	09-15	23:00	01:00	09-16			P/U BHA # 1

MWD Activities								
No Activities								



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Monday, Sep 16 00:00 - 23:59 (Day 2 of 24) Billing: \$11,587.50 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	140.00	Downhole Hours	23.00	Rotating WOB (klbs)	20.00 - 40.00
Bit Depth (ft)	1760.00	Drilling Hours	7.83	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	1760.00	Hours Circulating	1.33	Rotating SPM	156.00 - 234.00
Total Distance (ft)	1620.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	1620.00	Hours Rotating	7.83	Motor RPM	83.00 - 125.00
Distance Slid (ft)	0.00			Surface RPM	50.00 - 50.00
Inclination In	0.13			Flow Rate (gpm)	500.00 - 750.00
Inclination Out	1.19			On Bottom Pressure (psi)	1150.00 - 2800.00
Azimuth In	130.55	% Hours Rotating	100%	Off Bottom Pressure (psi)	700.00 - 1700.00
Azimuth Out	239.53	% Hours Sliding	0%		
AVG Total ROP (ft/h)	206.81	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	206.81	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #1 - BHA #1 17.5" Date In: Sep 16, 2019, 1:00 Date Out: Sep 17, 2019, 0:00

Bit Details		Motor Details		Directional Comments
OD (in)	17.500	Size (in)	8.0	Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #6
Vendor	Hughes	Lobe/Stage	7/8, 5.9	
S/N	5293469	Bend Angle	1.5	
Nozzles	9X12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.990	Wear Pad OD (in)	8.000	
Drilling Hours for Day	7.83	Bit Distances		
Total Drilled for Day (ft)	1620.00	Bend: 6.10 ft, Survey: 73.00 ft		
Drilling Hours for BHA	7.83			POOH Reason
Total Drilled for BHA (ft)	1620.00			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: 17 1/2 Hughes DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Hughes	5293469	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 17" STAB.	DR	DR39417	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.250		8.29	47.66
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	51.63
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.99
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	112.13
Crossover Sub Description: X-O 4 1/2 IF BOX - 6 5/8 REG PIN, Type: Steel	DR	DR24907	4 1/2" IF Box	6 5/8" Reg Pin	2.875	6.750		2.40	114.53
Crossover Sub Description: XO - (Everdril54-B x 4 1/2 IF-P), Type: Steel	Black Diamond	BD15113	EverDrig54 Box	4 1/2" IF Pin	3.000	6.625		4.64	119.17
HWDP Description: 5.5" HWDP, Style: Slick			EverDrig54 Box	EverDrig54 Pin	4.000	5.500		758.38	877.55

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Change BHA	6	09-15	23:00	01:00	09-16			P/U BHA # 1

Rotary Drill	1	09-16	01:00	02:05	09-16	140.00	214.00	Pressure On (psi): 1150.00, Pressure Off (psi): 700.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 500.00, Strokes Per Minute: 156.00
Rig Repair	14	09-16	02:05	06:00	09-16			Wait on Derrick Inspection
Rig Repair	14	09-16	06:00	11:45	09-16			WORK ON TOP DRIVE
Survey	46	09-16	11:45	11:50	09-16	214.00	214.00	Inclination (°): 0.130, Azimuth (°): 130.550, TVD (ft): 141.00, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 141.00, Bit To Sensor (ft): 73.00, Temperature (°F): 87.00
Rotary Drill	1	09-16	11:50	12:10	09-16	214.00	404.00	Pressure On (psi): 1150.00, Pressure Off (psi): 700.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 500.00, Strokes Per Minute: 156.00
Survey	46	09-16	12:10	12:15	09-16	404.00	404.00	Inclination (°): 0.310, Azimuth (°): 169.300, TVD (ft): 331.00, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 331.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	12:15	12:30	09-16	404.00	498.00	Pressure On (psi): 1150.00, Pressure Off (psi): 700.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 500.00, Strokes Per Minute: 156.00
Survey	46	09-16	12:30	12:35	09-16	498.00	498.00	Inclination (°): 0.620, Azimuth (°): 189.170, TVD (ft): 425.00, Dogleg (°/100 ft): 0.37, Sensor Depth (ft): 425.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	12:35	13:15	09-16	498.00	688.00	Pressure On (psi): 1150.00, Pressure Off (psi): 700.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 500.00, Strokes Per Minute: 156.00
Survey	46	09-16	13:15	13:20	09-16	688.00	688.00	Inclination (°): 0.480, Azimuth (°): 207.980, TVD (ft): 614.99, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 615.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	13:20	13:40	09-16	688.00	782.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	13:40	13:45	09-16	782.00	782.00	Inclination (°): 0.480, Azimuth (°): 206.570, TVD (ft): 708.98, Dogleg (°/100 ft): 0.01, Sensor Depth (ft): 709.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	13:45	14:00	09-16	782.00	877.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	14:00	14:05	09-16	877.00	877.00	Inclination (°): 0.660, Azimuth (°): 204.460, TVD (ft): 803.98, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 804.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	14:05	14:30	09-16	877.00	967.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	14:30	14:35	09-16	967.00	967.00	Inclination (°): 0.750, Azimuth (°): 207.890, TVD (ft): 893.97, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 894.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	14:35	14:50	09-16	967.00	1056.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	14:50	14:55	09-16	1056.00	1056.00	Inclination (°): 1.010, Azimuth (°): 224.760, TVD (ft): 982.96, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 983.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	14:55	15:15	09-16	1056.00	1146.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	15:15	15:20	09-16	1146.00	1146.00	Inclination (°): 1.230, Azimuth (°): 225.990, TVD (ft): 1072.94, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 1073.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	15:20	15:40	09-16	1146.00	1235.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	15:40	15:45	09-16	1235.00	1235.00	Inclination (°): 1.190, Azimuth (°): 223.890, TVD (ft): 1161.92, Dogleg (°/100 ft): 0.07, Sensor Depth (ft): 1162.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	15:45	16:35	09-16	1235.00	1325.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	16:35	16:40	09-16	1325.00	1325.00	Inclination (°): 1.230, Azimuth (°): 229.070, TVD (ft): 1251.90, Dogleg (°/100 ft): 0.13, Sensor Depth (ft): 1252.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	16:40	17:25	09-16	1325.00	1415.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	17:25	17:30	09-16	1415.00	1415.00	Inclination (°): 1.230, Azimuth (°): 228.630, TVD (ft): 1341.88, Dogleg (°/100 ft): 0.01, Sensor Depth (ft): 1342.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	17:30	18:05	09-16	1415.00	1505.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	18:05	18:10	09-16	1505.00	1505.00	Inclination (°): 1.320, Azimuth (°): 230.300, TVD (ft): 1431.86, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 1432.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	18:10	18:40	09-16	1505.00	1594.00	Pressure On (psi): 2250.00, Pressure Off (psi): 1400.00, Weight On Bit (klbs): 20.00, Surface RPM: 50, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 222.00
Survey	46	09-16	18:40	18:45	09-16	1594.00	1594.00	Inclination (°): 1.410, Azimuth (°): 236.720, TVD (ft): 1520.84, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 1521.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	18:45	19:05	09-16	1594.00	1684.00	Pressure On (psi): 2800.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-16	19:05	19:10	09-16	1684.00	1684.00	Inclination (°): 1.270, Azimuth (°): 237.770, TVD (ft): 1610.81, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 1611.00, Bit To Sensor (ft): 73.00
Rotary Drill	1	09-16	19:10	19:45	09-16	1684.00	1760.00	Pressure On (psi): 2800.00, Pressure Off (psi): 1700.00, Weight On Bit (klbs): 40.00, Surface RPM: 50, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-16	19:45	19:55	09-16	1760.00	1760.00	Inclination (°): 1.190, Azimuth (°): 239.530, TVD (ft): 1686.79, Dogleg (°/100 ft): 0.12, Sensor Depth (ft): 1687.00, Bit To Sensor (ft): 73.00
Circulating	3	09-16	19:55	21:15	09-16			
Pooh	7	09-16	21:15	23:00	09-16			POOH. Casing Point
Change BHA	6	09-16	23:00	00:00	09-17			Pull MWD. L/D 17" Stab. Drain Motor and break bit. Rack back BHA

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Tuesday, Sep 17 00:00 - 23:59 (Day 3 of 24)

Billing: \$8,446.25 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	1760.00	Downhole Hours	7.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	2038.00	Drilling Hours	2.50	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	2038.00	Hours Circulating	1.33	Rotating SPM	220.00 - 237.00
Total Distance (ft)	278.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	278.00	Hours Rotating	2.50	Motor RPM	83.00 - 125.00
Distance Slid (ft)	0.00			Surface RPM	40.00 - 40.00
Inclination In	0.66			Flow Rate (gpm)	710.00 - 750.00
Inclination Out	0.62			On Bottom Pressure (psi)	2200.00 - 2400.00
Azimuth In	191.89	% Hours Rotating	100%	Off Bottom Pressure (psi)	1800.00 - 2000.00
Azimuth Out	207.27	% Hours Sliding	0%		
AVG Total ROP (ft/h)	111.20	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	111.20	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #1 - BHA #1 17.5"

Date In: Sep 16, 2019, 1:00 Date Out: Sep 17, 2019, 0:00

Bit Details		Motor Details		Directional Comments	
OD (in)	17.500	Size (in)	8.0	Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #6	
Vendor	Hughes	Lobe/Stage	7/8, 5.9		
S/N	5293469	Bend Angle	1.5		
Nozzles	9X12	Speed (rev/gal)	0.17	MWD Comments	
Total Flow Area (in²)	0.990	Wear Pad OD (in)	8.000	POOH Reason Total Depth/Casing Point	
Drilling Hours for Day		Bit Distances			
Total Drilled for Day (ft)		Bend: 6.10 ft, Survey: 73.00 ft			
Drilling Hours for BHA	7.83				
Total Drilled for BHA (ft)	1620.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 17 1/2 Hughes DP606S, Style: PDC, Gauge Length (in): 4.00, Size (in): 17.50	Hughes	5293469	6 5/8" Reg Pin			17.500		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 17" STAB.	DR	DR39417	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.250		8.29	47.66
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	51.63
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.99
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	112.13
Crossover Sub Description: X-O 4 1/2 IF BOX - 6 5/8 REG PIN, Type: Steel	DR	DR24907	4 1/2" IF Box	6 5/8" Reg Pin	2.875	6.750		2.40	114.53
Crossover Sub Description: XO - (Everdril54-B x 4 1/2 IF-P), Type: Steel	Black Diamond	BD15113	EverDrig54 Box	4 1/2" IF Pin	3.000	6.625		4.64	119.17
HWDP Description: 5.5" HWDP, Style: Slick			EverDrig54 Box	EverDrig54 Pin	4.000	5.500		758.38	877.55

MWD Items

No Items

BHA #2 - Intermediate 12.25"

Date In: Sep 17, 2019, 17:00 Date Out: Sep 19, 2019, 8:45

Bit Details		Motor Details		Directional Comments	
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #1	
Vendor	REED	Lobe/Stage	7/8, 5.9		
S/N	A266235	Bend Angle	1.5		
Nozzles	6x12	Speed (rev/gal)	0.17	MWD Comments	
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.000		
Drilling Hours for Day	2.50	Bit Distances			
Total Drilled for Day (ft)	278.00	Bend: 6.10 ft, Survey: 72.00 ft			
Drilling Hours for BHA	27.92			POOH Reason	
Total Drilled for BHA (ft)	3520.00				
				Total Depth/Casing Point: TD / 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: 12 1/4" TKC66 , Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	REED	A266235	6 5/8" Reg Pin			12.250		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 12" STAB.	DR	35162	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.48	46.85
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	50.82
Drill Collar Description: 8" NMDC (MWD), Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.18
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	111.32
Crossover Sub Description: X-O (4 1/2 XH BOX - 6 5/8 REG PIN), Type: Steel	GT	GT10366	4 1/2" XH Box	6 5/8" Reg Pin	2.875	6.500		4.16	115.48
Drill Collar Description: 12- 6.5" DC (4 STANDS), Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	469.31
Crossover Sub Description: XO - (Everdril54-B x 4 1/2 XH-P), Type: Steel	Black Diamond	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	472.85
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1231.23

MWD Items
No Items

Directional Activities									
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details	
Change BHA	6	09-16	23:00	00:00	09-17			Pull MWD. L/D 17" Stab. Drain Motor and break bit. Rack back BHA	
Standby	15	09-17	00:00	16:00	09-17			Standby. Casing Ops	
Change BHA	6	09-17	16:00	17:00	09-17			P/U BHA # 2	
TIH	8	09-17	17:00	17:15	09-17			TIH W/ BHA #2, P/U 6.5" Collars	
Other	16	09-17	17:15	20:00	09-17			Test Casing	
Drilling Cement	17	09-17	20:00	21:20	09-17	1760.00	1760.00	Drilling Cement and Float Equipment	
Rotary Drill	1	09-17	21:20	22:30	09-17	1760.00	1858.00	Pressure On (psi): 2200.00, Pressure Off (psi): 1800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 710.00, Strokes Per Minute: 220.00	
Survey	46	09-17	22:30	22:35	09-17	1858.00	1858.00	Inclination (°): 0.660, Azimuth (°): 191.890, TVD (ft): 1785.78, Dogleg (°/100 ft): 0.90, Sensor Depth (ft): 1786.00, Bit To Sensor (ft): 72.00, Temperature (°F): 102.00	
Rotary Drill	1	09-17	22:35	22:50	09-17	1858.00	1948.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00	
Survey	46	09-17	22:50	22:55	09-17	1948.00	1948.00	Inclination (°): 0.620, Azimuth (°): 207.270, TVD (ft): 1875.78, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 1876.00, Bit To Sensor (ft): 72.00	
Rotary Drill	1	09-17	22:55	00:00	09-18	1948.00	2038.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00	

MWD Activities
No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Wednesday, Sep 18 00:00 - 23:59 (Day 4 of 24)

Billing: \$5,600.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	2038.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 50.00
Bit Depth (ft)	5084.00	Drilling Hours	21.17	Sliding WOB (klbs)	25.00 - 25.00
Bottom Hole Depth (ft)	5084.00	Hours Circulating	0.00	Rotating SPM	237.00 - 264.00
Total Distance (ft)	3046.00	Hours Sliding	0.25	Sliding SPM	237.00 - 237.00
Distance Rotated (ft)	3026.00	Hours Rotating	20.92	Motor RPM	83.00 - 125.00
Distance Slid (ft)	20.00			Surface RPM	40.00 - 40.00
Inclination In	0.48			Flow Rate (gpm)	750.00 - 850.00
Inclination Out	0.84			On Bottom Pressure (psi)	2400.00 - 3150.00
Azimuth In	192.24	% Hours Rotating	99%	Off Bottom Pressure (psi)	2000.00 - 2500.00
Azimuth Out	344.12	% Hours Sliding	1%		
AVG Total ROP (ft/h)	140.94	% Distance Sliding	1%		
AVG Rotating ROP (ft/h)	141.64	% Distance Rotating	99%		
AVG Sliding ROP (ft/h)	80.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #2 - Intermediate 12.25"

Date In: Sep 17, 2019, 17:00 Date Out: Sep 19, 2019, 8:45

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #1
Vendor	REED	Lobe/Stage	7/8, 5.9	
S/N	A266235	Bend Angle	1.5	
Nozzles	6x12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.000	
Drilling Hours for Day	21.17	Bit Distances		
Total Drilled for Day (ft)	3046.00	Bend: 6.10 ft, Survey: 72.00 ft		
Drilling Hours for BHA	27.92			
Total Drilled for BHA (ft)	3520.00			POOH Reason
				Total Depth/Casing Point: TD / 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: 12 1/4" TKC66 , Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	REED	A266235	6 5/8" Reg Pin			12.250		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 12" STAB.	DR	35162	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.48	46.85
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	50.82
Drill Collar Description: 8" NMDC (MWD), Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.18
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	111.32
Crossover Sub Description: X-O (4 1/2 XH BOX - 6 5/8 REG PIN), Type: Steel	GT	GT10366	4 1/2" XH Box	6 5/8" Reg Pin	2.875	6.500		4.16	115.48
Drill Collar Description: 12- 6.5" DC (4 STANDS), Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	469.31
Crossover Sub Description: XO - (Everdrl54-B x 4 1/2 XH-P), Type: Steel	Black Diamond	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	472.85
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1231.23

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	09-17	22:55	00:00	09-18	1948.00	2038.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Rotary Drill	1	09-18	00:00	00:40	09-18	2038.00	2127.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	00:40	00:45	09-18	2127.00	2127.00	Inclination (°): 0.480, Azimuth (°): 192.240, TVD (ft): 2054.77, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 2055.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	00:45	01:50	09-18	2127.00	2307.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	01:50	01:55	09-18	2307.00	2307.00	Inclination (°): 0.440, Azimuth (°): 194.000, TVD (ft): 2234.76, Dogleg (°/100 ft): 0.02, Sensor Depth (ft): 2235.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	01:55	02:35	09-18	2307.00	2396.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	02:35	02:40	09-18	2396.00	2396.00	Inclination (°): 0.350, Azimuth (°): 193.040, TVD (ft): 2323.76, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 2324.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	02:40	03:45	09-18	2396.00	2575.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	03:45	03:50	09-18	2575.00	2575.00	Inclination (°): 0.260, Azimuth (°): 164.470, TVD (ft): 2502.76, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 2503.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	03:50	04:25	09-18	2575.00	2665.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	04:25	04:30	09-18	2665.00	2665.00	Inclination (°): 0.350, Azimuth (°): 130.190, TVD (ft): 2592.76, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 2593.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	04:30	04:55	09-18	2665.00	2755.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	04:55	05:00	09-18	2755.00	2755.00	Inclination (°): 0.400, Azimuth (°): 112.350, TVD (ft): 2682.75, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 2683.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	05:00	05:35	09-18	2755.00	2844.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	05:35	05:40	09-18	2844.00	2844.00	Inclination (°): 0.440, Azimuth (°): 102.600, TVD (ft): 2771.75, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 2772.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	05:40	06:10	09-18	2844.00	2934.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	06:10	06:15	09-18	2934.00	2934.00	Inclination (°): 0.570, Azimuth (°): 90.200, TVD (ft): 2861.75, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 2862.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	06:15	06:40	09-18	2934.00	3024.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	06:40	06:45	09-18	3024.00	3024.00	Inclination (°): 0.620, Azimuth (°): 89.500, TVD (ft): 2951.74, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 2952.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	06:45	07:10	09-18	3024.00	3113.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	07:10	07:15	09-18	3113.00	3113.00	Inclination (°): 0.840, Azimuth (°): 86.690, TVD (ft): 3040.74, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 3041.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	07:15	07:50	09-18	3113.00	3203.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	07:50	07:55	09-18	3203.00	3203.00	Inclination (°): 1.050, Azimuth (°): 85.190, TVD (ft): 3130.72, Dogleg (°/100 ft): 0.23, Sensor Depth (ft): 3131.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	07:55	08:00	09-18	3203.00	3208.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Slide Drill	2	09-18	08:00	08:15	09-18	3208.00	3228.00	Pressure On (psi): 2450.00, Pressure Off (psi): 2050.00, Weight On Bit (klbs): 25.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237, Toolface: 265, Toolface Type: magnetic
Rotary Drill	1	09-18	08:15	08:40	09-18	3228.00	3293.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	08:40	08:45	09-18	3293.00	3293.00	Inclination (°): 0.570, Azimuth (°): 358.360, TVD (ft): 3220.72, Dogleg (°/100 ft): 1.30, Sensor Depth (ft): 3221.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	08:45	09:10	09-18	3293.00	3382.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	09:10	09:15	09-18	3382.00	3382.00	Inclination (°): 1.360, Azimuth (°): 328.390, TVD (ft): 3309.70, Dogleg (°/100 ft): 1.02, Sensor Depth (ft): 3310.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	09:15	09:45	09-18	3382.00	3472.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	09:45	09:50	09-18	3472.00	3472.00	Inclination (°): 1.140, Azimuth (°): 342.800, TVD (ft): 3399.68, Dogleg (°/100 ft): 0.42, Sensor Depth (ft): 3400.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	09:50	10:25	09-18	3472.00	3562.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	10:25	10:30	09-18	3562.00	3562.00	Inclination (°): 0.790, Azimuth (°): 5.740, TVD (ft): 3489.67, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 3490.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	10:30	11:15	09-18	3562.00	3651.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00

Survey	46	09-18	11:15	11:20	09-18	3651.00	3651.00	Inclination (°): 0.750, Azimuth (°): 4.070, TVD (ft): 3578.66, Dogleg (°/100 ft): 0.05, Sensor Depth (ft): 3579.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	11:20	11:55	09-18	3651.00	3741.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	11:55	12:00	09-18	3741.00	3741.00	Inclination (°): 0.700, Azimuth (°): 358.010, TVD (ft): 3668.66, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 3669.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	12:00	12:50	09-18	3741.00	3830.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	12:50	12:55	09-18	3830.00	3830.00	Inclination (°): 0.700, Azimuth (°): 355.900, TVD (ft): 3757.65, Dogleg (°/100 ft): 0.03, Sensor Depth (ft): 3758.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	12:55	13:55	09-18	3830.00	3920.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	13:55	14:00	09-18	3920.00	3920.00	Inclination (°): 0.700, Azimuth (°): 353.170, TVD (ft): 3847.64, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 3848.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	14:00	14:45	09-18	3920.00	4010.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	14:45	14:50	09-18	4010.00	4010.00	Inclination (°): 0.790, Azimuth (°): 353.700, TVD (ft): 3937.63, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 3938.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	14:50	15:30	09-18	4010.00	4099.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	15:30	15:35	09-18	4099.00	4099.00	Inclination (°): 0.620, Azimuth (°): 1.520, TVD (ft): 4026.63, Dogleg (°/100 ft): 0.22, Sensor Depth (ft): 4027.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	15:35	16:00	09-18	4099.00	4189.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	16:00	16:05	09-18	4189.00	4189.00	Inclination (°): 0.400, Azimuth (°): 337.880, TVD (ft): 4116.62, Dogleg (°/100 ft): 0.33, Sensor Depth (ft): 4117.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	16:05	16:30	09-18	4189.00	4278.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	16:30	16:35	09-18	4278.00	4278.00	Inclination (°): 0.840, Azimuth (°): 296.310, TVD (ft): 4205.62, Dogleg (°/100 ft): 0.68, Sensor Depth (ft): 4206.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	16:35	17:00	09-18	4278.00	4368.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	17:00	17:05	09-18	4368.00	4368.00	Inclination (°): 0.840, Azimuth (°): 311.780, TVD (ft): 4295.61, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 4296.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	17:05	17:35	09-18	4368.00	4457.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Rig Service - In Hole	19	09-18	17:35	17:50	09-18			
Survey	46	09-18	17:50	17:55	09-18	4457.00	4457.00	Inclination (°): 0.790, Azimuth (°): 324.520, TVD (ft): 4384.60, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 4385.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	17:55	18:45	09-18	4457.00	4547.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	18:45	18:50	09-18	4547.00	4547.00	Inclination (°): 0.790, Azimuth (°): 336.030, TVD (ft): 4474.59, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 4475.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	18:50	19:30	09-18	4547.00	4637.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	19:30	19:35	09-18	4637.00	4637.00	Inclination (°): 0.790, Azimuth (°): 338.930, TVD (ft): 4564.58, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 4565.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	19:35	20:35	09-18	4637.00	4726.00	Pressure On (psi): 2400.00, Pressure Off (psi): 2000.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 237.00
Survey	46	09-18	20:35	20:40	09-18	4726.00	4726.00	Inclination (°): 0.840, Azimuth (°): 344.560, TVD (ft): 4653.57, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 4654.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	20:40	21:30	09-18	4726.00	4815.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	09-18	21:30	21:35	09-18	4815.00	4815.00	Inclination (°): 0.700, Azimuth (°): 343.420, TVD (ft): 4742.57, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 4743.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	21:35	22:15	09-18	4815.00	4905.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	09-18	22:15	22:20	09-18	4905.00	4905.00	Inclination (°): 0.790, Azimuth (°): 341.220, TVD (ft): 4832.56, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 4833.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	22:20	23:00	09-18	4905.00	4995.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	09-18	23:00	23:05	09-18	4995.00	4995.00	Inclination (°): 0.840, Azimuth (°): 344.120, TVD (ft): 4922.55, Dogleg (°/100 ft): 0.07, Sensor Depth (ft): 4923.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-18	23:05	00:00	09-19	4995.00	5084.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Thursday, Sep 19 00:00 - 23:59 (Day 5 of 24)

Billing: \$5,600.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5084.00	Downhole Hours	8.75	Rotating WOB (klbs)	50.00 - 50.00
Bit Depth (ft)	5280.00	Drilling Hours	4.25	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	5280.00	Hours Circulating	1.17	Rotating SPM	264.00 - 264.00
Total Distance (ft)	196.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	196.00	Hours Rotating	4.25	Motor RPM	83.00 - 125.00
Distance Slid (ft)	0.00			Surface RPM	40.00 - 40.00
Inclination In	0.79			Flow Rate (gpm)	850.00 - 850.00
Inclination Out	0.79			On Bottom Pressure (psi)	3150.00 - 3150.00
Azimuth In	342.63	% Hours Rotating	100%	Off Bottom Pressure (psi)	2500.00 - 2500.00
Azimuth Out	346.58	% Hours Sliding	0%		
AVG Total ROP (ft/h)	55.16	% Distance Sliding	0%		
AVG Rotating ROP (ft/h)	55.16	% Distance Rotating	100%		
AVG Sliding ROP (ft/h)	0.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #2 - Intermediate 12.25"

Date In: Sep 17, 2019, 17:00 Date Out: Sep 19, 2019, 8:45

Bit Details		Motor Details		Directional Comments
OD (in)	12.250	Size (in)	8.0	Flow Rate: 400- 900, Max Diff: 1330 psi , Max Torque: 22,020 ft-lbs BIT Runs #1
Vendor	REED	Lobe/Stage	7/8, 5.9	
S/N	A266235	Bend Angle	1.5	
Nozzles	6x12	Speed (rev/gal)	0.17	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	8.000	
Drilling Hours for Day	4.25	Bit Distances		
Total Drilled for Day (ft)	196.00	Bend: 6.10 ft, Survey: 72.00 ft		POOH Reason
Drilling Hours for BHA	27.92			
Total Drilled for BHA (ft)	3520.00			
				Total Depth/Casing Point: TD / 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: 12 1/4" TKC66 , Style: PDC, Gauge Length (in): 4.00, Size (in): 12.25	REED	A266235	6 5/8" Reg Pin			12.250		1.50	1.50
Mud Motor Description: 8 " 1.5 FX 7/8 5.9 12" STAB., Size (in): 8.00, Bend Angle (°): 1.5, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5.9	AIM	80040-002	6 5/8" Reg Box	6 5/8" Reg Box		8.000		37.87	39.37
Stabilizer Description: 12" STAB.	DR	35162	6 1/2" Reg Box	6 5/8" Reg Pin	2.875	8.375		7.48	46.85
UBHO Sub Description: UBHO SUB, Type: NM	GT	GT8066846	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.000		3.97	50.82
Drill Collar Description: 8" NMDC (MWD), Style: Slick Drill, Type: NM	DR	DR43261	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.125		30.36	81.18
Drill Collar Description: 8" NMDC, Style: Slick Drill, Type: NM	AIM	AM801008	6 5/8" Reg Box	6 5/8" Reg Pin	3.250	8.063		30.14	111.32
Crossover Sub Description: X-O (4 1/2 XH BOX - 6 5/8 REG PIN), Type: Steel	GT	GT10366	4 1/2" XH Box	6 5/8" Reg Pin	2.875	6.500		4.16	115.48
Drill Collar Description: 12- 6.5" DC (4 STANDS), Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	469.31
Crossover Sub Description: XO - (Everdrl54-B x 4 1/2 XH-P), Type: Steel	Black Diamond	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	472.85
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1231.23

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	09-18	23:05	00:00	09-19	4995.00	5084.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	09-19	00:00	00:10	09-19	5084.00	5084.00	Inclination (°): 0.790, Azimuth (°): 342.630, TVD (ft): 5011.54, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 5012.00, Bit To Sensor (ft): 72.00
Rotary Drill	1	09-19	00:10	03:55	09-19	5084.00	5264.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Survey	46	09-19	03:55	04:00	09-19	5264.00	5264.00	Inclination (°): 0.790, Azimuth (°): 346.580, TVD (ft): 5191.52, Dogleg (°/100 ft): 0.03, Sensor Depth (ft): 5192.00, Bit To Sensor (ft): 72.00, Temperature (°F): 132.00
Rotary Drill	1	09-19	04:00	04:30	09-19	5264.00	5280.00	Pressure On (psi): 3150.00, Pressure Off (psi): 2500.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 15.00, Flow Rate (gpm): 850.00, Strokes Per Minute: 264.00
Circulating	3	09-19	04:30	05:40	09-19			
Pooh	7	09-19	05:40	08:00	09-19			POOH for CASING OPS
Change BHA	6	09-19	08:00	08:45	09-19			L/D BHA #2
Standby	15	09-19	08:45	23:00	09-19			Standby while RUNNING CASING
Change BHA	6	09-19	23:00	00:45	09-20			P/U BHA # 3

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Friday, Sep 20 00:00 - 23:59 (Day 6 of 24)

Billing: \$26,221.75 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	5280.00	Downhole Hours	23.25	Rotating WOB (klbs)	45.00 - 50.00
Bit Depth (ft)	7380.00	Drilling Hours	6.83	Sliding WOB (klbs)	
Bottom Hole Depth (ft)	7380.00	Hours Circulating	1.08	Rotating SPM	220.00 - 234.00
Total Distance (ft)	2100.00	Hours Sliding	1.33	Sliding SPM	
Distance Rotated (ft)	2018.00	Hours Rotating	5.50	Motor RPM	0.00 - 195.00
Distance Slid (ft)	82.00			Surface RPM	40.00 - 40.00
Inclination In	0.70			Flow Rate (gpm)	705.00 - 750.00
Inclination Out	5.14			On Bottom Pressure (psi)	3200.00 - 3400.00
Azimuth In	353.88	% Hours Rotating	80%	Off Bottom Pressure (psi)	2450.00 - 2850.00
Azimuth Out	291.47	% Hours Sliding	20%		
AVG Total ROP (ft/h)	307.32	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	366.91	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	61.50				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #3 - 8.5" INTERMEDIATE

Date In: Sep 20, 2019, 0:45 Date Out: Sep 20, 2019, 19:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs #3
Vendor	SECURITY	Lobe/Stage	7/8, 8.5	
S/N	12979092	Bend Angle	1.5	MWD Comments
Nozzles	6x12	Speed (rev/gal)	0.26	
Total Flow Area (in²)	0.660	Wear Pad OD (in)	7.210	POOH Reason
Drilling Hours for Day	6.33	Bit Distances		
Total Drilled for Day (ft)	1981.00			Penetration Rate: ROP dropped off POOH to inspect motor and bit
Drilling Hours for BHA	6.33			
Total Drilled for BHA (ft)	1981.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GT65DRM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	12979092	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-034	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.16	37.16
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.76
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.83
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.41
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.41
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.60
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.43
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	467.97
HWDP Description: 5.5" HWDP, Style: Slick			EverDrg54 Box	EverDrg54 Pin	4.000	5.500		758.38	1226.35

MWD Items

No Items

BHA #4 - 8.5" INTERMEDIATE

Date In: Sep 20, 2019, 19:00 Date Out: Sep 22, 2019, 8:15

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs # 1	
Vendor	SECURITY	Lobe/Stage	7/8, 8.5		
S/N	13273856	Bend Angle	1.5		
Nozzles	6x12	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	0.660	Wear Pad OD (in)	7.250	POOH Reason Change Bottom Hole Assembly: POOH FOR CURVE ASSEMBLY	
Drilling Hours for Day	0.50	Bit Distances			
Total Drilled for Day (ft)	119.00	Survey (): 63.00 ft, Bend (): 5.35 ft			
Drilling Hours for BHA	23.50				
Total Drilled for BHA (ft)	3468.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GT65DM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13273856	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.84
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.91
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.49
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.49
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.68
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	468.05
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1226.43

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Change BHA	6	09-19	23:00	00:45	09-20			P/U BHA # 3
TIH	8	09-20	00:45	01:30	09-20			TIH W/ BHA #3
Other	16	09-20	01:30	04:30	09-20			Wait on cement
Other	16	09-20	04:30	04:40	09-20			Drill out DV Tool
Other	16	09-20	04:40	05:20	09-20			Pressure test casing to 1500psi
TIH	8	09-20	05:20	06:30	09-20			TIH W/ BHA #3
Drilling Cement	17	09-20	06:30	07:10	09-20	5211.00	5280.00	Drilling Cement and Float Equipment
Rotary Drill	1	09-20	07:10	07:25	09-20	5280.00	5348.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	07:25	07:30	09-20	5348.00	5348.00	Inclination (°): 0.700, Azimuth (°): 353.880, TVD (ft): 5284.52, Dogleg (°/100 ft): 0.14, Sensor Depth (ft): 5285.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	07:30	07:40	09-20	5348.00	5438.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	07:40	07:45	09-20	5438.00	5438.00	Inclination (°): 0.480, Azimuth (°): 0.120, TVD (ft): 5374.51, Dogleg (°/100 ft): 0.25, Sensor Depth (ft): 5375.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	07:45	08:00	09-20	5438.00	5528.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	08:00	08:05	09-20	5528.00	5528.00	Inclination (°): 0.260, Azimuth (°): 320.390, TVD (ft): 5464.51, Dogleg (°/100 ft): 0.36, Sensor Depth (ft): 5465.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	08:05	08:20	09-20	5528.00	5617.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	08:20	08:25	09-20	5617.00	5617.00	Inclination (°): 0.220, Azimuth (°): 243.660, TVD (ft): 5553.51, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 5554.00, Bit To Sensor (ft): 63.00

Rotary Drill	1	09-20	08:25	08:35	09-20	5617.00	5707.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	08:35	08:40	09-20	5707.00	5707.00	Inclination (°): 0.180, Azimuth (°): 268.270, TVD (ft): 5643.51, Dogleg (°/100 ft): 0.10, Sensor Depth (ft): 5644.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	08:40	08:50	09-20	5707.00	5797.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	08:50	08:55	09-20	5797.00	5797.00	Inclination (°): 0.220, Azimuth (°): 258.600, TVD (ft): 5733.51, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 5734.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	08:55	09:10	09-20	5797.00	5886.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	09:10	09:15	09-20	5886.00	5886.00	Inclination (°): 0.180, Azimuth (°): 157.880, TVD (ft): 5822.51, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 5823.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	09:15	09:25	09-20	5886.00	5976.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	09:25	09:30	09-20	5976.00	5976.00	Inclination (°): 0.180, Azimuth (°): 149.350, TVD (ft): 5912.51, Dogleg (°/100 ft): 0.03, Sensor Depth (ft): 5913.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	09:30	09:40	09-20	5976.00	6065.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	09:40	09:45	09-20	6065.00	6065.00	Inclination (°): 0.310, Azimuth (°): 137.660, TVD (ft): 6001.51, Dogleg (°/100 ft): 0.16, Sensor Depth (ft): 6002.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	09:45	09:50	09-20	6065.00	6155.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	09:50	09:55	09-20	6155.00	6155.00	Inclination (°): 0.260, Azimuth (°): 135.560, TVD (ft): 6091.51, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 6092.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	09:55	10:05	09-20	6155.00	6244.00	Pressure On (psi): 3200.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 45.00, Surface RPM: 40, Surface Torque (ft lbf): 12.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-20	10:05	10:10	09-20	6244.00	6244.00	Inclination (°): 0.400, Azimuth (°): 114.900, TVD (ft): 6180.50, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 6181.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	10:10	10:20	09-20	6244.00	6334.00	Inclination (°): 0.440, Azimuth (°): 109.890, TVD (ft): 6270.50, Dogleg (°/100 ft): 0.06, Sensor Depth (ft): 6271.00, Bit To Sensor (ft): 63.00
Survey	46	09-20	10:20	10:25	09-20	6334.00	6334.00	
Slide Drill	2	09-20	10:25	10:40	09-20	6334.00	6354.00	Toolface: 288, Toolface Type: magnetic
Rotary Drill	1	09-20	10:40	10:50	09-20	6354.00	6423.00	Inclination (°): 0.970, Azimuth (°): 299.650, TVD (ft): 6359.50, Dogleg (°/100 ft): 1.58, Sensor Depth (ft): 6360.00, Bit To Sensor (ft): 63.00
Survey	46	09-20	10:50	10:55	09-20	6423.00	6423.00	
Slide Drill	2	09-20	10:55	11:30	09-20	6423.00	6448.00	Toolface: 280, Toolface Type: magnetic
Rotary Drill	1	09-20	11:30	11:40	09-20	6448.00	6513.00	Inclination (°): 2.070, Azimuth (°): 303.160, TVD (ft): 6449.47, Dogleg (°/100 ft): 1.23, Sensor Depth (ft): 6450.00, Bit To Sensor (ft): 63.00
Survey	46	09-20	11:40	11:45	09-20	6513.00	6513.00	
Slide Drill	2	09-20	11:45	12:00	09-20	6513.00	6535.00	Toolface: 280, Toolface Type: magnetic
Rotary Drill	1	09-20	12:00	12:10	09-20	6535.00	6603.00	Inclination (°): 3.820, Azimuth (°): 301.050, TVD (ft): 6539.34, Dogleg (°/100 ft): 1.95, Sensor Depth (ft): 6540.00, Bit To Sensor (ft): 63.00
Survey	46	09-20	12:10	12:15	09-20	6603.00	6603.00	
Slide Drill	2	09-20	12:15	12:30	09-20	6603.00	6618.00	Toolface: 250, Toolface Type: magnetic
Rotary Drill	1	09-20	12:30	12:50	09-20	6618.00	6692.00	Inclination (°): 5.490, Azimuth (°): 296.660, TVD (ft): 6628.05, Dogleg (°/100 ft): 1.92, Sensor Depth (ft): 6629.00, Bit To Sensor (ft): 63.00
Survey	46	09-20	12:50	12:55	09-20	6692.00	6692.00	
Rotary Drill	1	09-20	12:55	13:10	09-20	6692.00	6782.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	13:10	13:15	09-20	6782.00	6782.00	Inclination (°): 6.020, Azimuth (°): 293.140, TVD (ft): 6717.59, Dogleg (°/100 ft): 0.71, Sensor Depth (ft): 6719.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	13:15	13:25	09-20	6782.00	6871.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	13:25	13:30	09-20	6871.00	6871.00	Inclination (°): 5.890, Azimuth (°): 293.060, TVD (ft): 6806.11, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 6808.00, Bit To Sensor (ft): 63.00
Rig Repair	14	09-20	13:30	14:25	09-20			
Rotary Drill	1	09-20	14:25	14:40	09-20	6871.00	6961.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	14:40	14:45	09-20	6961.00	6961.00	Inclination (°): 5.980, Azimuth (°): 294.640, TVD (ft): 6895.63, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 6898.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	14:45	15:00	09-20	6961.00	7051.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	15:00	15:05	09-20	7051.00	7051.00	Inclination (°): 5.980, Azimuth (°): 295.960, TVD (ft): 6985.14, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 6988.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	15:05	15:20	09-20	7051.00	7140.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	15:20	15:25	09-20	7140.00	7140.00	Inclination (°): 5.710, Azimuth (°): 293.140, TVD (ft): 7073.68, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 7077.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	15:25	15:40	09-20	7140.00	7230.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00

Survey	46	09-20	15:40	15:45	09-20	7230.00	7230.00	Inclination (°): 5.410, Azimuth (°): 290.420, TVD (ft): 7163.25, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 7167.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-20	15:45	16:15	09-20	7230.00	7261.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Circulating	3	09-20	16:15	16:40	09-20			CONDITION & CIRCULATE TO POOH
Pooh	7	09-20	16:40	19:00	09-20			POOH to inspect motor and bit.
Change BHA	6	09-20	19:00	20:05	09-20			C/O Motor and Bit
TIH	8	09-20	20:05	23:25	09-20			TIH W/ BHA #4
Rotary Drill	1	09-20	23:25	23:45	09-20	7261.00	7319.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-20	23:45	23:50	09-20	7319.00	7319.00	Inclination (°): 5.140, Azimuth (°): 291.470, TVD (ft): 7251.88, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 7256.00, Bit To Sensor (ft): 63.00, Temperature (°F): 127.00
Rotary Drill	1	09-20	23:50	00:00	09-21	7319.00	7380.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00

MWD Activities

No Activities

	Job Number WT-19-146	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-09-14	Well Name Merchant State Unit 551H		Legal Well Name AFE Merchant State Unit 551H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Saturday, Sep 21 00:00 - 23:59 (Day 7 of 24)

Billing: \$8,673.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	7380.00	Downhole Hours	24.00	Rotating WOB (klbs)	45.00 - 50.00
Bit Depth (ft)	10528.00	Drilling Hours	20.67	Sliding WOB (klbs)	20.00 - 20.00
Bottom Hole Depth (ft)	10528.00	Hours Circulating	0.00	Rotating SPM	234.00 - 234.00
Total Distance (ft)	3148.00	Hours Sliding	2.50	Sliding SPM	234.00 - 234.00
Distance Rotated (ft)	3013.00	Hours Rotating	18.17	Motor RPM	0.00 - 0.00
Distance Slid (ft)	135.00			Surface RPM	30.00 - 40.00
Inclination In	4.57			Flow Rate (gpm)	750.00 - 750.00
Inclination Out	1.14			On Bottom Pressure (psi)	3400.00 - 3400.00
Azimuth In	283.12	% Hours Rotating	88%	Off Bottom Pressure (psi)	2850.00 - 3000.00
Azimuth Out	274.95	% Hours Sliding	12%		
AVG Total ROP (ft/h)	154.03	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	167.67	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	54.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #4 - 8.5" INTERMEDIATE

Date In: Sep 20, 2019, 19:00 Date Out: Sep 22, 2019, 8:15

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs # 1
Vendor	SECURITY	Lobe/Stage	7/8, 8.5	
S/N	13273856	Bend Angle	1.5	
Nozzles	6x12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	7.250	
Drilling Hours for Day	20.67	Bit Distances		
Total Drilled for Day (ft)	3148.00	Survey (): 63.00 ft, Bend (): 5.35 ft		POOH Reason Change Bottom Hole Assembly: POOH FOR CURVE ASSEMBLY
Drilling Hours for BHA	23.50			
Total Drilled for BHA (ft)	3468.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GT65DM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13273856	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.84
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.91
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.49
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.49
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.68
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	468.05
HWDP Description: 5.5" HWDP, Style: Slick			EverDrg54 Box	EverDrg54 Pin	4.000	5.500		758.38	1226.43

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	09-20	23:50	00:00	09-21	7319.00	7380.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Rotary Drill	1	09-21	00:00	00:05	09-21	7380.00	7409.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 40, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	00:05	00:10	09-21	7409.00	7409.00	Inclination (°): 4.570, Azimuth (°): 283.120, TVD (ft): 7341.56, Dogleg (°/100 ft): 1.01, Sensor Depth (ft): 7346.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	00:10	00:15	09-21	7409.00	7440.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	00:15	00:35	09-21	7440.00	7460.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 290, Toolface Type: magnetic
Rotary Drill	1	09-21	00:35	00:45	09-21	7460.00	7499.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	00:45	00:50	09-21	7499.00	7499.00	Inclination (°): 5.140, Azimuth (°): 277.150, TVD (ft): 7431.23, Dogleg (°/100 ft): 0.85, Sensor Depth (ft): 7436.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	00:50	01:05	09-21	7499.00	7589.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	01:05	01:10	09-21	7589.00	7589.00	Inclination (°): 6.150, Azimuth (°): 278.820, TVD (ft): 7520.79, Dogleg (°/100 ft): 1.14, Sensor Depth (ft): 7526.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	01:10	01:25	09-21	7589.00	7678.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	01:25	01:30	09-21	7678.00	7678.00	Inclination (°): 5.980, Azimuth (°): 277.060, TVD (ft): 7609.30, Dogleg (°/100 ft): 0.28, Sensor Depth (ft): 7615.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	01:30	01:50	09-21	7678.00	7768.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	01:50	01:55	09-21	7768.00	7768.00	Inclination (°): 4.970, Azimuth (°): 277.670, TVD (ft): 7698.89, Dogleg (°/100 ft): 1.12, Sensor Depth (ft): 7705.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	01:55	02:05	09-21	7768.00	7858.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 50.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	02:05	02:10	09-21	7858.00	7858.00	Inclination (°): 4.620, Azimuth (°): 276.530, TVD (ft): 7788.57, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 7795.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	02:10	02:25	09-21	7858.00	8037.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	02:25	02:50	09-21	8037.00	8037.00	Inclination (°): 3.780, Azimuth (°): 272.220, TVD (ft): 7967.09, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 7974.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	02:50	02:55	09-21	8037.00	8046.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	02:55	03:10	09-21	8046.00	8061.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 315, Toolface Type: magnetic
Rotary Drill	1	09-21	03:10	03:45	09-21	8061.00	8216.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	03:45	03:50	09-21	8216.00	8216.00	Inclination (°): 4.790, Azimuth (°): 279.700, TVD (ft): 8145.59, Dogleg (°/100 ft): 0.64, Sensor Depth (ft): 8153.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	03:50	04:05	09-21	8216.00	8306.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	04:05	04:10	09-21	8306.00	8306.00	Inclination (°): 4.180, Azimuth (°): 276.880, TVD (ft): 8235.31, Dogleg (°/100 ft): 0.72, Sensor Depth (ft): 8243.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	04:10	04:15	09-21	8306.00	8321.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	04:15	04:35	09-21	8321.00	8341.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 0, Toolface Type: magnetic
Rotary Drill	1	09-21	04:35	04:45	09-21	8341.00	8396.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	04:45	04:50	09-21	8396.00	8396.00	Inclination (°): 4.310, Azimuth (°): 283.830, TVD (ft): 8325.06, Dogleg (°/100 ft): 0.59, Sensor Depth (ft): 8333.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	04:50	05:10	09-21	8396.00	8485.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	05:10	05:15	09-21	8485.00	8485.00	Inclination (°): 4.310, Azimuth (°): 283.560, TVD (ft): 8413.81, Dogleg (°/100 ft): 0.02, Sensor Depth (ft): 8422.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	05:15	05:30	09-21	8485.00	8575.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	05:30	05:35	09-21	8575.00	8575.00	Inclination (°): 3.870, Azimuth (°): 279.870, TVD (ft): 8503.58, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 8512.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	05:35	05:40	09-21	8575.00	8581.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00

Slide Drill	2	09-21	05:40	06:00	09-21	8581.00	8601.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 350, Toolface Type: magnetic
Rotary Drill	1	09-21	06:00	06:15	09-21	8601.00	8664.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	06:15	06:20	09-21	8664.00	8664.00	Inclination (°): 4.570, Azimuth (°): 295.340, TVD (ft): 8592.34, Dogleg (°/100 ft): 1.49, Sensor Depth (ft): 8601.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	06:20	06:50	09-21	8664.00	8754.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	06:50	06:55	09-21	8754.00	8754.00	Inclination (°): 4.260, Azimuth (°): 299.910, TVD (ft): 8682.08, Dogleg (°/100 ft): 0.52, Sensor Depth (ft): 8691.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	06:55	07:20	09-21	8754.00	8844.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	07:20	07:25	09-21	8844.00	8844.00	Inclination (°): 4.000, Azimuth (°): 293.230, TVD (ft): 8771.84, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 8781.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	07:25	08:05	09-21	8844.00	8933.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	08:05	08:10	09-21	8933.00	8933.00	Inclination (°): 3.960, Azimuth (°): 290.770, TVD (ft): 8860.63, Dogleg (°/100 ft): 0.20, Sensor Depth (ft): 8870.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	08:10	08:50	09-21	8933.00	9023.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	08:50	08:55	09-21	9023.00	9023.00	Inclination (°): 3.250, Azimuth (°): 294.550, TVD (ft): 8950.45, Dogleg (°/100 ft): 0.83, Sensor Depth (ft): 8960.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	08:55	09:25	09-21	9023.00	9113.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	09:25	09:30	09-21	9113.00	9113.00	Inclination (°): 2.770, Azimuth (°): 294.460, TVD (ft): 9040.33, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 9050.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	09:30	09:35	09-21	9113.00	9120.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	09:35	10:00	09-21	9120.00	9140.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 295, Toolface Type: magnetic
Rotary Drill	1	09-21	10:00	10:25	09-21	9140.00	9203.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	10:25	10:30	09-21	9203.00	9203.00	Inclination (°): 3.470, Azimuth (°): 294.370, TVD (ft): 9130.19, Dogleg (°/100 ft): 0.78, Sensor Depth (ft): 9140.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	10:30	11:15	09-21	9203.00	9292.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	11:15	11:20	09-21	9292.00	9292.00	Inclination (°): 2.950, Azimuth (°): 294.640, TVD (ft): 9219.05, Dogleg (°/100 ft): 0.58, Sensor Depth (ft): 9229.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	11:20	11:25	09-21	9292.00	9302.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	11:25	11:45	09-21	9302.00	9322.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 295, Toolface Type: magnetic
Rotary Drill	1	09-21	11:45	12:10	09-21	9322.00	9382.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	12:10	12:15	09-21	9382.00	9382.00	Inclination (°): 3.690, Azimuth (°): 293.410, TVD (ft): 9308.90, Dogleg (°/100 ft): 0.83, Sensor Depth (ft): 9319.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	12:15	12:55	09-21	9382.00	9472.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Rig Service - In Hole	19	09-21	12:55	13:10	09-21			
Survey	46	09-21	13:10	13:15	09-21	9472.00	9472.00	Inclination (°): 3.520, Azimuth (°): 288.220, TVD (ft): 9398.72, Dogleg (°/100 ft): 0.41, Sensor Depth (ft): 9409.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	13:15	13:50	09-21	9472.00	9561.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	13:50	13:55	09-21	9561.00	9561.00	Inclination (°): 3.080, Azimuth (°): 286.290, TVD (ft): 9487.58, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 9498.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	13:55	14:30	09-21	9561.00	9651.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	14:30	14:35	09-21	9651.00	9651.00	Inclination (°): 2.640, Azimuth (°): 278.200, TVD (ft): 9577.46, Dogleg (°/100 ft): 0.66, Sensor Depth (ft): 9588.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	14:35	14:40	09-21	9651.00	9662.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-21	14:40	15:10	09-21	9662.00	9682.00	Pressure On (psi): 3400.00, Pressure Off (psi): 3000.00, Weight On Bit (klbs): 20.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234, Toolface: 350, Toolface Type: magnetic
Rotary Drill	1	09-21	15:10	15:35	09-21	9682.00	9741.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00

Survey	46	09-21	15:35	15:40	09-21	9741.00	9741.00	Inclination (°): 3.300, Azimuth (°): 296.130, TVD (ft): 9667.34, Dogleg (°/100 ft): 1.26, Sensor Depth (ft): 9678.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	15:40	16:15	09-21	9741.00	9830.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	16:15	16:20	09-21	9830.00	9830.00	Inclination (°): 3.470, Azimuth (°): 302.720, TVD (ft): 9756.19, Dogleg (°/100 ft): 0.48, Sensor Depth (ft): 9767.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	16:20	17:00	09-21	9830.00	9920.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	17:00	17:05	09-21	9920.00	9920.00	Inclination (°): 3.030, Azimuth (°): 308.610, TVD (ft): 9846.04, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 9857.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	17:05	18:00	09-21	9920.00	10010.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	18:00	18:05	09-21	10010.00	10010.00	Inclination (°): 2.550, Azimuth (°): 304.480, TVD (ft): 9935.94, Dogleg (°/100 ft): 0.58, Sensor Depth (ft): 9947.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	18:05	18:55	09-21	10010.00	10100.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	18:55	19:00	09-21	10100.00	10100.00	Inclination (°): 2.460, Azimuth (°): 290.420, TVD (ft): 10025.85, Dogleg (°/100 ft): 0.69, Sensor Depth (ft): 10037.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	19:00	19:45	09-21	10100.00	10190.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	19:45	19:50	09-21	10190.00	10190.00	Inclination (°): 2.330, Azimuth (°): 290.070, TVD (ft): 10115.77, Dogleg (°/100 ft): 0.15, Sensor Depth (ft): 10127.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	19:50	20:50	09-21	10190.00	10279.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	20:50	20:55	09-21	10279.00	10279.00	Inclination (°): 2.240, Azimuth (°): 282.770, TVD (ft): 10204.70, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 10216.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	20:55	21:50	09-21	10279.00	10369.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	21:50	21:55	09-21	10369.00	10369.00	Inclination (°): 1.760, Azimuth (°): 284.440, TVD (ft): 10294.65, Dogleg (°/100 ft): 0.54, Sensor Depth (ft): 10306.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	21:55	23:05	09-21	10369.00	10458.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-21	23:05	23:10	09-21	10458.00	10458.00	Inclination (°): 1.140, Azimuth (°): 274.950, TVD (ft): 10383.62, Dogleg (°/100 ft): 0.74, Sensor Depth (ft): 10395.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-21	23:10	00:00	09-22	10458.00	10528.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Sunday, Sep 22 00:00 - 23:59 (Day 8 of 24)

Billing: \$24,020.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10528.00	Downhole Hours	24.00	Rotating WOB (klbs)	45.00 - 45.00
Bit Depth (ft)	10819.00	Drilling Hours	3.83	Sliding WOB (klbs)	30.00 - 30.00
Bottom Hole Depth (ft)	10819.00	Hours Circulating	1.00	Rotating SPM	234.00 - 234.00
Total Distance (ft)	291.00	Hours Sliding	1.92	Sliding SPM	219.00 - 219.00
Distance Rotated (ft)	181.00	Hours Rotating	1.92	Motor RPM	0.00 - 152.00
Distance Slid (ft)	110.00			Surface RPM	30.00 - 30.00
Inclination In	1.05			Flow Rate (gpm)	700.00 - 750.00
Inclination Out	4.26			On Bottom Pressure (psi)	2900.00 - 3400.00
Azimuth In	256.49	% Hours Rotating	50%	Off Bottom Pressure (psi)	2700.00 - 2850.00
Azimuth Out	181.87	% Hours Sliding	50%		
AVG Total ROP (ft/h)	77.36	% Distance Sliding	38%		
AVG Rotating ROP (ft/h)	91.27	% Distance Rotating	62%		
AVG Sliding ROP (ft/h)	57.39				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #4 - 8.5" INTERMEDIATE

Date In: Sep 20, 2019, 19:00 Date Out: Sep 22, 2019, 8:15

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 500- 750, Max Diff: 1960 psi , Max Torque: 18,710 ft-lbs BIT Runs # 1
Vendor	SECURITY	Lobe/Stage	7/8, 8.5	
S/N	13273856	Bend Angle	1.5	
Nozzles	6x12	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	0.660	Wear Pad OD (in)	7.250	
Drilling Hours for Day	2.33	Bit Distances		
Total Drilled for Day (ft)	201.00	Survey (): 63.00 ft, Bend (): 5.35 ft		POOH Reason Change Bottom Hole Assembly: POOH FOR CURVE ASSEMBLY
Drilling Hours for BHA	23.50			
Total Drilled for BHA (ft)	3468.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GT65DM, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13273856	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" CONTENDER 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	700-40-001	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.24	37.24
Stabilizer Description: 8.25" NM AUTOTRACK STAB	GATOR	GT20431 NM	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.590		4.60	41.84
UBHO Sub Description: 6.75" UBHO SUB, Type: NM	AIM	675778	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.780		3.07	44.91
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	75.49
Drill Collar Description: 6.75" NMDC, Style: Slick Drill, Type: NM	GATOR	GT 67-30-322	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.870		31.00	106.49
Crossover Sub Description: CROSSOVER SUB, Type: Steel	GATOR	GT 10415	4 1/2" XH Box	4 1/2" IF Pin	2.875	6.830		4.19	110.68
Drill Collar Description: 6.5" DC's, Style: Spiral Drill, Type: Steel	RIG	RIG	4 1/2" XH Box	4 1/2" XH Pin	2.875	6.500		353.83	464.51
Crossover Sub Description: CROSSOVER SUB, Type: Steel	BLACK DIAMOND	BD13885	EverDrlg54 Box	4 1/2" XH Pin	2.875	6.750		3.54	468.05
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1226.43

MWD Items

No Items

BHA #5 - Curve

Date In: Sep 22, 2019, 8:15 Date Out: Sep 22, 2019, 22:45

Bit Details			Motor Details			Directional Comments		
OD (in)	8.500		Size (in)	6.5		Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3		
Vendor	SECURITY		Lobe/Stage	7/8, 5.0				
S/N	13184324		Bend Angle	2.12				
Nozzles	6x22		Speed (rev/gal)	0.26		MWD Comments		
Total Flow Area (in²)	2.230		Wear Pad OD (in)	7.100		POOH Reason MWD Incident: GR only pumping up 255 API. Failed probe		
Drilling Hours for Day	1.50		Bit Distances					
Total Drilled for Day (ft)	90.00		Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00 ft, Resistivity: 49.00 ft					
Drilling Hours for BHA	1.50							
Total Drilled for BHA (ft)	90.00							

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13184324	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12 ° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1005	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		31.35	58.45
Other Description: MWD Battery	Benchtree	B6001	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.48	75.93
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.51
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.15
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.04
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.42

MWD Items

No Items

BHA #6 - Curve

Date In: Sep 22, 2019, 22:45 Date Out: Sep 24, 2019, 3:00

Bit Details			Motor Details			Directional Comments		
OD (in)	8.500		Size (in)	6.5		Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3		
Vendor	SECURITY		Lobe/Stage	7/8, 5.0				
S/N	13241997		Bend Angle	2.12				
Nozzles	6x22		Speed (rev/gal)	0.26		MWD Comments		
Total Flow Area (in²)	2.230		Wear Pad OD (in)	7.100		POOH Reason Total Depth/Casing Point		
Drilling Hours for Day	0.00		Bit Distances					
Total Drilled for Day (ft)			Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00					
Drilling Hours for BHA	12.25		ft, Resistivity: 49.00 ft					
Total Drilled for BHA (ft)	789.00							

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13241997	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12 ° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.770		31.39	58.49
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	75.95
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.53
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.17
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.06
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.44

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Rotary Drill	1	09-21	23:10	00:00	09-22	10458.00	10528.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Rotary Drill	1	09-22	00:00	00:10	09-22	10528.00	10548.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-22	00:10	00:15	09-22	10548.00	10548.00	Inclination (°): 1.050, Azimuth (°): 256.490, TVD (ft): 10473.60, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 10485.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-22	00:15	01:10	09-22	10548.00	10638.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-22	01:10	01:15	09-22	10638.00	10638.00	Inclination (°): 1.850, Azimuth (°): 260.710, TVD (ft): 10563.57, Dogleg (°/100 ft): 0.90, Sensor Depth (ft): 10575.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-22	01:15	01:20	09-22	10638.00	10642.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Slide Drill	2	09-22	01:20	01:45	09-22	10642.00	10662.00	Pressure On (psi): 2900.00, Pressure Off (psi): 2700.00, Weight On Bit (klbs): 30.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 219, Toolface: 80, Toolface Type: magnetic
Rotary Drill	1	09-22	01:45	02:25	09-22	10662.00	10727.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Survey	46	09-22	02:25	02:30	09-22	10727.00	10727.00	Inclination (°): 0.700, Azimuth (°): 265.370, TVD (ft): 10652.55, Dogleg (°/100 ft): 1.30, Sensor Depth (ft): 10664.00, Bit To Sensor (ft): 63.00
Rotary Drill	1	09-22	02:30	02:35	09-22	10727.00	10729.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 45.00, Surface RPM: 30, Surface Torque (ft lbf): 14.00, Flow Rate (gpm): 750.00, Strokes Per Minute: 234.00
Circulating	3	09-22	02:35	02:50	09-22			
Pooh	7	09-22	02:50	07:00	09-22			POOH for Curve Assembly
Change BHA	6	09-22	07:00	08:15	09-22			P/U BHA #5
Other	16	09-22	08:15	08:55	09-22			PROGRAM RESISTIVITY / MWD TOOL
TIH	8	09-22	08:55	13:40	09-22			TIH W/ BHA #5
Connection	33	09-22	13:40	13:45	09-22			
Slide Drill	2	09-22	13:45	14:15	09-22	10729.00	10754.00	Toolface: 178, Toolface Type: magnetic
Circulating	3	09-22	14:15	14:40	09-22			
Other	16	09-22	14:40	15:05	09-22			DOWNLINK MWD
Slide Drill	2	09-22	15:05	16:05	09-22	10754.00	10819.00	Toolface: 178, Toolface Type: magnetic
Survey	46	09-22	16:05	16:10	09-22	10819.00	10819.00	Inclination (°): 4.260, Azimuth (°): 181.870, TVD (ft): 10746.46, Dogleg (°/100 ft): 4.51, Sensor Depth (ft): 10758.00, Bit To Sensor (ft): 61.00
Circulating	3	09-22	16:10	16:30	09-22			CONDITION & CIRCULATE, FLOW CHECK, PUMP SLUG
Pooh	7	09-22	16:30	20:00	09-22			POOH for MWD TOOL
Change BHA	6	09-22	20:00	22:45	09-22			C/O MWD & BIT
TIH	8	09-22	22:45	23:30	09-22			TIH W/ BHA #6
Other	16	09-22	23:30	01:00	09-23			Slip and Cut Drill Line

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Monday, Sep 23 00:00 - 23:59 (Day 9 of 24)

Billing: \$12,020.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	10819.00	Downhole Hours	24.00	Rotating WOB (klbs)	35.00 - 35.00
Bit Depth (ft)	11608.00	Drilling Hours	12.25	Sliding WOB (klbs)	40.00 - 40.00
Bottom Hole Depth (ft)	11608.00	Hours Circulating	0.33	Rotating SPM	180.00 - 180.00
Total Distance (ft)	789.00	Hours Sliding	8.67	Sliding SPM	180.00 - 186.00
Distance Rotated (ft)	229.00	Hours Rotating	3.58	Motor RPM	152.00 - 152.00
Distance Slid (ft)	560.00			Surface RPM	25.00 - 25.00
Inclination In	14.59			Flow Rate (gpm)	60.00 - 590.00
Inclination Out	81.14			On Bottom Pressure (psi)	3050.00 - 3400.00
Azimuth In	175.81	% Hours Rotating	29%	Off Bottom Pressure (psi)	2450.00 - 2850.00
Azimuth Out	173.88	% Hours Sliding	71%		
AVG Total ROP (ft/h)	64.41	% Distance Sliding	71%		
AVG Rotating ROP (ft/h)	63.91	% Distance Rotating	29%		
AVG Sliding ROP (ft/h)	64.62				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #6 - Curve

Date In: Sep 22, 2019, 22:45 Date Out: Sep 24, 2019, 3:00

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	6.5	Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3	
Vendor	SECURITY	Lobe/Stage	7/8, 5.0		
S/N	13241997	Bend Angle	2.12		
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.100		
Drilling Hours for Day	12.25	Bit Distances			
Total Drilled for Day (ft)	789.00	Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00 ft, Resistivity: 49.00 ft		POOH Reason	
Drilling Hours for BHA	12.25				
Total Drilled for BHA (ft)	789.00				
				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: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13241997	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.770		31.39	58.49
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	75.95
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.53
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.17
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.06
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.44

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Other	16	09-22	23:30	01:00	09-23			Slip and Cut Drill Line
TIH	8	09-23	01:00	03:40	09-23			TIH W/ BHA #6
Circulating	3	09-23	03:40	04:00	09-23			Test MWD, GR & Resistivity
TIH	8	09-23	04:00	06:00	09-23			TIH W/ BHA #6
Other	16	09-23	06:00	06:30	09-23			RELOG
Other	16	09-23	06:30	07:00	09-23			DOWNLINK MWD TOOL

Rotary Drill	1	09-23	07:00	07:30	09-23	10819.00	10839.00	Pressure On (psi): 3400.00, Pressure Off (psi): 2850.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	07:30	08:35	09-23	10839.00	10908.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	09-23	08:35	08:40	09-23	10908.00	10908.00	Inclination (°): 14.590, Azimuth (°): 175.810, TVD (ft): 10834.14, Dogleg (°/100 ft): 11.64, Sensor Depth (ft): 10847.00, Bit To Sensor (ft): 61.00
Rotary Drill	1	09-23	08:40	09:10	09-23	10908.00	10943.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	09:10	10:05	09-23	10943.00	10998.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 20, Toolface Type: gravity
Survey	46	09-23	10:05	10:10	09-23	10998.00	10998.00	Inclination (°): 22.950, Azimuth (°): 175.370, TVD (ft): 10919.28, Dogleg (°/100 ft): 9.29, Sensor Depth (ft): 10937.00, Bit To Sensor (ft): 61.00
Rotary Drill	1	09-23	10:10	10:35	09-23	10998.00	11023.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	10:35	11:25	09-23	11023.00	11088.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	09-23	11:25	11:35	09-23	11088.00	11088.00	Inclination (°): 31.820, Azimuth (°): 181.080, TVD (ft): 10999.13, Dogleg (°/100 ft): 10.27, Sensor Depth (ft): 11027.00, Bit To Sensor (ft): 61.00
Rotary Drill	1	09-23	11:35	12:05	09-23	11088.00	11123.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	12:05	12:50	09-23	11123.00	11177.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	09-23	12:50	13:00	09-23	11177.00	11177.00	Inclination (°): 39.340, Azimuth (°): 182.750, TVD (ft): 11071.46, Dogleg (°/100 ft): 8.52, Sensor Depth (ft): 11116.00, Bit To Sensor (ft): 61.00
Rotary Drill	1	09-23	13:00	13:05	09-23	11177.00	11187.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	13:05	14:05	09-23	11187.00	11267.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 340, Toolface Type: gravity
Survey	46	09-23	14:05	14:15	09-23	11267.00	11267.00	Inclination (°): 50.510, Azimuth (°): 185.560, TVD (ft): 11135.09, Dogleg (°/100 ft): 12.60, Sensor Depth (ft): 11206.00, Bit To Sensor (ft): 61.00
Slide Drill	2	09-23	14:15	14:40	09-23	11267.00	11287.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 280, Toolface Type: gravity
Rotary Drill	1	09-23	14:40	14:55	09-23	11287.00	11302.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Slide Drill	2	09-23	14:55	16:20	09-23	11302.00	11357.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 340, Toolface Type: gravity
Survey	46	09-23	16:20	16:30	09-23	11357.00	11357.00	Inclination (°): 63.600, Azimuth (°): 182.490, TVD (ft): 11183.94, Dogleg (°/100 ft): 14.82, Sensor Depth (ft): 11296.00, Bit To Sensor (ft): 61.00
Rotary Drill	1	09-23	16:30	17:50	09-23	11357.00	11446.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 35.00, Surface RPM: 25, Surface Torque (ft lbf): 9.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180.00
Survey	46	09-23	17:50	18:00	09-23	11446.00	11446.00	Inclination (°): 69.670, Azimuth (°): 179.850, TVD (ft): 11219.22, Dogleg (°/100 ft): 7.34, Sensor Depth (ft): 11385.00, Bit To Sensor (ft): 61.00
Slide Drill	2	09-23	18:00	19:15	09-23	11446.00	11536.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 590.00, Strokes Per Minute: 180, Toolface: 0, Toolface Type: gravity
Survey	46	09-23	19:15	19:30	09-23	11536.00	11536.00	Inclination (°): 70.770, Azimuth (°): 177.220, TVD (ft): 11249.68, Dogleg (°/100 ft): 3.01, Sensor Depth (ft): 11475.00, Bit To Sensor (ft): 61.00
Slide Drill	2	09-23	19:30	20:30	09-23	11536.00	11608.00	Pressure On (psi): 3050.00, Pressure Off (psi): 2450.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 60.00, Strokes Per Minute: 186, Toolface: 0, Toolface Type: gravity
Survey	46	09-23	20:30	20:40	09-23	11608.00	11608.00	Inclination (°): 81.140, Azimuth (°): 173.880, TVD (ft): 11267.14, Dogleg (°/100 ft): 15.09, Sensor Depth (ft): 11547.00, Bit To Sensor (ft): 61.00
Pooh	7	09-23	20:40	01:30	09-24			POOH for lateral assembly

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Tuesday, Sep 24 00:00 - 23:59 (Day 10 of 24)

Billing: \$25,990.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	11608.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 40.00
Bit Depth (ft)	12800.00	Drilling Hours	12.67	Sliding WOB (klbs)	40.00 - 40.00
Bottom Hole Depth (ft)	12800.00	Hours Circulating	1.17	Rotating SPM	210.00 - 210.00
Total Distance (ft)	1192.00	Hours Sliding	3.67	Sliding SPM	210.00 - 210.00
Distance Rotated (ft)	1007.00	Hours Rotating	9.00	Motor RPM	130.00 - 200.00
Distance Slid (ft)	185.00			Surface RPM	30.00 - 40.00
Inclination In	84.04			Flow Rate (gpm)	675.00 - 690.00
Inclination Out	91.16			On Bottom Pressure (psi)	4000.00 - 4500.00
Azimuth In	174.40	% Hours Rotating	71%	Off Bottom Pressure (psi)	3600.00 - 3800.00
Azimuth Out	179.76	% Hours Sliding	29%		
AVG Total ROP (ft/h)	94.11	% Distance Sliding	16%		
AVG Rotating ROP (ft/h)	111.89	% Distance Rotating	84%		
AVG Sliding ROP (ft/h)	50.45				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #6 - Curve

Date In: Sep 22, 2019, 22:45 Date Out: Sep 24, 2019, 3:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.5	Flow Rate: 300-600, Max Diff: 1130 psi , Max Torque: 10,460 ft-lbs BIT Runs: 3
Vendor	SECURITY	Lobe/Stage	7/8, 5.0	
S/N	13241997	Bend Angle	2.12	
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.100	POOH Reason Total Depth/Casing Point
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey (): 61.00 ft, Bend (): 4.25 ft, Gamma (): 39.00 ft, Resistivity: 49.00 ft		
Drilling Hours for BHA	12.25			
Total Drilled for BHA (ft)	789.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" SECURITY GTD64C, Style: PDC, Gauge Length (in): 3.00, Size (in): 8.50	SECURITY	13241997	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 6.5" CONTENDER 7/8, 5.0 FXD @ 2.12° w/ SS, Size (in): 6.50, Bend Angle (°): 2.12, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 5	AIM	CDM-650-018	4 1/2" IF Box	4 1/2" Reg Box		6.500		26.10	27.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.770		31.39	58.49
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	75.95
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	106.53
Crossover Sub Description: XO (4 1/2 IF-P x EverDrlg54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	111.17
Drill Pipe Description: 12 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		1075.89	1187.06
HWDP Description: 5.5" HWDP, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		758.38	1945.44

MWD Items

No Items

BHA #7 - 8.5" Lateral

Date In: Sep 24, 2019, 3:00 Date Out: Sep 27, 2019, 3:00

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	6.5	Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1	
Vendor	HUGHES	Lobe/Stage	7/8, 8.5		
S/N	593516	Bend Angle	1.75		
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.710		
Drilling Hours for Day	12.67	Bit Distances		POOH Reason Pressure Spike: POOH after gaining 1300 PSI	
Total Drilled for Day (ft)	1192.00	Survey (): 71.00 ft, Bend (): 4.75 ft, Gamma (): 49.00 ft, Resistivity: 59.00 ft			
Drilling Hours for BHA	54.17				
Total Drilled for BHA (ft)	4152.00				

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	HUGHES	593516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" DYNOMAX 7/8, 8.5 FXD @ 1.75° w/ SS, Size (in): 6.50, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	DYNOMAX	DM40852-02	4 1/2" IF Box	4 1/2" Reg Box		7.000		35.90	36.90
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.38
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	85.84
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.42
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.06
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2689.24	2810.30
Crossover Sub Description: XO (4 1/2 IF-B x EVERDRL54-P), Type: Steel	BLACK DIAMOND	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2813.75
Agitator Description: Agitator, Size (in): 6.50	RUBICON	RSX 650-029	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.24	2847.99
Crossover Sub Description: XO (EVERDRL54-B x 4 1/2 IF-P, Type: Steel	BLACK DIAMOND	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2852.84

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	09-23	20:40	01:30	09-24			POOH for lateral assembly
Change BHA	6	09-24	01:30	03:00	09-24			C/O Motor, Bit, and Resistivity Tool
Other	16	09-24	03:00	03:30	09-24			Program MWD
TIH	8	09-24	03:30	05:00	09-24			TIH W/ BHA #7
Other	16	09-24	05:00	05:15	09-24			P/U Agitator and test
TIH	8	09-24	05:15	08:00	09-24			TIH W/ BHA #7
Reaming	4	09-24	08:00	09:10	09-24			Reaming F/ 10905 - T/ 11608
Other	16	09-24	09:10	09:30	09-24			Downlink MWD Tool
Slide Drill	2	09-24	09:30	10:00	09-24	11608.00	11636.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 90, Toolface Type: gravity
Survey	46	09-24	10:00	10:15	09-24	11636.00	11636.00	Inclination (°): 84.040, Azimuth (°): 174.400, TVD (ft): 11269.46, Dogleg (°/100 ft): 16.36, Sensor Depth (ft): 11565.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	10:15	11:35	09-24	11636.00	11725.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	11:35	11:40	09-24	11725.00	11725.00	Inclination (°): 89.490, Azimuth (°): 177.740, TVD (ft): 11274.48, Dogleg (°/100 ft): 7.18, Sensor Depth (ft): 11654.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	11:40	11:45	09-24	11725.00	11731.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Other	16	09-24	11:45	12:00	09-24			DOWNLINK MWD TOOL
Slide Drill	2	09-24	12:00	12:45	09-24	11731.00	11756.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 100, Toolface Type: gravity
Rotary Drill	1	09-24	12:45	13:00	09-24	11756.00	11815.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00

Survey	46	09-24	13:00	13:05	09-24	11815.00	11815.00	Inclination (°): 89.880, Azimuth (°): 177.830, TVD (ft): 11274.97, Dogleg (°/100 ft): 0.44, Sensor Depth (ft): 11744.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	13:05	13:50	09-24	11815.00	11904.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Other	16	09-24	13:50	14:05	09-24			Downlink MWD tool
Survey	46	09-24	14:05	14:10	09-24	11904.00	11904.00	Inclination (°): 90.200, Azimuth (°): 177.390, TVD (ft): 11274.91, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 11833.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	14:10	14:15	09-24	11904.00	11912.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-24	14:15	14:45	09-24	11912.00	11942.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	09-24	14:45	15:05	09-24	11942.00	11994.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	15:05	15:10	09-24	11994.00	11994.00	Inclination (°): 90.550, Azimuth (°): 177.480, TVD (ft): 11274.32, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 11923.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-24	15:10	15:35	09-24	11994.00	12024.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	09-24	15:35	16:00	09-24	12024.00	12084.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	16:00	16:05	09-24	12084.00	12084.00	Inclination (°): 88.750, Azimuth (°): 179.060, TVD (ft): 11274.87, Dogleg (°/100 ft): 2.66, Sensor Depth (ft): 12013.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	16:05	16:50	09-24	12084.00	12173.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	16:50	16:55	09-24	12173.00	12173.00	Inclination (°): 88.790, Azimuth (°): 179.060, TVD (ft): 11276.78, Dogleg (°/100 ft): 0.04, Sensor Depth (ft): 12102.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-24	16:55	17:40	09-24	12173.00	12210.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 150, Toolface Type: gravity
Rotary Drill	1	09-24	17:40	18:00	09-24	12210.00	12263.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	18:00	18:05	09-24	12263.00	12263.00	Inclination (°): 88.620, Azimuth (°): 179.150, TVD (ft): 11278.82, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 12192.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	18:05	19:00	09-24	12263.00	12353.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	19:00	19:05	09-24	12353.00	12353.00	Inclination (°): 86.680, Azimuth (°): 178.890, TVD (ft): 11282.51, Dogleg (°/100 ft): 2.17, Sensor Depth (ft): 12282.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	19:05	19:20	09-24	12353.00	12373.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-24	19:20	20:05	09-24	12373.00	12408.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 65, Toolface Type: gravity
Rotary Drill	1	09-24	20:05	20:20	09-24	12408.00	12442.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	20:20	20:25	09-24	12442.00	12442.00	Inclination (°): 87.300, Azimuth (°): 178.890, TVD (ft): 11287.18, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 12371.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	20:25	21:10	09-24	12442.00	12532.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	21:10	21:15	09-24	12532.00	12532.00	Inclination (°): 88.970, Azimuth (°): 181.520, TVD (ft): 11290.11, Dogleg (°/100 ft): 3.46, Sensor Depth (ft): 12461.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	21:15	21:50	09-24	12532.00	12621.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	21:50	21:55	09-24	12621.00	12621.00	Inclination (°): 89.980, Azimuth (°): 180.820, TVD (ft): 11290.93, Dogleg (°/100 ft): 1.38, Sensor Depth (ft): 12550.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	21:55	22:50	09-24	12621.00	12711.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	22:50	22:55	09-24	12711.00	12711.00	Inclination (°): 90.770, Azimuth (°): 180.820, TVD (ft): 11290.34, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 12640.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-24	22:55	23:55	09-24	12711.00	12800.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-24	23:55	00:00	09-25	12800.00	12800.00	Inclination (°): 91.160, Azimuth (°): 179.760, TVD (ft): 11288.84, Dogleg (°/100 ft): 1.27, Sensor Depth (ft): 12729.00, Bit To Sensor (ft): 71.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Wednesday, Sep 25 00:00 - 23:59 (Day 11 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	12800.00	Downhole Hours	24.00	Rotating WOB (klbs)	40.00 - 53.00
Bit Depth (ft)	14341.00	Drilling Hours	21.67	Sliding WOB (klbs)	40.00 - 50.00
Bottom Hole Depth (ft)	14341.00	Hours Circulating	0.00	Rotating SPM	210.00 - 210.00
Total Distance (ft)	1541.00	Hours Sliding	3.75	Sliding SPM	210.00 - 215.00
Distance Rotated (ft)	1406.00	Hours Rotating	17.92	Motor RPM	130.00 - 200.00
Distance Slid (ft)	135.00			Surface RPM	30.00 - 50.00
Inclination In	92.62			Flow Rate (gpm)	675.00 - 700.00
Inclination Out	89.27			On Bottom Pressure (psi)	4000.00 - 4500.00
Azimuth In	180.99	% Hours Rotating	83%	Off Bottom Pressure (psi)	3600.00 - 3800.00
Azimuth Out	179.06	% Hours Sliding	17%		
AVG Total ROP (ft/h)	71.21	% Distance Sliding	9%		
AVG Rotating ROP (ft/h)	78.19	% Distance Rotating	91%		
AVG Sliding ROP (ft/h)	36.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #7 - 8.5" Lateral

Date In: Sep 24, 2019, 3:00 Date Out: Sep 27, 2019, 3:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.5	Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1
Vendor	HUGHES	Lobe/Stage	7/8, 8.5	
S/N	593516	Bend Angle	1.75	
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.710	
Drilling Hours for Day	21.67	Bit Distances		
Total Drilled for Day (ft)	1541.00	Survey (): 71.00 ft, Bend (): 4.75 ft, Gamma (): 49.00		POOH Reason
Drilling Hours for BHA	54.17	ft, Resistivity: 59.00 ft		
Total Drilled for BHA (ft)	4152.00			
				Pressure Spike: POOH after gaining 1300 PSI

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	HUGHES	593516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" DYNOMAX 7/8, 8.5 FXD @ 1.75° w/ SS, Size (in): 6.50, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	DYNOMAX	DM40852-02	4 1/2" IF Box	4 1/2" Reg Box		7.000		35.90	36.90
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.38
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	85.84
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.42
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.06
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2689.24	2810.30
Crossover Sub Description: XO (4 1/2 IF-B x EVERDRL54-P), Type: Steel	BLACK DIAMOND	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2813.75
Agitator Description: Agitator, Size (in): 6.50	RUBICON	RSX 650-029	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.24	2847.99
Crossover Sub Description: XO (EVERDRL54-B x 4 1/2 IF-P, Type: Steel	BLACK DIAMOND	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2852.84

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Survey	46	09-24	23:55	00:00	09-25	12800.00	12800.00	Inclination (°): 91.160, Azimuth (°): 179.760, TVD (ft): 11288.84, Dogleg (°/100 ft): 1.27, Sensor Depth (ft): 12729.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	00:00	00:10	09-25	12800.00	12805.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-25	00:10	00:40	09-25	12805.00	12820.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	09-25	00:40	01:30	09-25	12820.00	12890.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	01:30	01:35	09-25	12890.00	12890.00	Inclination (°): 92.620, Azimuth (°): 180.990, TVD (ft): 11285.87, Dogleg (°/100 ft): 2.12, Sensor Depth (ft): 12819.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	01:35	03:05	09-25	12890.00	12980.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	03:05	03:10	09-25	12980.00	12980.00	Inclination (°): 93.760, Azimuth (°): 181.430, TVD (ft): 11280.86, Dogleg (°/100 ft): 1.36, Sensor Depth (ft): 12909.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	03:10	03:20	09-25	12980.00	12985.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-25	03:20	03:50	09-25	12985.00	13005.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	09-25	03:50	04:20	09-25	13005.00	13069.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 30, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	04:20	04:25	09-25	13069.00	13069.00	Inclination (°): 92.790, Azimuth (°): 181.430, TVD (ft): 11275.78, Dogleg (°/100 ft): 1.09, Sensor Depth (ft): 12998.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	04:25	04:30	09-25	13069.00	13070.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-25	04:30	05:05	09-25	13070.00	13090.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	09-25	05:05	05:40	09-25	13090.00	13159.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	05:40	05:45	09-25	13159.00	13159.00	Inclination (°): 91.600, Azimuth (°): 180.470, TVD (ft): 11272.33, Dogleg (°/100 ft): 1.70, Sensor Depth (ft): 13088.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	05:45	06:55	09-25	13159.00	13249.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	06:55	07:05	09-25	13249.00	13249.00	Inclination (°): 91.870, Azimuth (°): 180.640, TVD (ft): 11269.60, Dogleg (°/100 ft): 0.35, Sensor Depth (ft): 13178.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-25	07:05	07:45	09-25	13249.00	13274.00	Pressure On (psi): 4000.00, Pressure Off (psi): 3600.00, Weight On Bit (klbs): 40.00, Flow Rate (gpm): 675.00, Strokes Per Minute: 210, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	09-25	07:45	08:40	09-25	13274.00	13338.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	08:40	08:45	09-25	13338.00	13338.00	Inclination (°): 88.790, Azimuth (°): 180.380, TVD (ft): 11269.09, Dogleg (°/100 ft): 3.47, Sensor Depth (ft): 13267.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	08:45	10:25	09-25	13338.00	13428.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	10:25	10:30	09-25	13428.00	13428.00	Inclination (°): 88.530, Azimuth (°): 179.940, TVD (ft): 11271.20, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 13357.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	10:30	11:40	09-25	13428.00	13518.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	11:40	11:45	09-25	13518.00	13518.00	Inclination (°): 88.660, Azimuth (°): 179.500, TVD (ft): 11273.40, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 13447.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	11:45	13:00	09-25	13518.00	13607.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	13:00	13:05	09-25	13607.00	13607.00	Inclination (°): 88.700, Azimuth (°): 179.150, TVD (ft): 11275.45, Dogleg (°/100 ft): 0.40, Sensor Depth (ft): 13536.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	13:05	14:15	09-25	13607.00	13697.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	14:15	14:20	09-25	13697.00	13697.00	Inclination (°): 88.840, Azimuth (°): 178.710, TVD (ft): 11277.39, Dogleg (°/100 ft): 0.51, Sensor Depth (ft): 13626.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	14:20	15:30	09-25	13697.00	13786.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	15:30	15:35	09-25	13786.00	13786.00	Inclination (°): 88.840, Azimuth (°): 178.450, TVD (ft): 11279.19, Dogleg (°/100 ft): 0.29, Sensor Depth (ft): 13715.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	15:35	16:50	09-25	13786.00	13876.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	16:50	16:55	09-25	13876.00	13876.00	Inclination (°): 89.190, Azimuth (°): 178.090, TVD (ft): 11280.73, Dogleg (°/100 ft): 0.56, Sensor Depth (ft): 13805.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	16:55	17:00	09-25	13876.00	13885.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00

Slide Drill	2	09-25	17:00	17:30	09-25	13885.00	13905.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 90, Toolface Type: gravity
Rotary Drill	1	09-25	17:30	17:55	09-25	13905.00	13966.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 40.00, Surface RPM: 40, Surface Torque (ft lbf): 17.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	17:55	18:00	09-25	13966.00	13966.00	Inclination (°): 88.260, Azimuth (°): 179.060, TVD (ft): 11282.74, Dogleg (°/100 ft): 1.49, Sensor Depth (ft): 13895.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	18:00	18:50	09-25	13966.00	14055.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 50, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	18:50	18:55	09-25	14055.00	14055.00	Inclination (°): 87.690, Azimuth (°): 179.320, TVD (ft): 11285.88, Dogleg (°/100 ft): 0.70, Sensor Depth (ft): 13984.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	18:55	19:40	09-25	14055.00	14145.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 50, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	19:40	19:45	09-25	14145.00	14145.00	Inclination (°): 87.690, Azimuth (°): 179.150, TVD (ft): 11289.51, Dogleg (°/100 ft): 0.19, Sensor Depth (ft): 14074.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	19:45	19:50	09-25	14145.00	14150.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 50, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-25	19:50	20:15	09-25	14150.00	14170.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	09-25	20:15	21:00	09-25	14170.00	14235.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	21:00	21:05	09-25	14235.00	14235.00	Inclination (°): 89.050, Azimuth (°): 179.590, TVD (ft): 11292.07, Dogleg (°/100 ft): 1.59, Sensor Depth (ft): 14164.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	21:05	22:25	09-25	14235.00	14324.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-25	22:25	22:30	09-25	14324.00	14324.00	Inclination (°): 89.270, Azimuth (°): 179.060, TVD (ft): 11293.37, Dogleg (°/100 ft): 0.64, Sensor Depth (ft): 14253.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-25	22:30	22:35	09-25	14324.00	14326.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Slide Drill	2	09-25	22:35	23:10	09-25	14326.00	14341.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	09-25	23:10	00:10	09-26	14341.00	14414.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Thursday, Sep 26 00:00 - 23:59 (Day 12 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	14341.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 53.00
Bit Depth (ft)	15760.00	Drilling Hours	19.83	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	15760.00	Hours Circulating	0.00	Rotating SPM	210.00 - 220.00
Total Distance (ft)	1419.00	Hours Sliding	1.50	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	1364.00	Hours Rotating	18.33	Motor RPM	130.00 - 200.00
Distance Slid (ft)	55.00			Surface RPM	40.00 - 60.00
Inclination In	90.11			Flow Rate (gpm)	690.00 - 707.00
Inclination Out	88.48			On Bottom Pressure (psi)	4300.00 - 4500.00
Azimuth In	179.76	% Hours Rotating	92%	Off Bottom Pressure (psi)	3800.00 - 3900.00
Azimuth Out	179.68	% Hours Sliding	8%		
AVG Total ROP (ft/h)	71.55	% Distance Sliding	4%		
AVG Rotating ROP (ft/h)	74.40	% Distance Rotating	96%		
AVG Sliding ROP (ft/h)	36.67				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #7 - 8.5" Lateral

Date In: Sep 24, 2019, 3:00 Date Out: Sep 27, 2019, 3:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.5	Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1
Vendor	HUGHES	Lobe/Stage	7/8, 8.5	
S/N	593516	Bend Angle	1.75	
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.710	
Drilling Hours for Day	19.83	Bit Distances		
Total Drilled for Day (ft)	1419.00	Survey (): 71.00 ft, Bend (): 4.75 ft, Gamma (): 49.00 ft, Resistivity: 59.00 ft		POOH Reason Pressure Spike: POOH after gaining 1300 PSI
Drilling Hours for BHA	54.17			
Total Drilled for BHA (ft)	4152.00			

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	HUGHES	593516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" DYNOMAX 7/8, 8.5 FXD @ 1.75° w/ SS, Size (in): 6.50, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	DYNOMAX	DM40852-02	4 1/2" IF Box	4 1/2" Reg Box		7.000		35.90	36.90
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.38
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	85.84
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.42
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.06
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2689.24	2810.30
Crossover Sub Description: XO (4 1/2 IF-B x EVERDRL54-P), Type: Steel	BLACK DIAMOND	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2813.75
Agitator Description: Agitator, Size (in): 6.50	RUBICON	RSX 650-029	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.24	2847.99
Crossover Sub Description: XO (EVERDRL54-B x 4 1/2 IF-P, Type: Steel	BLACK DIAMOND	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2852.84

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	09-25	23:10	00:10	09-26	14341.00	14414.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 22.00, Flow Rate (gpm): 690.00, Strokes Per Minute: 210.00
Survey	46	09-26	00:10	00:15	09-26	14414.00	14414.00	Inclination (°): 90.110, Azimuth (°): 179.760, TVD (ft): 11293.86, Dogleg (°/100 ft): 1.21, Sensor Depth (ft): 14343.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	00:15	01:35	09-26	14414.00	14503.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 20.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-26	01:35	01:40	09-26	14503.00	14503.00	Inclination (°): 90.240, Azimuth (°): 179.320, TVD (ft): 11293.59, Dogleg (°/100 ft): 0.52, Sensor Depth (ft): 14432.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	01:40	03:10	09-26	14503.00	14593.00	Pressure On (psi): 4300.00, Pressure Off (psi): 3900.00, Weight On Bit (klbs): 53.00, Surface RPM: 40, Surface Torque (ft lbf): 20.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-26	03:10	03:15	09-26	14593.00	14593.00	Inclination (°): 90.550, Azimuth (°): 179.320, TVD (ft): 11292.97, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 14522.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	03:15	04:30	09-26	14593.00	14683.00	
Rig Service - In Hole	19	09-26	04:30	04:40	09-26			Rig Service
Survey	46	09-26	04:40	04:45	09-26	14683.00	14683.00	Inclination (°): 90.510, Azimuth (°): 178.620, TVD (ft): 11292.14, Dogleg (°/100 ft): 0.78, Sensor Depth (ft): 14612.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	04:45	06:00	09-26	14683.00	14772.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 220.00
Survey	46	09-26	06:00	06:05	09-26	14772.00	14772.00	Inclination (°): 90.290, Azimuth (°): 178.010, TVD (ft): 11291.52, Dogleg (°/100 ft): 0.73, Sensor Depth (ft): 14701.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	06:05	07:25	09-26	14772.00	14862.00	
Survey	46	09-26	07:25	07:30	09-26	14862.00	14862.00	Inclination (°): 91.380, Azimuth (°): 177.650, TVD (ft): 11290.20, Dogleg (°/100 ft): 1.28, Sensor Depth (ft): 14791.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-26	07:30	08:20	09-26	14862.00	14892.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	09-26	08:20	08:55	09-26	14892.00	14952.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	08:55	09:00	09-26	14952.00	14952.00	Inclination (°): 89.410, Azimuth (°): 182.140, TVD (ft): 11289.58, Dogleg (°/100 ft): 5.45, Sensor Depth (ft): 14881.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	09:00	10:05	09-26	14952.00	15041.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	10:05	10:10	09-26	15041.00	15041.00	Inclination (°): 89.190, Azimuth (°): 179.410, TVD (ft): 11290.67, Dogleg (°/100 ft): 3.08, Sensor Depth (ft): 14970.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	10:10	11:10	09-26	15041.00	15131.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	11:10	11:15	09-26	15131.00	15131.00	Inclination (°): 89.800, Azimuth (°): 179.150, TVD (ft): 11291.46, Dogleg (°/100 ft): 0.74, Sensor Depth (ft): 15060.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	11:15	12:10	09-26	15131.00	15221.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	12:10	12:15	09-26	15221.00	15221.00	Inclination (°): 89.580, Azimuth (°): 178.800, TVD (ft): 11291.95, Dogleg (°/100 ft): 0.46, Sensor Depth (ft): 15150.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	12:15	13:20	09-26	15221.00	15310.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	13:20	13:25	09-26	15310.00	15310.00	Inclination (°): 89.450, Azimuth (°): 178.710, TVD (ft): 11292.70, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 15239.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	13:25	14:55	09-26	15310.00	15400.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	14:55	15:00	09-26	15400.00	15400.00	Inclination (°): 89.980, Azimuth (°): 178.270, TVD (ft): 11293.15, Dogleg (°/100 ft): 0.77, Sensor Depth (ft): 15329.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-26	15:00	15:40	09-26	15400.00	15425.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	09-26	15:40	16:40	09-26	15425.00	15489.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	16:40	16:45	09-26	15489.00	15489.00	Inclination (°): 88.400, Azimuth (°): 180.200, TVD (ft): 11294.41, Dogleg (°/100 ft): 2.80, Sensor Depth (ft): 15418.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	16:45	17:45	09-26	15489.00	15579.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00

Survey	46	09-26	17:45	17:55	09-26	15579.00	15579.00	Inclination (°): 88.480, Azimuth (°): 180.200, TVD (ft): 11296.86, Dogleg (°/100 ft): 0.09, Sensor Depth (ft): 15508.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	17:55	19:10	09-26	15579.00	15669.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-26	19:10	19:15	09-26	15669.00	15669.00	Inclination (°): 88.480, Azimuth (°): 179.680, TVD (ft): 11299.25, Dogleg (°/100 ft): 0.58, Sensor Depth (ft): 15598.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-26	19:15	20:25	09-26	15669.00	15758.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Connection	33	09-26	20:25	20:30	09-26			
Rotary Drill	1	09-26	20:30	20:35	09-26	15758.00	15760.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Other	16	09-26	20:35	20:55	09-26			Troubleshoot 1300psi gain off bottom
Other	16	09-26	20:55	21:10	09-26			Pump Slug
Pooh	7	09-26	21:10	03:00	09-27			POOH for 1300psi gain Off Bottom

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
Company Man		

Friday, Sep 27 00:00 - 23:59 (Day 13 of 24)

Billing: \$23,690.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	15759.00	Downhole Hours	22.75	Rotating WOB (klbs)	40.00 - 50.00
Bit Depth (ft)	16476.00	Drilling Hours	9.83	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	16476.00	Hours Circulating	0.25	Rotating SPM	210.00 - 220.00
Total Distance (ft)	717.00	Hours Sliding	2.58	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	627.00	Hours Rotating	7.25	Motor RPM	0.00 - 200.00
Distance Slid (ft)	90.00			Surface RPM	60.00 - 60.00
Inclination In	89.01			Flow Rate (gpm)	700.00 - 705.00
Inclination Out	88.57			On Bottom Pressure (psi)	4500.00 - 4950.00
Azimuth In	179.32	% Hours Rotating	74%	Off Bottom Pressure (psi)	3800.00 - 4400.00
Azimuth Out	178.45	% Hours Sliding	26%		
AVG Total ROP (ft/h)	72.92	% Distance Sliding	13%		
AVG Rotating ROP (ft/h)	86.48	% Distance Rotating	87%		
AVG Sliding ROP (ft/h)	34.84				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #7 - 8.5" Lateral

Date In: Sep 24, 2019, 3:00 Date Out: Sep 27, 2019, 3:00

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	6.5	Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 1
Vendor	HUGHES	Lobe/Stage	7/8, 8.5	
S/N	593516	Bend Angle	1.75	
Nozzles	6x22	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.710	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey (): 71.00 ft, Bend (): 4.75 ft, Gamma (): 49.00 ft, Resistivity: 59.00 ft		POOH Reason
Drilling Hours for BHA	54.17			
Total Drilled for BHA (ft)	4152.00			
				Pressure Spike: POOH after gaining 1300 PSI

Directional Items

Description	Vendor	SN#	Top Conn	Btm Conn	ID (in)	OD (in)	Fn Len. (ft)	Len (ft)	Aggr. Len (ft)
Bit Description: 8.5" DD506TWX, Style: PDC, Gauge Length (in): 4.00, Size (in): 8.50	HUGHES	593516	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" DYNOMAX 7/8, 8.5 FXD @ 1.75° w/ SS, Size (in): 6.50, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	DYNOMAX	DM40852-02	4 1/2" IF Box	4 1/2" Reg Box		7.000		35.90	36.90
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.38
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	85.84
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	GATOR	GT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.42
Crossover Sub Description: XO (4 1/2 IF-P x EverDrl54-B, Type: Steel	BLACK DIAMOND	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.06
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.500		2689.24	2810.30
Crossover Sub Description: XO (4 1/2 IF-B x EVERDRL54-P), Type: Steel	BLACK DIAMOND	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2813.75
Agitator Description: Agitator, Size (in): 6.50	RUBICON	RSX 650-029	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.24	2847.99
Crossover Sub Description: XO (EVERDRL54-B x 4 1/2 IF-P, Type: Steel	BLACK DIAMOND	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2852.84

MWD Items

No Items

BHA #8 - 8.5 Lateral

Date In: Sep 27, 2019, 4:15 Date Out: Sep 30, 2019, 17:45

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 2	
Vendor	Baker Hughes	Lobe/Stage	7/8, 8.5		
S/N	5294400	Bend Angle	1.75	MWD Comments	
Nozzles	6x22's	Speed (rev/gal)	0.26		
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.375	POOH Reason	
Drilling Hours for Day	9.83	Bit Distances			
Total Drilled for Day (ft)	717.00	Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft		Penetration Rate: BIT GRADE: 1-3	
Drilling Hours for BHA	63.42				
Total Drilled for BHA (ft)	4185.00				

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	Baker Hughes	5294400	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 7/8 8.5 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Contender	700-40-013	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.63
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	86.09
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.67
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.31
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2810.55
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2814.00
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2848.66
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2853.51

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	09-26	21:10	03:00	09-27			POOH for 1300psi gain Off Bottom
Change BHA	6	09-27	03:00	04:15	09-27			P/U BHA # 8
Other	16	09-27	04:15	04:45	09-27			Program MWD Tool
TIH	8	09-27	04:45	07:30	09-27			TIH W/ BHA #8
Other	16	09-27	07:30	08:45	09-27			CUT DRILL LINE
Other	16	09-27	08:45	09:00	09-27			TEST MWD TOOL
Rig Repair	14	09-27	09:00	09:50	09-27			C/O SWIVEL PACKING
TIH	8	09-27	09:50	12:50	09-27			TIH W/ BHA #8
Other	16	09-27	12:50	13:00	09-27			FILL PIPE
Survey	46	09-27	13:00	13:15	09-27	15759.00	15759.00	Inclination (°): 89.010, Azimuth (°): 179.320, TVD (ft): 11301.22, Dogleg (°/100 ft): 0.71, Sensor Depth (ft): 15688.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	13:15	14:10	09-27	15759.00	15849.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Surface RPM: 60, Surface Torque (ft lbf): 18.00, Flow Rate (gpm): 705.00, Strokes Per Minute: 210.00
Survey	46	09-27	14:10	14:15	09-27	15849.00	15849.00	Inclination (°): 89.010, Azimuth (°): 178.530, TVD (ft): 11302.77, Dogleg (°/100 ft): 0.88, Sensor Depth (ft): 15778.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	14:15	15:20	09-27	15849.00	15938.00	
Survey	46	09-27	15:20	15:30	09-27	15938.00	15938.00	Inclination (°): 88.570, Azimuth (°): 177.570, TVD (ft): 11304.65, Dogleg (°/100 ft): 1.19, Sensor Depth (ft): 15867.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-27	15:30	16:10	09-27	15938.00	15968.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 90, Toolface Type: gravity
Rotary Drill	1	09-27	16:10	17:10	09-27	15968.00	16028.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	09-27	17:10	17:15	09-27	16028.00	16028.00	Inclination (°): 88.040, Azimuth (°): 179.760, TVD (ft): 11307.32, Dogleg (°/100 ft): 2.50, Sensor Depth (ft): 15957.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	17:15	18:20	09-27	16028.00	16118.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00

Survey	46	09-27	18:20	18:25	09-27	16118.00	16118.00	Inclination (°): 87.250, Azimuth (°): 181.080, TVD (ft): 11311.01, Dogleg (°/100 ft): 1.71, Sensor Depth (ft): 16047.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	18:25	18:30	09-27	16118.00	16120.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	09-27	18:30	19:25	09-27	16120.00	16140.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	09-27	19:25	20:10	09-27	16140.00	16207.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	09-27	20:10	20:15	09-27	16207.00	16207.00	Inclination (°): 88.130, Azimuth (°): 180.910, TVD (ft): 11314.60, Dogleg (°/100 ft): 1.01, Sensor Depth (ft): 16136.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-27	20:15	20:40	09-27	16207.00	16222.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	09-27	20:40	21:40	09-27	16222.00	16297.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	09-27	21:40	21:45	09-27	16297.00	16297.00	Inclination (°): 89.230, Azimuth (°): 180.120, TVD (ft): 11316.67, Dogleg (°/100 ft): 1.50, Sensor Depth (ft): 16226.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	21:45	22:25	09-27	16297.00	16386.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	09-27	22:25	22:30	09-27	16386.00	16386.00	Inclination (°): 88.570, Azimuth (°): 178.450, TVD (ft): 11318.38, Dogleg (°/100 ft): 2.02, Sensor Depth (ft): 16315.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-27	22:30	22:35	09-27	16386.00	16389.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Slide Drill	2	09-27	22:35	23:10	09-27	16389.00	16414.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 70, Toolface Type: gravity
Rotary Drill	1	09-27	23:10	23:40	09-27	16414.00	16464.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Other	16	09-27	23:40	23:55	09-27			Relog 16419 - 16464
Rotary Drill	1	09-27	23:55	00:00	09-28	16464.00	16476.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Saturday, Sep 28 00:00 - 23:59 (Day 14 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	16476.00	Downhole Hours	24.00	Rotating WOB (klbs)	52.00 - 52.00
Bit Depth (ft)	18360.00	Drilling Hours	21.00	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	18360.00	Hours Circulating	0.00	Rotating SPM	219.00 - 219.00
Total Distance (ft)	1884.00	Hours Sliding	4.58	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	1741.00	Hours Rotating	16.42	Motor RPM	0.00 - 0.00
Distance Slid (ft)	143.00			Surface RPM	40.00 - 60.00
Inclination In	88.92			Flow Rate (gpm)	700.00 - 707.00
Inclination Out	86.46			On Bottom Pressure (psi)	4500.00 - 5000.00
Azimuth In	179.94	% Hours Rotating	78%	Off Bottom Pressure (psi)	3800.00 - 4400.00
Azimuth Out	177.57	% Hours Sliding	22%		
AVG Total ROP (ft/h)	87.94	% Distance Sliding	8%		
AVG Rotating ROP (ft/h)	102.39	% Distance Rotating	92%		
AVG Sliding ROP (ft/h)	31.20				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #8 - 8.5 Lateral

Date In: Sep 27, 2019, 4:15 Date Out: Sep 30, 2019, 17:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 2
Vendor	Baker Hughes	Lobe/Stage	7/8, 8.5	
S/N	5294400	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.375	
Drilling Hours for Day	21.00	Bit Distances		
Total Drilled for Day (ft)	1884.00	Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft		POOH Reason Penetration Rate: BIT GRADE: 1-3
Drilling Hours for BHA	63.42			
Total Drilled for BHA (ft)	4185.00			

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	Baker Hughes	5294400	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 7/8 8.5 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Contender	700-40-013	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.63
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	86.09
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.67
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.31
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2810.55
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2814.00
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2848.66
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2853.51

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	09-27	23:55	00:00	09-28	16464.00	16476.00	Pressure On (psi): 4950.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 40.00, Surface RPM: 60, Surface Torque (ft lbf): 19.50, Flow Rate (gpm): 700.00, Strokes Per Minute: 220.00
Survey	46	09-28	00:00	00:05	09-28	16476.00	16476.00	Inclination (°): 88.920, Azimuth (°): 179.940, TVD (ft): 11320.35, Dogleg (°/100 ft): 1.70, Sensor Depth (ft): 16405.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	00:05	01:05	09-28	16476.00	16565.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 40, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	01:05	01:10	09-28	16565.00	16565.00	Inclination (°): 88.620, Azimuth (°): 180.990, TVD (ft): 11322.27, Dogleg (°/100 ft): 1.23, Sensor Depth (ft): 16494.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-28	01:10	01:55	09-28	16565.00	16580.00	Pressure On (psi): 4500.00, Pressure Off (psi): 3800.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	09-28	01:55	02:50	09-28	16580.00	16655.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 40, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	02:50	02:55	09-28	16655.00	16655.00	Inclination (°): 89.230, Azimuth (°): 181.260, TVD (ft): 11323.95, Dogleg (°/100 ft): 0.74, Sensor Depth (ft): 16584.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	02:55	04:10	09-28	16655.00	16745.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 40, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	04:10	04:15	09-28	16745.00	16745.00	Inclination (°): 87.560, Azimuth (°): 180.120, TVD (ft): 11326.47, Dogleg (°/100 ft): 2.25, Sensor Depth (ft): 16674.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-28	04:15	05:25	09-28	16745.00	16780.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 20, Toolface Type: gravity
Rotary Drill	1	09-28	05:25	06:15	09-28	16780.00	16834.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 40, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	06:15	06:20	09-28	16834.00	16834.00	Inclination (°): 89.010, Azimuth (°): 181.080, TVD (ft): 11329.14, Dogleg (°/100 ft): 1.95, Sensor Depth (ft): 16763.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	06:20	07:15	09-28	16834.00	16924.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	07:15	07:20	09-28	16924.00	16924.00	Inclination (°): 90.810, Azimuth (°): 181.610, TVD (ft): 11329.28, Dogleg (°/100 ft): 2.08, Sensor Depth (ft): 16853.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	07:20	08:00	09-28	16924.00	17014.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	08:00	08:05	09-28	17014.00	17014.00	Inclination (°): 89.050, Azimuth (°): 180.550, TVD (ft): 11329.39, Dogleg (°/100 ft): 2.28, Sensor Depth (ft): 16943.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	08:05	08:45	09-28	17014.00	17104.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	08:45	08:50	09-28	17104.00	17104.00	Inclination (°): 87.740, Azimuth (°): 179.590, TVD (ft): 11331.91, Dogleg (°/100 ft): 1.80, Sensor Depth (ft): 17033.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	08:50	08:55	09-28	17104.00	17111.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Slide Drill	2	09-28	08:55	09:15	09-28	17111.00	17123.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 40, Toolface Type: gravity
Other	16	09-28	09:15	09:20	09-28			RECYCLE
Slide Drill	2	09-28	09:20	09:45	09-28	17123.00	17136.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	09-28	09:45	10:10	09-28	17136.00	17193.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	10:10	10:15	09-28	17193.00	17193.00	Inclination (°): 88.220, Azimuth (°): 181.170, TVD (ft): 11335.05, Dogleg (°/100 ft): 1.85, Sensor Depth (ft): 17122.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	10:15	11:00	09-28	17193.00	17283.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	11:00	11:10	09-28	17283.00	17283.00	Inclination (°): 88.700, Azimuth (°): 181.350, TVD (ft): 11337.47, Dogleg (°/100 ft): 0.57, Sensor Depth (ft): 17212.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-28	11:10	11:45	09-28	17283.00	17308.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	09-28	11:45	12:20	09-28	17308.00	17373.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	12:20	12:25	09-28	17373.00	17373.00	Inclination (°): 90.810, Azimuth (°): 181.170, TVD (ft): 11337.85, Dogleg (°/100 ft): 2.35, Sensor Depth (ft): 17302.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	12:25	13:15	09-28	17373.00	17463.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	13:15	13:20	09-28	17463.00	17463.00	Inclination (°): 91.210, Azimuth (°): 180.910, TVD (ft): 11336.26, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 17392.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	13:20	14:10	09-28	17463.00	17552.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	14:10	14:15	09-28	17552.00	17552.00	Inclination (°): 91.520, Azimuth (°): 180.550, TVD (ft): 11334.14, Dogleg (°/100 ft): 0.53, Sensor Depth (ft): 17481.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	14:15	15:05	09-28	17552.00	17642.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00

Survey	46	09-28	15:05	15:10	09-28	17642.00	17642.00	Inclination (°): 90.770, Azimuth (°): 179.590, TVD (ft): 11332.35, Dogleg (°/100 ft): 1.35, Sensor Depth (ft): 17571.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	15:10	15:50	09-28	17642.00	17732.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	15:50	16:00	09-28	17732.00	17732.00	Inclination (°): 91.250, Azimuth (°): 179.150, TVD (ft): 11330.76, Dogleg (°/100 ft): 0.72, Sensor Depth (ft): 17661.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-28	16:00	16:35	09-28	17732.00	17757.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 160, Toolface Type: gravity
Rotary Drill	1	09-28	16:35	17:00	09-28	17757.00	17821.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Rig Service - In Hole	19	09-28	17:00	17:15	09-28			
Survey	46	09-28	17:15	17:20	09-28	17821.00	17821.00	Inclination (°): 88.040, Azimuth (°): 178.530, TVD (ft): 11331.31, Dogleg (°/100 ft): 3.67, Sensor Depth (ft): 17750.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	17:20	18:05	09-28	17821.00	17911.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	18:05	18:10	09-28	17911.00	17911.00	Inclination (°): 87.080, Azimuth (°): 178.090, TVD (ft): 11335.14, Dogleg (°/100 ft): 1.17, Sensor Depth (ft): 17840.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	18:10	19:00	09-28	17911.00	18001.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	19:00	19:05	09-28	18001.00	18001.00	Inclination (°): 86.900, Azimuth (°): 177.920, TVD (ft): 11339.87, Dogleg (°/100 ft): 0.27, Sensor Depth (ft): 17930.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-28	19:05	19:50	09-28	18001.00	18019.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 60, Toolface Type: gravity
Rotary Drill	1	09-28	19:50	20:35	09-28	18019.00	18091.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	20:35	20:40	09-28	18091.00	18091.00	Inclination (°): 87.430, Azimuth (°): 178.620, TVD (ft): 11344.32, Dogleg (°/100 ft): 0.97, Sensor Depth (ft): 18020.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	20:40	21:25	09-28	18091.00	18181.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	21:25	21:30	09-28	18181.00	18181.00	Inclination (°): 88.620, Azimuth (°): 179.410, TVD (ft): 11347.42, Dogleg (°/100 ft): 1.59, Sensor Depth (ft): 18110.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	21:30	22:10	09-28	18181.00	18270.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 50, Surface Torque (ft lbf): 24.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	22:10	22:15	09-28	18270.00	18270.00	Inclination (°): 87.160, Azimuth (°): 178.450, TVD (ft): 11350.70, Dogleg (°/100 ft): 1.96, Sensor Depth (ft): 18199.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	22:15	23:15	09-28	18270.00	18360.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-28	23:15	23:20	09-28	18360.00	18360.00	Inclination (°): 86.460, Azimuth (°): 177.570, TVD (ft): 11355.71, Dogleg (°/100 ft): 1.25, Sensor Depth (ft): 18289.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-28	23:20	00:50	09-29	18360.00	18450.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Sunday, Sep 29 00:00 - 23:59 (Day 15 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	18360.00	Downhole Hours	24.00	Rotating WOB (klbs)	52.00 - 52.00
Bit Depth (ft)	19527.00	Drilling Hours	21.58	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	19527.00	Hours Circulating	0.00	Rotating SPM	219.00 - 219.00
Total Distance (ft)	1167.00	Hours Sliding	4.17	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	1064.00	Hours Rotating	17.42	Motor RPM	0.00 - 0.00
Distance Slid (ft)	103.00			Surface RPM	60.00 - 60.00
Inclination In	86.68			Flow Rate (gpm)	700.00 - 707.00
Inclination Out	88.26			On Bottom Pressure (psi)	4700.00 - 5000.00
Azimuth In	177.39	% Hours Rotating	81%	Off Bottom Pressure (psi)	4400.00 - 4400.00
Azimuth Out	179.85	% Hours Sliding	19%		
AVG Total ROP (ft/h)	52.74	% Distance Sliding	9%		
AVG Rotating ROP (ft/h)	58.68	% Distance Rotating	91%		
AVG Sliding ROP (ft/h)	24.72				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #8 - 8.5 Lateral

Date In: Sep 27, 2019, 4:15 Date Out: Sep 30, 2019, 17:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 2
Vendor	Baker Hughes	Lobe/Stage	7/8, 8.5	
S/N	5294400	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.375	
Drilling Hours for Day	21.58	Bit Distances		
Total Drilled for Day (ft)	1167.00	Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft		POOH Reason Penetration Rate: BIT GRADE: 1-3
Drilling Hours for BHA	63.42			
Total Drilled for BHA (ft)	4185.00			

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	Baker Hughes	5294400	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 7/8 8.5 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Contender	700-40-013	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.63
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	86.09
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.67
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.31
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2810.55
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2814.00
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2848.66
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2853.51

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	09-28	23:20	00:50	09-29	18360.00	18450.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	00:50	00:55	09-29	18450.00	18450.00	Inclination (°): 86.680, Azimuth (°): 177.390, TVD (ft): 11361.09, Dogleg (°/100 ft): 0.32, Sensor Depth (ft): 18379.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-29	00:55	02:25	09-29	18450.00	18475.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 50, Toolface Type: gravity
Rotary Drill	1	09-29	02:25	03:30	09-29	18475.00	18540.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	03:30	03:35	09-29	18540.00	18540.00	Inclination (°): 89.320, Azimuth (°): 178.620, TVD (ft): 11364.23, Dogleg (°/100 ft): 3.24, Sensor Depth (ft): 18469.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	03:35	05:10	09-29	18540.00	18630.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	05:10	05:15	09-29	18630.00	18630.00	Inclination (°): 90.070, Azimuth (°): 178.970, TVD (ft): 11364.71, Dogleg (°/100 ft): 0.92, Sensor Depth (ft): 18559.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	05:15	06:50	09-29	18630.00	18719.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	06:50	06:55	09-29	18719.00	18719.00	Inclination (°): 90.810, Azimuth (°): 178.530, TVD (ft): 11364.03, Dogleg (°/100 ft): 0.97, Sensor Depth (ft): 18648.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	06:55	08:30	09-29	18719.00	18809.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	08:30	08:40	09-29	18809.00	18809.00	Inclination (°): 91.250, Azimuth (°): 178.450, TVD (ft): 11362.41, Dogleg (°/100 ft): 0.50, Sensor Depth (ft): 18738.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-29	08:40	09:35	09-29	18809.00	18829.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 120, Toolface Type: gravity
Rotary Drill	1	09-29	09:35	11:00	09-29	18829.00	18899.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	11:00	11:10	09-29	18899.00	18899.00	Inclination (°): 89.010, Azimuth (°): 179.760, TVD (ft): 11362.21, Dogleg (°/100 ft): 2.88, Sensor Depth (ft): 18828.00, Bit To Sensor (ft): 71.00
Other	16	09-29	11:10	11:30	09-29			DOWNLINK MWD TOOL
Rotary Drill	1	09-29	11:30	11:45	09-29	18899.00	18912.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Slide Drill	2	09-29	11:45	12:30	09-29	18912.00	18930.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 40, Toolface Type: gravity
Rotary Drill	1	09-29	12:30	13:45	09-29	18930.00	18988.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	13:45	13:50	09-29	18988.00	18988.00	Inclination (°): 90.420, Azimuth (°): 180.120, TVD (ft): 11362.65, Dogleg (°/100 ft): 1.64, Sensor Depth (ft): 18917.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	13:50	15:00	09-29	18988.00	19078.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	15:00	15:10	09-29	19078.00	19078.00	Inclination (°): 93.930, Azimuth (°): 180.820, TVD (ft): 11359.23, Dogleg (°/100 ft): 3.98, Sensor Depth (ft): 19007.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-29	15:10	16:10	09-29	19078.00	19118.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 180, Toolface Type: gravity
Rotary Drill	1	09-29	16:10	16:50	09-29	19118.00	19168.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	16:50	16:55	09-29	19168.00	19168.00	Inclination (°): 90.240, Azimuth (°): 181.080, TVD (ft): 11355.96, Dogleg (°/100 ft): 4.11, Sensor Depth (ft): 19097.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	16:55	18:15	09-29	19168.00	19258.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	18:15	18:20	09-29	19258.00	19258.00	Inclination (°): 88.260, Azimuth (°): 180.730, TVD (ft): 11357.14, Dogleg (°/100 ft): 2.23, Sensor Depth (ft): 19187.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	18:20	19:20	09-29	19258.00	19348.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	19:20	19:25	09-29	19348.00	19348.00	Inclination (°): 88.220, Azimuth (°): 180.640, TVD (ft): 11359.90, Dogleg (°/100 ft): 0.11, Sensor Depth (ft): 19277.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	19:25	20:40	09-29	19348.00	19438.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	20:40	20:45	09-29	19438.00	19438.00	Inclination (°): 88.400, Azimuth (°): 180.120, TVD (ft): 11362.56, Dogleg (°/100 ft): 0.61, Sensor Depth (ft): 19367.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	20:45	22:30	09-29	19438.00	19527.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-29	22:30	22:35	09-29	19527.00	19527.00	Inclination (°): 88.260, Azimuth (°): 179.850, TVD (ft): 11365.15, Dogleg (°/100 ft): 0.34, Sensor Depth (ft): 19456.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-29	22:35	00:50	09-30	19527.00	19617.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Monday, Sep 30 00:00 - 23:59 (Day 16 of 24)

Billing: \$22,782.50 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	19527.00	Downhole Hours	21.25	Rotating WOB (klbs)	52.00 - 52.00
Bit Depth (ft)	19944.00	Drilling Hours	11.00	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	19944.00	Hours Circulating	0.92	Rotating SPM	219.00 - 219.00
Total Distance (ft)	417.00	Hours Sliding	1.67	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	392.00	Hours Rotating	9.33	Motor RPM	0.00 - 180.00
Distance Slid (ft)	25.00			Surface RPM	60.00 - 60.00
Inclination In	87.52			Flow Rate (gpm)	700.00 - 707.00
Inclination Out	89.98			On Bottom Pressure (psi)	4700.00 - 5000.00
Azimuth In	178.89	% Hours Rotating	85%	Off Bottom Pressure (psi)	4400.00 - 4400.00
Azimuth Out	179.06	% Hours Sliding	15%		
AVG Total ROP (ft/h)	37.91	% Distance Sliding	6%		
AVG Rotating ROP (ft/h)	42.00	% Distance Rotating	94%		
AVG Sliding ROP (ft/h)	15.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #8 - 8.5 Lateral

Date In: Sep 27, 2019, 4:15 Date Out: Sep 30, 2019, 17:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Directional: Flow Rate: 500-750, Max Diff: 1910 psi , Max Torque: 18,710 ft-lbs BIT Runs: 2
Vendor	Baker Hughes	Lobe/Stage	7/8, 8.5	
S/N	5294400	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.375	
Drilling Hours for Day	11.00	Bit Distances		
Total Drilled for Day (ft)	417.00	Survey: 71.00 ft, Resistivity: 59.00 ft, Gamma: 49.00 ft, Bend: 5.29 ft		POOH Reason Penetration Rate: BIT GRADE: 1-3
Drilling Hours for BHA	63.42			
Total Drilled for BHA (ft)	4185.00			

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	Baker Hughes	5294400	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 7/8 8.5 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 7, Stator Lobe: 8, Stator Stage: 8.5	Contender	700-40-013	4 1/2" IF Box	4 1/2" Reg Box		7.000		36.15	37.15
Other Description: MWD/Resistivity	Benchtree	650-1002	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.48	68.63
Other Description: MWD Battery	Benchtree	B6002	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.480		17.46	86.09
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	116.67
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15113	EverDrlg54 Box	4 1/2" IF Pin	2.875	6.750		4.64	121.31
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2810.55
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2814.00
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2848.66
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2853.51

MWD Items

No Items

BHA #9 - 8.5" LATERAL

Date In: Sep 30, 2019, 20:30 Date Out: Oct 4, 2019, 4:45

Bit Details		Motor Details		Directional Comments	
OD (in)	8.500	Size (in)	7.0	Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3	
Vendor	Baker Hughes	Lobe/Stage	6/7, 8.4		
S/N	5293281	Bend Angle	1.75		
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments	
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.250	POOH Reason Total Depth/Casing Point	
Drilling Hours for Day	0.00	Bit Distances			
Total Drilled for Day (ft)		Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00 ft, Bend: 5.29 ft			
Drilling Hours for BHA	27.83				
Total Drilled for BHA (ft)	1511.00				

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	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41

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	09-29	22:35	00:50	09-30	19527.00	19617.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-30	00:50	00:55	09-30	19617.00	19617.00	Inclination (°): 87.520, Azimuth (°): 178.890, TVD (ft): 11368.46, Dogleg (°/100 ft): 1.35, Sensor Depth (ft): 19546.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-30	00:55	03:15	09-30	19617.00	19707.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-30	03:15	03:20	09-30	19707.00	19707.00	Inclination (°): 86.240, Azimuth (°): 178.710, TVD (ft): 11373.36, Dogleg (°/100 ft): 1.44, Sensor Depth (ft): 19636.00, Bit To Sensor (ft): 71.00
Slide Drill	2	09-30	03:20	05:00	09-30	19707.00	19732.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 30, Toolface Type: gravity
Rotary Drill	1	09-30	05:00	06:20	09-30	19732.00	19797.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-30	06:20	06:25	09-30	19797.00	19797.00	Inclination (°): 89.100, Azimuth (°): 178.890, TVD (ft): 11377.02, Dogleg (°/100 ft): 3.18, Sensor Depth (ft): 19726.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-30	06:25	08:35	09-30	19797.00	19887.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	09-30	08:35	08:40	09-30	19887.00	19887.00	Inclination (°): 89.980, Azimuth (°): 179.060, TVD (ft): 11377.74, Dogleg (°/100 ft): 1.00, Sensor Depth (ft): 19816.00, Bit To Sensor (ft): 71.00
Rotary Drill	1	09-30	08:40	09:55	09-30	19887.00	19944.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Circulating	3	09-30	09:55	10:50	09-30			CIRC TO POOH
Other	16	09-30	10:50	11:10	09-30			FLOW CHECK & PUMP SLUG
Pooh	7	09-30	11:10	17:45	09-30			POOH for ROP

Change BHA	6	09-30	17:45	20:30	09-30			P/U BHA # 9
Other	16	09-30	20:30	23:45	09-30			Well Control, Well flowing, build and pump pill.
TIH	8	09-30	23:45	02:00	10-01			TIH T/ SHOE

MWD Activities								
No Activities								



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Tuesday, Oct 01 00:00 - 23:59 (Day 17 of 24) Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	19944.00	Downhole Hours	24.00	Rotating WOB (klbs)	52.00 - 52.00
Bit Depth (ft)	20691.00	Drilling Hours	11.75	Sliding WOB (klbs)	50.00 - 50.00
Bottom Hole Depth (ft)	20691.00	Hours Circulating	2.42	Rotating SPM	219.00 - 219.00
Total Distance (ft)	747.00	Hours Sliding	2.00	Sliding SPM	215.00 - 215.00
Distance Rotated (ft)	697.00	Hours Rotating	9.75	Motor RPM	140.00 - 180.00
Distance Slid (ft)	50.00			Surface RPM	60.00 - 60.00
Inclination In	89.93			Flow Rate (gpm)	700.00 - 707.00
Inclination Out	89.19			On Bottom Pressure (psi)	4700.00 - 5400.00
Azimuth In	179.24	% Hours Rotating	83%	Off Bottom Pressure (psi)	4400.00 - 5000.00
Azimuth Out	179.41	% Hours Sliding	17%		
AVG Total ROP (ft/h)	63.17	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	69.96	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	25.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #9 - 8.5" LATERAL Date In: Sep 30, 2019, 20:30 Date Out: Oct 4, 2019, 4:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3
Vendor	Baker Hughes	Lobe/Stage	6/7, 8.4	
S/N	5293281	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.250	
Drilling Hours for Day	11.75	Bit Distances		
Total Drilled for Day (ft)	747.00	Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00		
Drilling Hours for BHA	27.83	ft, Bend: 5.29 ft		
Total Drilled for BHA (ft)	1511.00	POOH Reason		
		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	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
TIH	8	09-30	23:45	02:00	10-01			TIH T/ SHOE
Other	16	10-01	02:00	02:45	10-01			Condition & Circulate

TIH	8	10-01	02:45	08:35	10-01			TIH W/ BHA 9
Circulating	3	10-01	08:35	09:30	10-01			FILL PIPE & CIRC
Circulating	3	10-01	09:30	10:15	10-01			CIRCULATE BOTTOMS UP THROUGH CHOKE
Other	16	10-01	10:15	10:30	10-01			DOWNLINK MWD TOOL
Rotary Drill	1	10-01	10:30	11:00	10-01	19944.00	19973.00	Pressure On (psi): 5000.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	11:00	11:05	10-01	19973.00	19973.00	Inclination (°): 89.930, Azimuth (°): 179.240, TVD (ft): 11377.81, Dogleg (°/100 ft): 0.21, Sensor Depth (ft): 19905.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	11:05	12:25	10-01	19973.00	20063.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	12:25	12:30	10-01	20063.00	20063.00	Inclination (°): 89.800, Azimuth (°): 179.150, TVD (ft): 11378.02, Dogleg (°/100 ft): 0.18, Sensor Depth (ft): 19995.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	12:30	13:50	10-01	20063.00	20153.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	13:50	13:55	10-01	20153.00	20153.00	Inclination (°): 90.420, Azimuth (°): 178.530, TVD (ft): 11377.85, Dogleg (°/100 ft): 0.97, Sensor Depth (ft): 20085.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	13:55	15:00	10-01	20153.00	20243.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	15:00	15:10	10-01	20243.00	20243.00	Inclination (°): 90.730, Azimuth (°): 178.180, TVD (ft): 11376.95, Dogleg (°/100 ft): 0.52, Sensor Depth (ft): 20175.00, Bit To Sensor (ft): 68.00
Slide Drill	2	10-01	15:10	16:05	10-01	20243.00	20263.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 140, Toolface Type: gravity
Rotary Drill	1	10-01	16:05	16:55	10-01	20263.00	20332.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	16:55	17:00	10-01	20332.00	20332.00	Inclination (°): 88.480, Azimuth (°): 177.300, TVD (ft): 11377.56, Dogleg (°/100 ft): 2.71, Sensor Depth (ft): 20264.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	17:00	18:05	10-01	20332.00	20422.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	18:05	18:10	10-01	20422.00	20422.00	Inclination (°): 87.870, Azimuth (°): 176.690, TVD (ft): 11380.43, Dogleg (°/100 ft): 0.96, Sensor Depth (ft): 20354.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	18:10	18:15	10-01	20422.00	20429.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Slide Drill	2	10-01	18:15	19:20	10-01	20429.00	20459.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 85, Toolface Type: gravity
Rotary Drill	1	10-01	19:20	20:05	10-01	20459.00	20512.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	20:05	20:10	10-01	20512.00	20512.00	Inclination (°): 88.220, Azimuth (°): 178.530, TVD (ft): 11383.50, Dogleg (°/100 ft): 2.08, Sensor Depth (ft): 20444.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	20:10	21:30	10-01	20512.00	20602.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	21:30	21:35	10-01	20602.00	20602.00	Inclination (°): 88.440, Azimuth (°): 179.760, TVD (ft): 11386.12, Dogleg (°/100 ft): 1.39, Sensor Depth (ft): 20534.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	21:35	23:00	10-01	20602.00	20691.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-01	23:00	23:05	10-01	20691.00	20691.00	Inclination (°): 89.190, Azimuth (°): 179.410, TVD (ft): 11387.96, Dogleg (°/100 ft): 0.93, Sensor Depth (ft): 20623.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-01	23:05	00:35	10-02	20691.00	20781.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Wednesday, Oct 02 00:00 - 23:59 (Day 18 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)	20691.00	Downhole Hours	24.00	Rotating WOB (klbs)	50.00 - 52.00
Bit Depth (ft)	21455.00	Drilling Hours	16.08	Sliding WOB (klbs)	50.00 - 55.00
Bottom Hole Depth (ft)	21455.00	Hours Circulating	6.67	Rotating SPM	216.00 - 219.00
Total Distance (ft)	764.00	Hours Sliding	3.33	Sliding SPM	215.00 - 216.00
Distance Rotated (ft)	714.00	Hours Rotating	12.75	Motor RPM	140.00 - 180.00
Distance Slid (ft)	50.00			Surface RPM	50.00 - 60.00
Inclination In	89.05			Flow Rate (gpm)	700.00 - 707.00
Inclination Out	90.20			On Bottom Pressure (psi)	4700.00 - 5550.00
Azimuth In	179.24	% Hours Rotating	79%	Off Bottom Pressure (psi)	4400.00 - 5000.00
Azimuth Out	178.80	% Hours Sliding	21%		
AVG Total ROP (ft/h)	47.50	% Distance Sliding	7%		
AVG Rotating ROP (ft/h)	56.00	% Distance Rotating	93%		
AVG Sliding ROP (ft/h)	15.00				

Personnel

Name	Position
Robert Olivarez	MWD Engineer
Advance Directional	Directional Driller

BHA #9 - 8.5" LATERAL

Date In: Sep 30, 2019, 20:30 Date Out: Oct 4, 2019, 4:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3
Vendor	Baker Hughes	Lobe/Stage	6/7, 8.4	
S/N	5293281	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.250	
Drilling Hours for Day	16.08	Bit Distances		
Total Drilled for Day (ft)	764.00	Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00		POOH Reason
Drilling Hours for BHA	27.83	ft, Bend: 5.29 ft		
Total Drilled for BHA (ft)	1511.00			

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	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41

MWD Items

No Items

Directional Activities

Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
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Rotary Drill	1	10-01	23:05	00:35	10-02	20691.00	20781.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-02	00:35	00:40	10-02	20781.00	20781.00	Inclination (°): 89.050, Azimuth (°): 179.240, TVD (ft): 11389.34, Dogleg (°/100 ft): 0.24, Sensor Depth (ft): 20713.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	00:40	02:10	10-02	20781.00	20871.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 25.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-02	02:10	02:15	10-02	20871.00	20871.00	Inclination (°): 89.010, Azimuth (°): 178.530, TVD (ft): 11390.87, Dogleg (°/100 ft): 0.79, Sensor Depth (ft): 20803.00, Bit To Sensor (ft): 68.00
Slide Drill	2	10-02	02:15	03:40	10-02	20871.00	20891.00	Pressure On (psi): 4700.00, Pressure Off (psi): 4400.00, Weight On Bit (klbs): 50.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 215, Toolface: 80, Toolface Type: gravity
Rotary Drill	1	10-02	03:40	04:45	10-02	20891.00	20961.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 27.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-02	04:45	04:50	10-02	20961.00	20961.00	Inclination (°): 89.580, Azimuth (°): 180.990, TVD (ft): 11391.98, Dogleg (°/100 ft): 2.81, Sensor Depth (ft): 20893.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	04:50	06:00	10-02	20961.00	21050.00	Pressure On (psi): 5400.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 52.00, Surface RPM: 60, Surface Torque (ft lbf): 27.00, Flow Rate (gpm): 707.00, Strokes Per Minute: 219.00
Survey	46	10-02	06:00	06:05	10-02	21050.00	21050.00	Inclination (°): 89.050, Azimuth (°): 181.260, TVD (ft): 11393.04, Dogleg (°/100 ft): 0.67, Sensor Depth (ft): 20982.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	06:05	07:45	10-02	21050.00	21140.00	
Survey	46	10-02	07:45	07:50	10-02	21140.00	21140.00	Inclination (°): 86.950, Azimuth (°): 180.990, TVD (ft): 11396.18, Dogleg (°/100 ft): 2.35, Sensor Depth (ft): 21072.00, Bit To Sensor (ft): 68.00
Slide Drill	2	10-02	07:50	09:15	10-02	21140.00	21162.00	Toolface: 0, Toolface Type: gravity
Rotary Drill	1	10-02	09:15	11:00	10-02	21162.00	21230.00	
Survey	46	10-02	11:00	11:05	10-02	21230.00	21230.00	Inclination (°): 88.260, Azimuth (°): 179.680, TVD (ft): 11399.94, Dogleg (°/100 ft): 2.06, Sensor Depth (ft): 21162.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	11:05	11:45	10-02	21230.00	21260.00	Pressure On (psi): 5550.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Slide Drill	2	10-02	11:45	12:15	10-02	21260.00	21268.00	Pressure On (psi): 5200.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 55.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216, Toolface: 0, Toolface Type: gravity
Rotary Drill	1	10-02	12:15	13:15	10-02	21268.00	21320.00	Pressure On (psi): 5550.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	10-02	13:15	13:20	10-02	21320.00	21320.00	Inclination (°): 88.620, Azimuth (°): 179.150, TVD (ft): 11402.39, Dogleg (°/100 ft): 0.71, Sensor Depth (ft): 21252.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	13:20	15:00	10-02	21320.00	21410.00	Pressure On (psi): 5550.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	10-02	15:00	15:05	10-02	21410.00	21410.00	Inclination (°): 89.630, Azimuth (°): 179.060, TVD (ft): 11403.77, Dogleg (°/100 ft): 1.13, Sensor Depth (ft): 21342.00, Bit To Sensor (ft): 68.00
Rotary Drill	1	10-02	15:05	15:50	10-02	21410.00	21455.00	Pressure On (psi): 5550.00, Pressure Off (psi): 5000.00, Weight On Bit (klbs): 50.00, Surface RPM: 50, Surface Torque (ft lbf): 25000.00, Flow Rate (gpm): 700.00, Strokes Per Minute: 216.00
Survey	46	10-02	15:50	16:00	10-02	21455.00	21455.00	Inclination (°): 90.200, Azimuth (°): 178.800, TVD (ft): 11403.83, Dogleg (°/100 ft): 1.39, Sensor Depth (ft): 21387.00, Bit To Sensor (ft): 68.00
Survey	46	10-02	16:00	16:05	10-02	21455.00	21455.00	Inclination (°): 90.200, Azimuth (°): 178.800, TVD (ft): 11403.60, Dogleg (°/100 ft): 0.00, Sensor Depth (ft): 21455.00, Bit To Sensor (ft): 0.00
								PTB @ TD
Circulating Pooh	3	10-02	16:05	22:45	10-02			Circulate 4 Bottoms Up, Weight Up Mud.
	7	10-02	22:45	00:00	10-03			POOH 20 Stands

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Thursday, Oct 03 00:00 - 23:59 (Day 19 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	24.00	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	2.25	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	140.00 - 180.00
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

BHA #9 - 8.5" LATERAL

Date In: Sep 30, 2019, 20:30 Date Out: Oct 4, 2019, 4:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3
Vendor	Baker Hughes	Lobe/Stage	6/7, 8.4	
S/N	5293281	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00		POOH Reason
Drilling Hours for BHA	27.83	ft, Bend: 5.29 ft		
Total Drilled for BHA (ft)	1511.00			
				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	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41

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	10-02	22:45	00:00	10-03			POOH 20 Stands
Circulating	3	10-03	00:00	02:15	10-03			Circulating Weight Up Mud

Poon	7	10-03	02:15	03:15	10-03			POOH 20 Stands
L/D DP	28	10-03	03:15	17:30	10-03			L/D DP
Other	16	10-03	17:30	18:45	10-03			Monitor Well on Choke
TIH	8	10-03	18:45	21:15	10-03			TIH 40 Stands
Circulating	3	10-03	21:15	00:30	10-04			Circulate, Pump Mud Cap

MWD Activities

No Activities



Job Number WT-19-146	Operator Advance Energy Partners	Rig Name H&P #389
Start Date 2019-09-14	Well Name Merchant State Unit 551H	Legal Well Name AFE Merchant State Unit 551H
Play Delaware Basin	State/Province and Country New Mexico, US	County Lea
		Company Man

Friday, Oct 04 00:00 - 23:59 (Day 20 of 24)

Billing: \$9,645.00 (\$279,097.41 total)

Drilling Summary				Drilling Parameters	
Start Depth (ft)		Downhole Hours	4.75	Rotating WOB (klbs)	
Bit Depth (ft)		Drilling Hours	0.00	Sliding WOB (klbs)	
Bottom Hole Depth (ft)		Hours Circulating	3.25	Rotating SPM	
Total Distance (ft)	0.00	Hours Sliding	0.00	Sliding SPM	
Distance Rotated (ft)	0.00	Hours Rotating	0.00	Motor RPM	140.00 - 180.00
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

BHA #9 - 8.5" LATERAL

Date In: Sep 30, 2019, 20:30 Date Out: Oct 4, 2019, 4:45

Bit Details		Motor Details		Directional Comments
OD (in)	8.500	Size (in)	7.0	Flow Rate: 350-750, Max Diff: 1980 psi, Max Torque: 16,550 ft-lbs, BIT Runs: 3
Vendor	Baker Hughes	Lobe/Stage	6/7, 8.4	
S/N	5293281	Bend Angle	1.75	
Nozzles	6x22's	Speed (rev/gal)	0.26	MWD Comments
Total Flow Area (in²)	2.230	Wear Pad OD (in)	7.250	
Drilling Hours for Day	0.00	Bit Distances		
Total Drilled for Day (ft)		Survey: 68.00 ft, Resistivity: 54.00 ft, Gamma: 44.00		POOH Reason
Drilling Hours for BHA	27.83	ft, Bend: 5.29 ft		
Total Drilled for BHA (ft)	1511.00			
				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	Baker Hughes	5293281	4 1/2" Reg Pin			8.500		1.00	1.00
Mud Motor Description: 7" Contender 6/7 8.4 FXD 1.75 W/ SS, Size (in): 7.00, Bend Angle (°): 1.75, Rotor Lobe: 6, Stator Lobe: 7, Stator Stage: 8.4	Contender	700-40-026	4 1/2" IF Box	4 1/2" Reg Box		7.000		34.10	35.10
Other Description: MWD/Resistivity	Benchtree	650-1008	4 1/2" IF Box	4 1/2" IF Pin	2.875	6.500		31.39	66.49
Other Description: MWD Battery	Benchtree	B6001X	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.500		17.49	83.98
Drill Collar Description: NMDC, Style: Slick Drill, Type: NM	Gator	GGT67-30-272	4 1/2" IF Box	4 1/2" IF Pin	3.250	6.860		30.58	114.56
Crossover Sub Description: X/O 4 1/2 IF-P x EverDrl54-B, Type: Steel	Black Diamond	BD15114	EverDrlg54 Box	4 1/2" IF Pin	3.000	6.625		3.65	118.21
Drill Pipe Description: 30 Stds. Drill Pipe, Style: Slick			EverDrlg54 Box	EverDrlg54 Pin	4.000	5.850		2689.24	2807.45
Crossover Sub Description: X/O 4 1/2 IF-B x EverDrl54-P, Type: Steel	Black Diamond	BD13509	4 1/2" IF Box	EverDrlg54 Pin	3.250	6.780		3.45	2810.90
Agitator Description: Agitator, Size (in): 6.50	Rubicon	ST56122	4 1/2" IF Box	4 1/2" IF Pin		6.500		34.66	2845.56
Crossover Sub Description: X/O EverDrl54-B x 4 1/2 IF-P, Type: Steel	Black Diamond	BD11874	EverDrlg54 Box	4 1/2" IF Pin	3.250	6.690		4.85	2850.41

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	10-03	21:15	00:30	10-04			Circulate, Pump Mud Cap
Pooh	7	10-04	00:30	03:45	10-04			POOH

Other	16	10-04	03:45	04:45	10-04		L/D BHA # 9
Standby	15	10-04	04:45	05:00	10-07		Standby

MWD Activities

No Activities

	Job Number	Operator		Rig Name
	WT-19-146	Advance Energy Partners		H&P #389
	Start Date	Well Name		Legal Well Name AFE
	2019-09-14	Merchant State Unit 551H		Merchant State Unit 551H
Play		State/Province and Country	County	Company Man
Delaware Basin		New Mexico, US	Lea	

Saturday, Oct 05 00:00 - 23:59 (Day 21 of 24) Billing: \$2,100.00 (\$279,097.41 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

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	10-04	04:45	05:00	10-07			Standby

MWD Activities								
No Activities								

	Job Number WT-19-146	Operator Advance Energy Partners		Rig Name H&P #389
	Start Date 2019-09-14	Well Name Merchant State Unit 551H		Legal Well Name AFE Merchant State Unit 551H
	Play Delaware Basin	State/Province and Country New Mexico, US	County Lea	Company Man

Sunday, Oct 06 00:00 - 23:59 (Day 22 of 24) Billing: \$14,106.41 (\$279,097.41 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

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	10-04	04:45	05:00	10-07			Standby

MWD Activities								
No Activities								

	Job Number	Operator		Rig Name
	WT-19-146	Advance Energy Partners		H&P #389
	Start Date	Well Name		Legal Well Name AFE
	2019-09-14	Merchant State Unit 551H		Merchant State Unit 551H
Play		State/Province and Country	County	Company Man
Delaware Basin		New Mexico, US	Lea	

Monday, Oct 07 00:00 - 23:59 (Day 23 of 24)

Billing: N/A (\$279,097.41 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

No BHAs

Directional Activities								
Activity Type	Code	Start Date	Start Time	End Time	End Date	Start (ft)	End (ft)	Comments/Details
Standby	15	10-04	04:45	05:00	10-07			Standby

MWD Activities								
No Activities								



Surface Plat

Merchant State Unit 551H (WT-19-146)

2019-09-14 to 2019-10-07

Lea, New Mexico, US (32.44, -103.55)

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) 476-3482State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised August 4, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

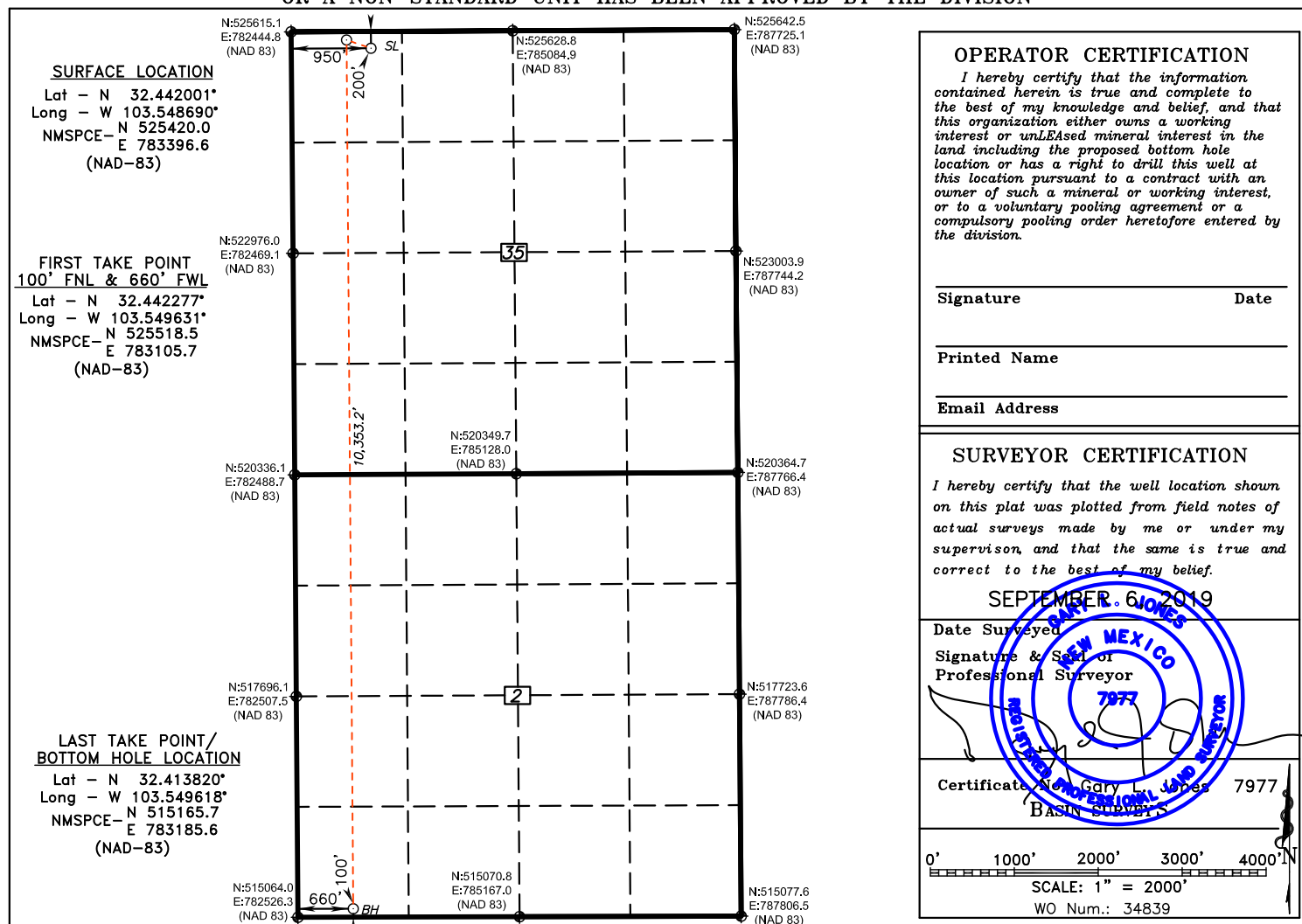
API Number	Pool Code	Pool Name
Property Code	Property Name	Well Number
	MERCHANT STATE UNIT	551H
OGRID No.	Operator Name	Elevation
	ADVANCE ENERGY PARTNERS HAT MESA	3684'

Surface Location

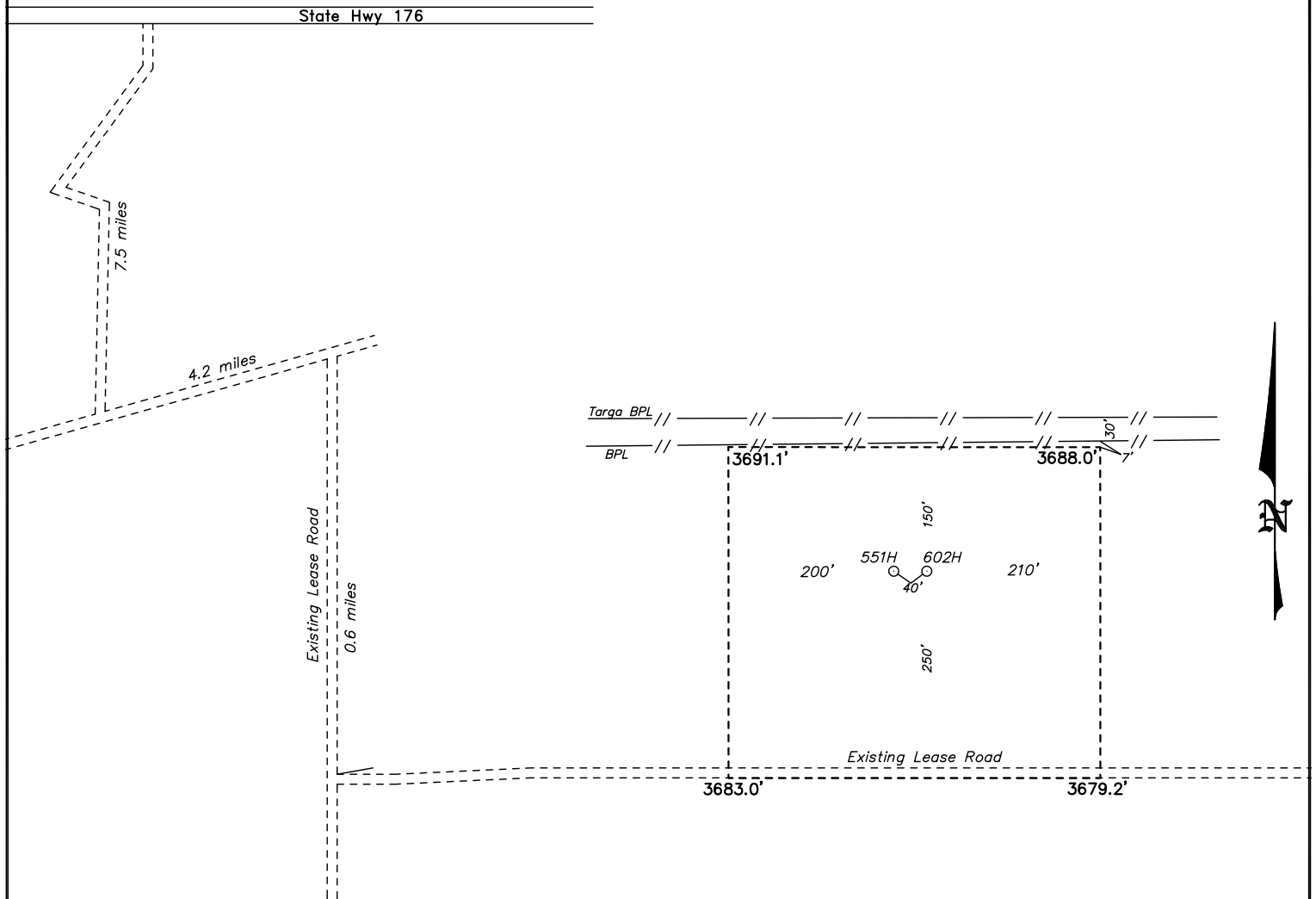
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	SOUTH/South line	Feet from the	East/West line	County
D	35	21 S	33 E		200	NORTH	950	WEST	LEA

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	660	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

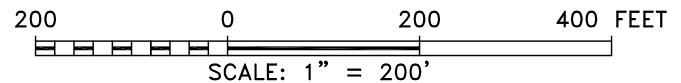
**SECTION 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST. N.M.P.M.,
LEA COUNTY, NEW MEXICO.**



**ADVANCE ENERGY PARTNERS HAT MESA
MERCHANT STATE UNIT 551H
ELEV. - 3684'**

Lat - N 32.442001°
Long - W 103.548690°
NMSPCE - N 525420.0
E 783396.6
(NAD-83)

EUNICE, NM IS ±26 MILES TO THE EAST OF LOCATION.



ADVANCE ENERGY PARTNERS HAT MESA

REF: MERCHANT STATE UNIT 551H / WELL PAD TOPO

THE MERCHANT STATE UNIT 551H LOCATED 200' FROM
THE NORTH LINE AND 950' FROM THE WEST LINE OF
SECTION 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

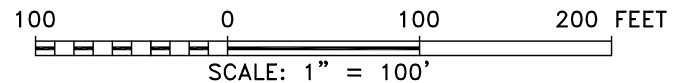
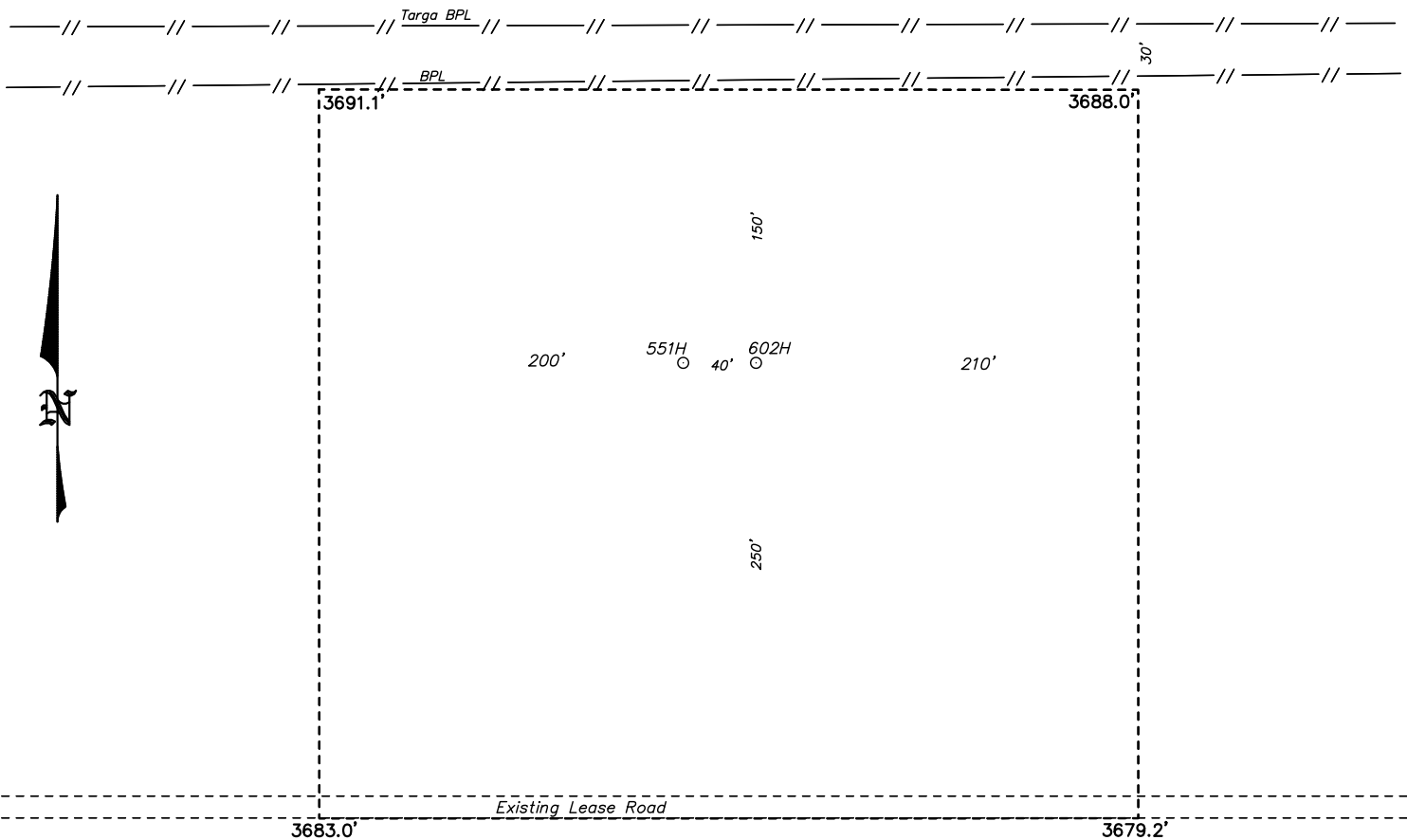
N.M.P.M., LEA COUNTY, NEW MEXICO.

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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: 34839	Drawn By: K. GOAD	Date: 09-09-2019	Survey Date: 09-06-2019	Sheet 1 of 1 Sheets
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**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 551H / WELL PAD TOPO

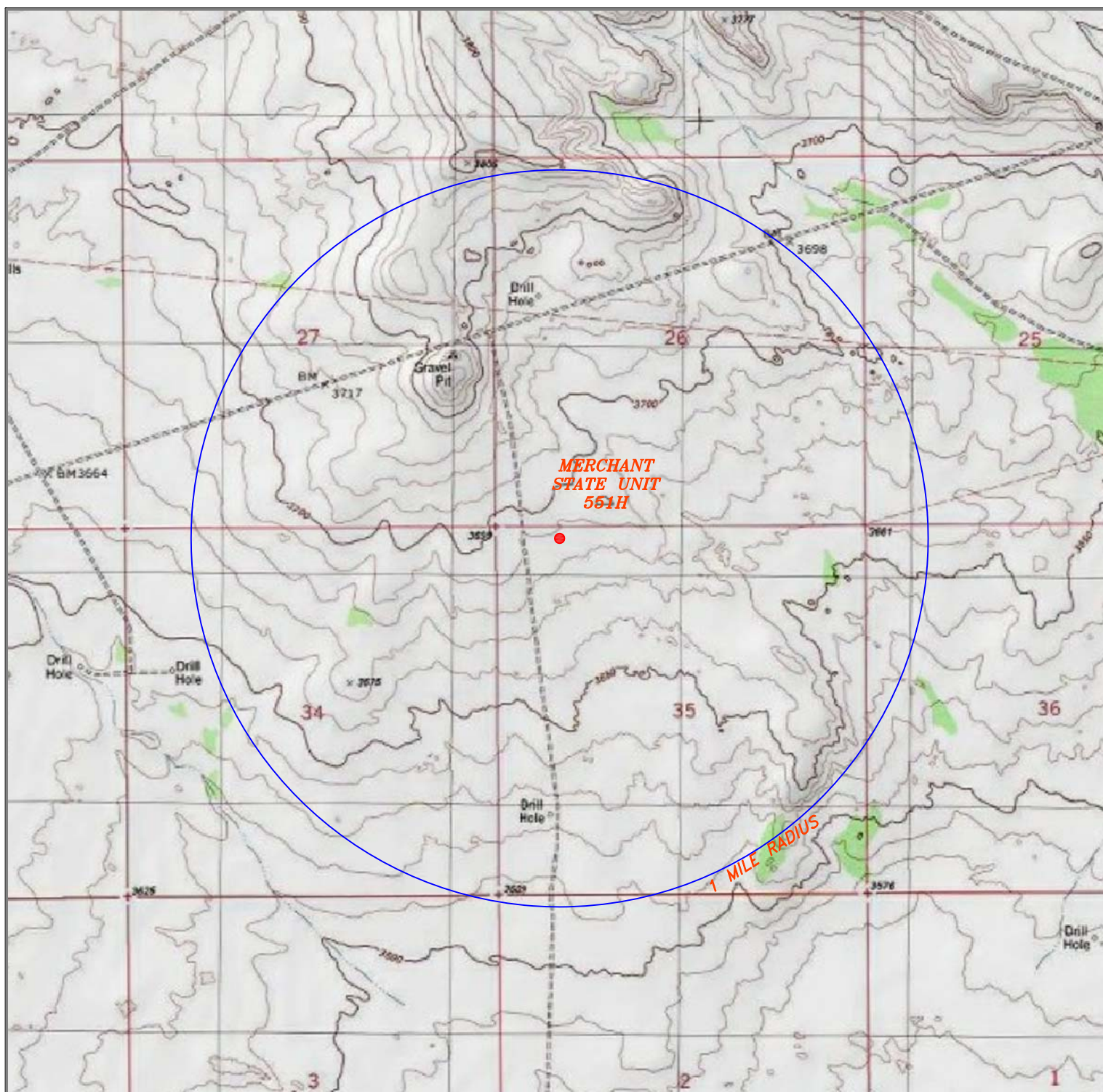
THE MERCHANT STATE UNIT 551H LOCATED 200' FROM
THE NORTH LINE AND 950' FROM THE WEST LINE OF
SECTION 35, TOWNSHIP 21 SOUTH, RANGE 33 EAST.

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

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W.O. Number: 34839	Drawn By: K. GOAD	Date: 09-09-2019	Survey Date: 09-06-2019	Sheet 1 of 1 Sheets
--------------------	-------------------	------------------	-------------------------	---------------------



MERCHANT STATE UNIT 551H

Located 200' FNL and 950' FEL
 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
 basinsurveys.com

0' 1000' 2000' 3000' 1500'

SCALE: 1" = 2000'

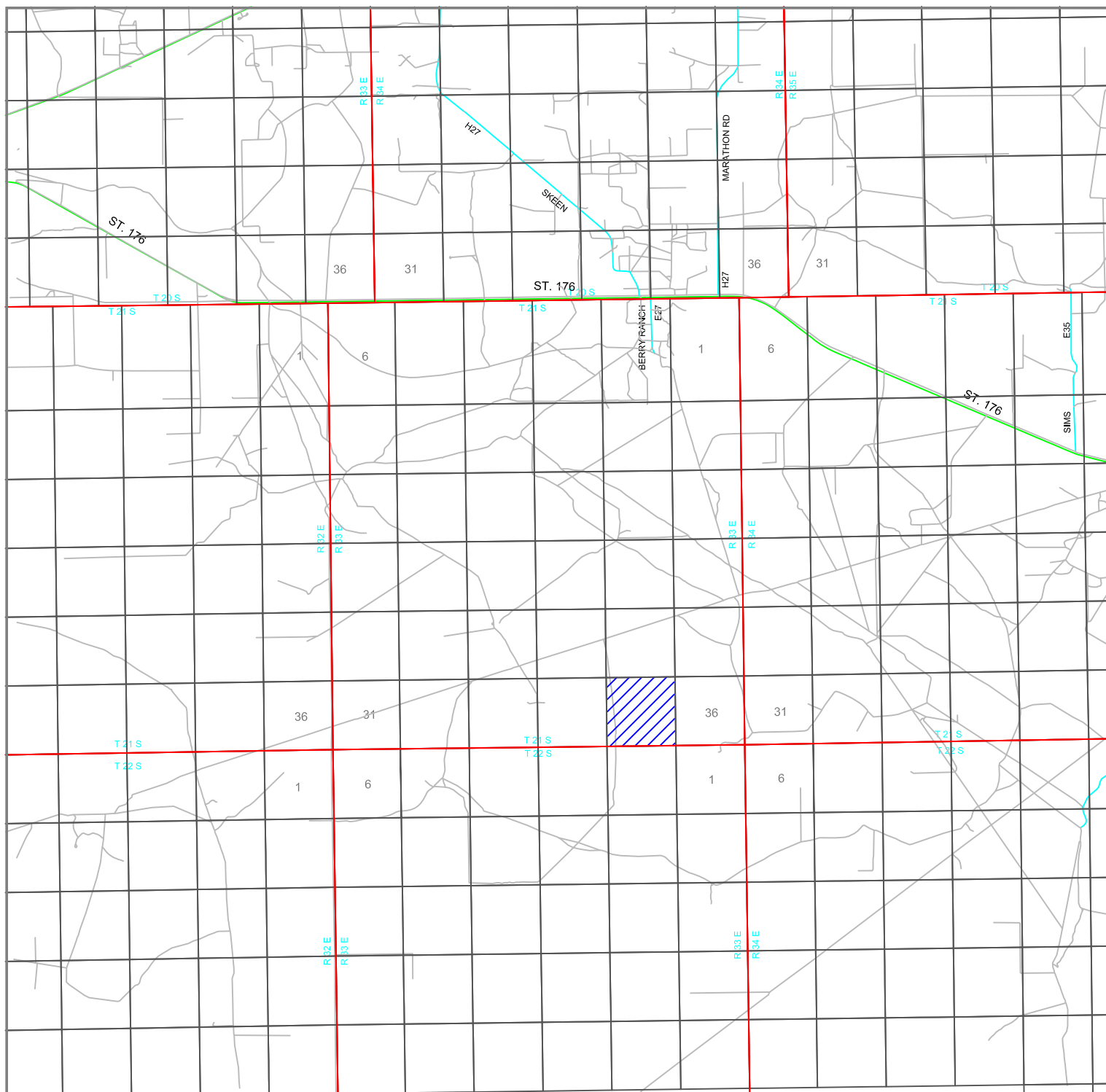
W.O. Number: KJG 34839

Survey Date: 09-06-2019

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



**ADVANCE
 ENERGY
 PARTNERS
 HAT MESA**



MERCHANT STATE UNIT 551H

Located 200' FNL and 950' FEL
Section 35, Township 21 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.



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basinsurveys.com

0 1 MI 2 MI 3 MI 4 MI

SCALE: 1" = 2 MILES

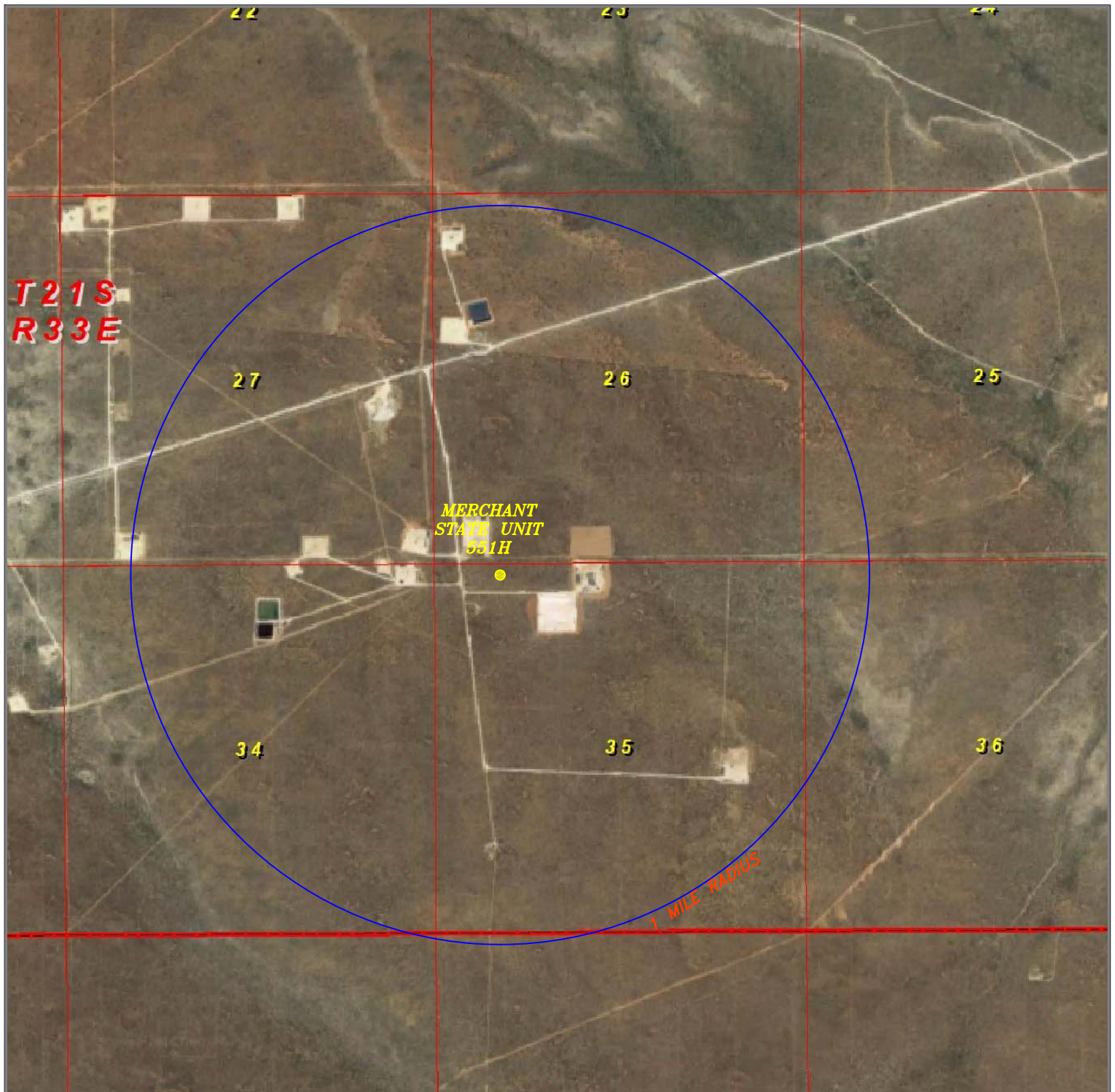
W.O. Number: KJG 34839

Survey Date: 09-06-2019

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



**ADVANCE
ENERGY
PARTNERS
HAT MESA**



MERCHANT STATE UNIT 551H

Located 200' FNL and 950' FEL
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: KJG 34839

Survey Date: 09-06-2019

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

Form C-103

Revised July 18, 2013

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-025-46363
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐		5. Indicate Type of Lease STATE ☒ FEE ☐
2. Name of Operator Advance Energy Partners Hat Mesa		6. State Oil & Gas Lease No.
3. Address of Operator 11490 Westheimer Rd, Houston, TX 77077		7. Lease Name or Unit Agreement Name MERCHANT STATE UNIT
4. Well Location Unit Letter <u>D</u> : <u>200</u> feet from the <u>N</u> line and <u>950</u> feet from the <u>W</u> line Section <u>35</u> Township <u>21S</u> Range <u>33E</u> NMPM County <u>LEA</u>		8. Well Number 551H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3688'		9. OGRID Number 372417
		10. Pool name or Wildcat WC-025 G-06 S213326D;BONE SPRING

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: ☒	

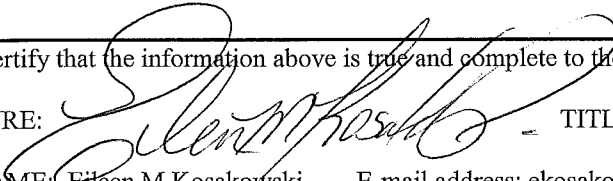
13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

- 10/11/19: Pressure test casing to 10,000 psi for 30 minutes.
- 10/14/19-10/24/19: Perforate from 11,529' – 21,125' (2820). Frac with 23,969,790 lbs sand and 27,531,714 gal fluid.
- 10/26/19-10/28/19: Drill all plugs out and clean out to a PBTD of 21,130'.
- 10/30/19 – Ready to produce
- 2/15/22 – CORRECTION to casing depths filed on 10/30/19. Correct depths are as follows:
 13.375" Surface Casing depth is 1,760'
 9.625" Intermediate Casing depth is 5,268'

Spud Date: 09/16/2019

Rig Release Date: 10/06/2019

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

SIGNATURE:  TITLE: Sr. Eng. Tech.

DATE: 2/16/22

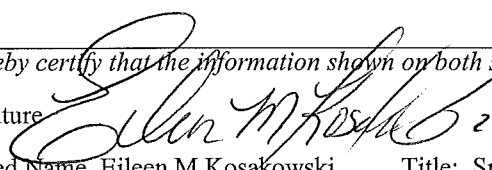
PRINT NAME: Eileen M Kosakowski

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. 30-025-46363					
		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: 551H			
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		43	
13. Date Spudded 09/16/2019	14. Date T.D. Reached 10/03/2019	15. Date Rig Released 10/06/2019		16. Date Completed (Ready to Produce) 10/30/2019		17. Elevations (DFand RKB, RT, GR, etc.) 3688'	
18. Total Measured Depth of Well 21,455'		19. Plug Back Measured Depth 21,130'		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 11,529-21,125'							
23. CASING RECORD (Report all strings set in well)							
CASING SIZE		WEIGHT LB./FT.		DEPTH SET		HOLE SIZE	
13.375"		54.4#		1760		17.5	
9.625"		40#		5268		12.25	
5.5"		20#		21,441		8.5	
24. LINER RECORD							
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN			
25. TUBING RECORD							
SIZE		DEPTH SET		PACKER SET			
26. Perforation record (interval, size, and number) 11,529'-21125' 2820 holes				27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC. DEPTH INTERVAL AMOUNT AND KIND MATERIAL USED 11,529'-21,125' 23,969,790 lbs sand, 27,531,714 Gals water			
28. PRODUCTION							
Date First Production 11/1/2019		Production Method (<i>Flowing, gas lift, pumping - Size and type pump</i>) Flowing			Well Status (<i>Prod. or Shut-in</i>) Prod		
Date of Test 11/25/2019	Hours Tested 24	Choke Size 64/64	Prod'n For Test Period	Oil - Bbl 3012	Gas - MCF 2819	Water - Bbl. 2725	
						Gas - Oil Ratio 935	
Flow Tubing Press. N/A	Casing Pressure 710	Calculated 24-Hour Rate	Oil - Bbl. 3012	Gas - MCF 2819	Water - Bbl. 2725	Oil Gravity - API - (<i>Corr.</i>) 40	
29. Disposition of Gas (<i>Sold, used for fuel, vented, etc.</i>) Sold					30. Test Witnessed By		
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:			
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: 02/19/2020 2/16/22			
Printed Name Eileen M Kosakowski				Title: Sr. Eng Tech.			
				E-mail Address: ekosakowski@advanceenergypartners.com			

District I
1625 N. French Dr., Hobbs, NM 88240
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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 82014

ACKNOWLEDGMENTS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	OGRID: 372417
	Action Number: 82014
	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.

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

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

CONDITIONS

Action 82014

CONDITIONS

Operator: ADVANCE ENERGY PARTNERS HAT MESA, LLC 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	OGRID: 372417
	Action Number: 82014
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
plmartinez	None	7/22/2024