



Company: Advance Energy Partners
Field: Lea County, NM (NAD 83)
Location: Merchant State Unit
Well: Well #503H
OH
Plan: Plan 3.0



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.51°
Magnetic Field
Strength: 48043.9nT
Dip Angle: 60.26°
Date: 9/13/2017
Model: IGRF2015



PROJECT DETAILS: Lea County, NM (NAD 83)

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

System Datum: Mean Sea Level

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
001 BHL	0.00	-2863.93	2055.32	522662.95	786751.07	32.434354	-103.537884
Merchant State Unit 001	0.00	-2864.46	2059.02	522662.42	786754.77	32.434353	-103.537872
Witherspoon 26 23 State 001H	0.00	421.58	-1623.36	525948.46	783072.39	32.443460	-103.549729
FTP - Merchant State Unit 503H	10935.10	-199.98	1.68	525326.90	784697.43	32.441718	-103.544476
Target B - Merchant State Unit 503H	10935.10	-1869.94	14.50	523656.94	784710.25	32.437128	-103.544475
Target Line (Well #503H OH Plan 1.0)	10935.10	-10358.10	80.31	515168.78	784776.06	32.413797	-103.544465
BHL - Merchant State Unit 503H	11000.10	-10358.10	80.31	515168.78	784776.06	32.413797	-103.544465

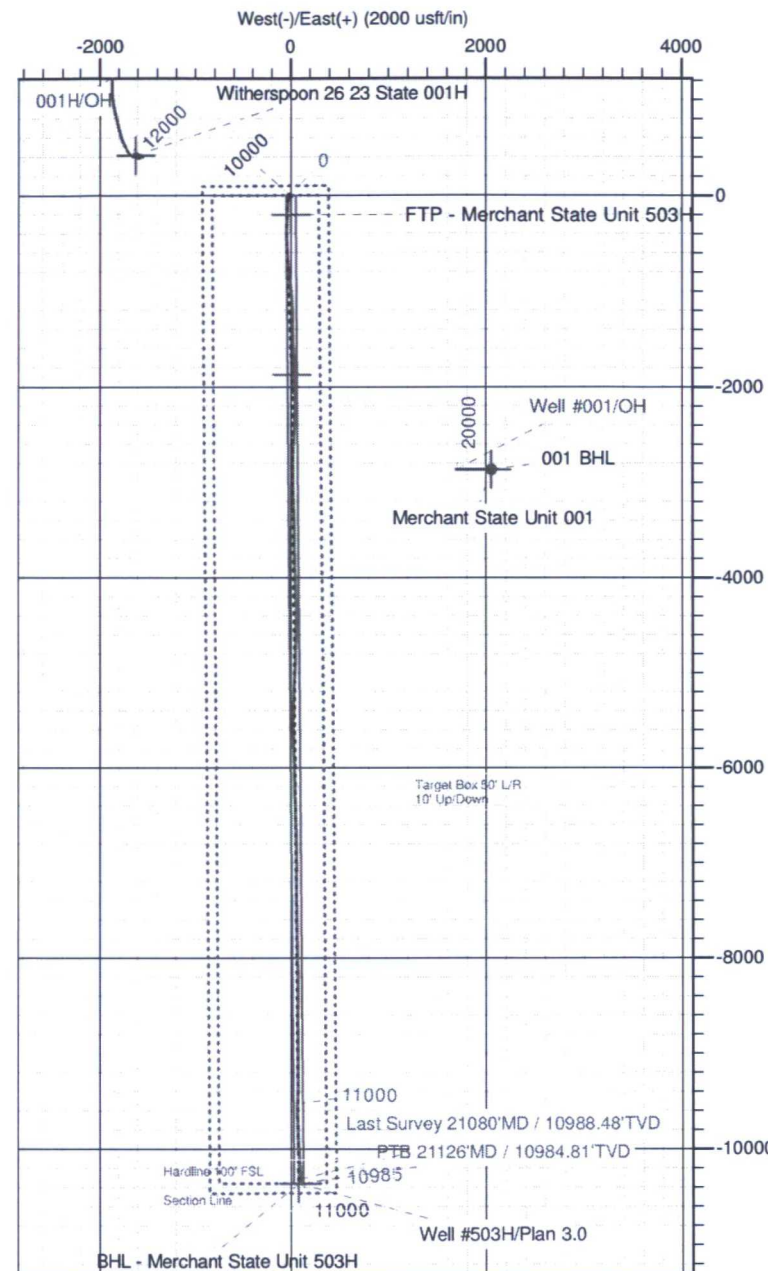
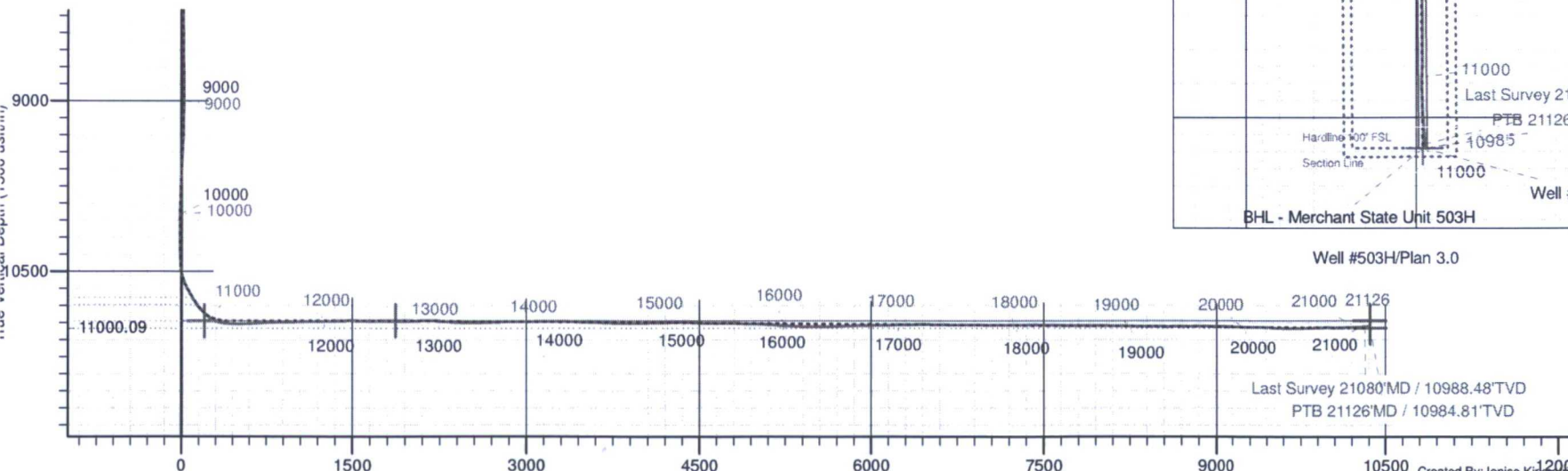
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	10752.00	30.76	181.71	10728.02	-94.25	-35.28	0.00	0.00	93.97
2	10829.00	33.00	181.71	10793.40	-134.90	-36.50	2.91	0.00	134.61
3	11138.58	90.00	181.17	10935.10	-395.80	-42.69	18.41	-0.64	395.46
4	11378.58	90.00	177.57	10935.10	-635.75	-40.05	1.50	270.00	635.42
5	12613.90	90.00	177.57	10935.10	-1869.96	12.32	0.00	0.00	1870.00
6	12749.61	89.56	179.56	10935.62	-2005.62	15.73	1.50	102.55	2005.68
7	21102.59	89.56	179.56	11000.10	-10358.10	80.31	0.00	0.00	10358.41

WELL DETAILS: Well #503H

GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	525526.88	784695.75	32.442268	-103.544477

Slot



Well #503H/Plan 3.0

Last Survey 21080'MD / 10988.48'TVD
PTB 21126'MD / 10984.81'TVD

Created By: Jenise Kinkaid

Date: 7:19, October 20 2017



Company: Advance Energy Partners
 Field: Lea County, NM (NAD 83)
 Location: Merchant State Unit
 Well: Well #503H
 OH
 Plan: Plan 3.0
 GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)



Azimuths to Grid North
 True North: -0.42°
 Magnetic North: 6.51°
 Magnetic Field
 Strength: 48043.9snT
 Dip Angle: 60.26°
 Date: 9/13/2017
 Model: IGRF2015



PROJECT DETAILS: Lea County, NM (NAD 83)

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

System Datum: Mean Sea Level

WELL DETAILS: Well #503H

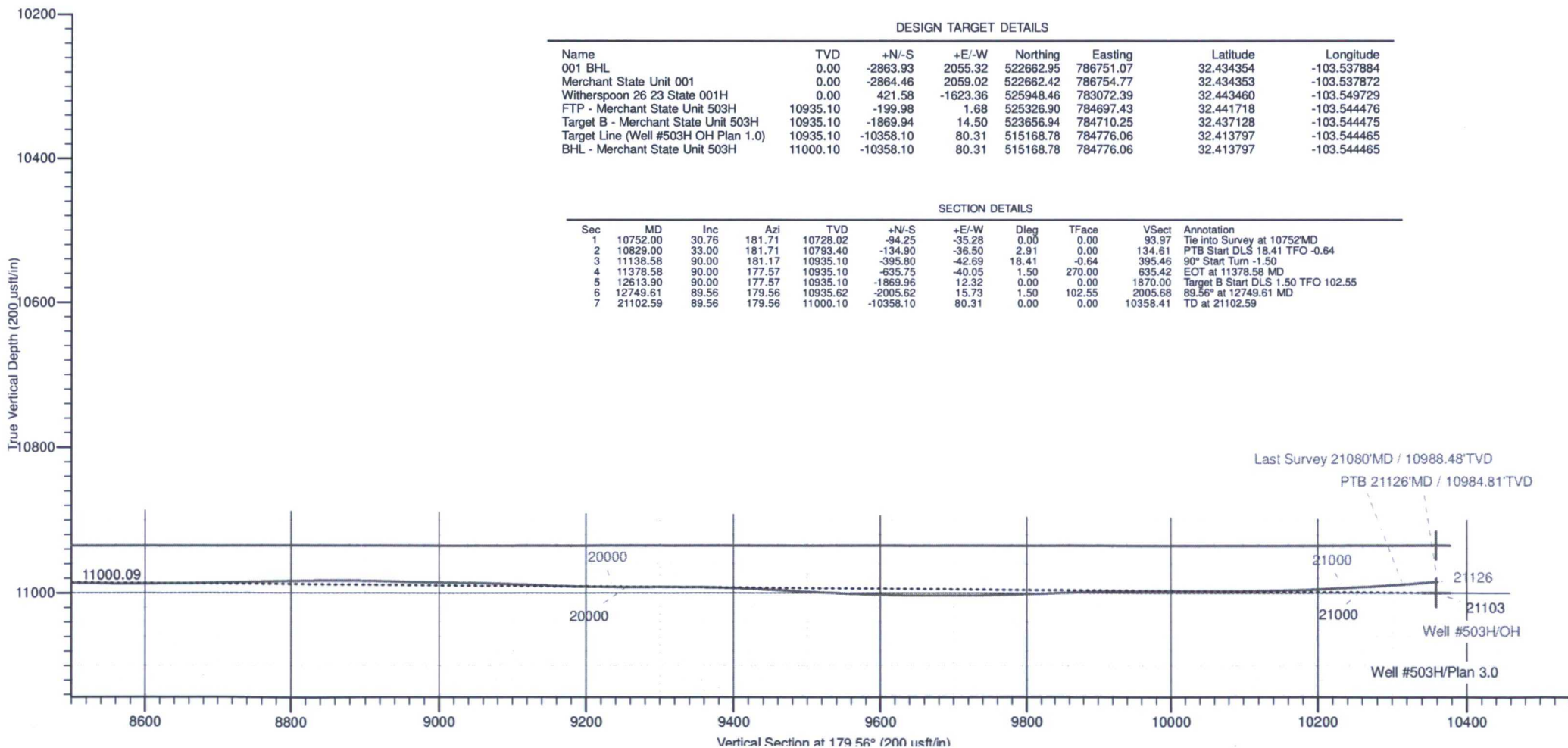
GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)						Slot
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	525526.88	784695.75	32.442268	-103.544477	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
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Witherspoon 26 23 State 001H	0.00	421.58	-1623.36	525948.46	783072.39	32.443460	-103.549729
FTP - Merchant State Unit 503H	10935.10	-199.98	1.68	525326.90	784697.43	32.441718	-103.544476
Target B - Merchant State Unit 503H	10935.10	-1869.94	14.50	523656.94	784710.25	32.437128	-103.544475
Target Line (Well #503H OH Plan 1.0)	10935.10	-10358.10	80.31	515168.78	784776.06	32.413797	-103.544465
BHL - Merchant State Unit 503H	11000.10	-10358.10	80.31	515168.78	784776.06	32.413797	-103.544465

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Annotation
1	10752.00	30.76	181.71	10728.02	-94.25	-35.28	0.00	0.00	93.97	Tie into Survey at 10752' MD
2	10829.00	33.00	181.71	10793.40	-134.90	-36.50	2.91	0.00	134.61	PTB Start DLS 18.41 TFO -0.64
3	11138.58	90.00	181.17	10935.10	-395.80	-42.69	18.41	-0.64	395.46	90° Start Turn -1.50
4	11378.58	90.00	177.57	10935.10	-635.75	-40.05	1.50	270.00	635.42	EOT at 11378.58 MD
5	12613.90	90.00	177.57	10935.10	-1869.96	12.32	0.00	0.00	1870.00	Target B Start DLS 1.50 TFO 102.55
6	12749.61	89.56	179.56	10935.62	-2005.62	15.73	1.50	102.55	2005.68	89.56° at 12749.61 MD
7	21102.59	89.56	179.56	11000.10	-10358.10	80.31	0.00	0.00	10358.41	TD at 21102.59





Company: Advance Energy Partners
Field: Lea County, NM (NAD 83)
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Well: Well #503H
OH

Plan: Plan 3.0
GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)



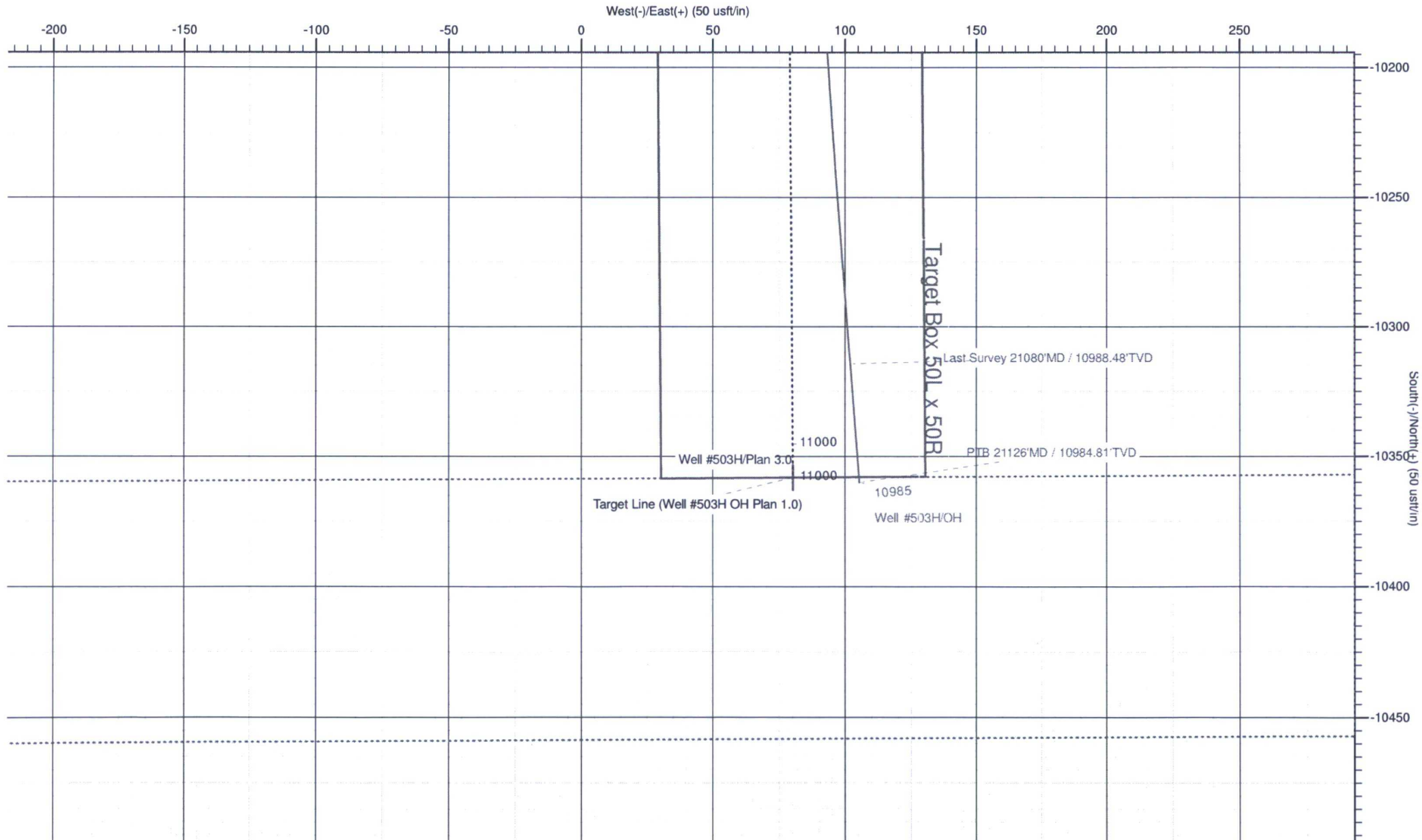
True North: -0.42°
Magnetic North: 6.51°

Magnetic Field
Strength: 48043.9snT
Dip Angle: 60.26°
Date: 9/13/2017
Model: IGRF2015



WELL DETAILS: Well #503H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	525526.88	784695.75	32.442268	-103.544477	



Advance Energy Partners

Lea County, NM (NAD 83)

Merchant State Unit

Well #503H

OH

Design: OH

Standard Survey Report

20 October, 2017

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14 Single User Db

Project	Lea County, NM (NAD 83)		
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			
Site Position:		Northing:	525,526.88 usft	Latitude:	32.442268
From:	Map	Easting:	784,695.75 usft	Longitude:	-103.544477
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	Well #503H					
Well Position	+N/-S	0.00 usft	Northing:	525,526.88 usft	Latitude:	32.442268
	+E/-W	0.00 usft	Easting:	784,695.75 usft	Longitude:	-103.544477
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,680.10 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/13/2017	6.93	60.26	48,043.91029899

Design	OH				
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	10/20/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
170.00	21,126.00	#1 Legacy MWD (OH)	MWD	OWSG MWD - Standard	

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	
001 BHL - Merchant State Unit 001										
11.78	0.06	259.30	11.78	0.00	-0.01	0.00	0.52	0.52	0.00	
Witherspoon 26 23 State 001H										
170.00	0.89	259.30	169.99	-0.25	-1.30	0.24	0.52	0.52	0.00	
270.00	1.05	241.42	269.98	-0.83	-2.87	0.81	0.34	0.16	-17.88	
370.00	1.67	234.64	369.95	-2.11	-4.86	2.07	0.64	0.62	-6.78	
542.00	1.73	223.27	541.88	-5.45	-8.68	5.38	0.20	0.03	-6.61	
604.00	1.11	229.90	603.86	-6.52	-9.78	6.44	1.03	-1.00	10.69	

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
789.00	0.59	227.46	788.83	-8.32	-11.85	8.22	0.28	-0.28	-1.32
880.00	0.60	226.49	879.83	-8.96	-12.55	8.86	0.02	0.01	-1.07
974.00	1.03	214.85	973.82	-9.99	-13.39	9.89	0.49	0.46	-12.38
1,066.00	1.26	208.24	1,065.80	-11.56	-14.34	11.45	0.29	0.25	-7.18
1,159.00	1.15	209.00	1,158.78	-13.28	-15.27	13.16	0.12	-0.12	0.82
1,252.00	1.11	223.55	1,251.76	-14.75	-16.35	14.62	0.31	-0.04	15.65
1,341.00	1.38	233.69	1,340.74	-16.01	-17.80	15.87	0.39	0.30	11.39
1,435.00	2.02	222.34	1,434.70	-17.90	-19.83	17.75	0.77	0.68	-12.07
1,525.00	2.18	218.16	1,524.64	-20.42	-21.96	20.25	0.25	0.18	-4.64
1,614.00	2.08	219.97	1,613.58	-22.99	-24.04	22.80	0.14	-0.11	2.03
1,704.00	2.28	222.85	1,703.51	-25.56	-26.31	25.35	0.25	0.22	3.20
1,794.00	1.39	212.26	1,793.47	-27.79	-28.11	27.57	1.05	-0.99	-11.77
1,883.00	0.68	167.52	1,882.45	-29.22	-28.57	29.00	1.15	-0.80	-50.27
1,973.00	0.89	121.72	1,972.45	-30.11	-27.86	29.89	0.71	0.23	-50.89
2,063.00	0.77	114.43	2,062.44	-30.73	-26.71	30.52	0.18	-0.13	-8.10
2,152.00	0.94	116.26	2,151.43	-31.30	-25.52	31.10	0.19	0.19	2.06
2,242.00	0.73	129.77	2,241.42	-31.99	-24.41	31.80	0.32	-0.23	15.01
2,332.00	0.95	70.75	2,331.41	-32.11	-23.27	31.93	0.94	0.24	-65.58
2,511.00	1.20	51.76	2,510.38	-30.46	-20.39	30.30	0.24	0.14	-10.61
2,600.00	0.97	40.07	2,599.36	-29.31	-19.18	29.16	0.36	-0.26	-13.13
2,690.00	0.96	50.03	2,689.35	-28.24	-18.11	28.10	0.19	-0.01	11.07
2,779.00	1.02	37.05	2,778.34	-27.13	-17.06	27.00	0.26	0.07	-14.58
2,869.00	0.84	39.54	2,868.32	-25.98	-16.16	25.85	0.20	-0.20	2.77
2,959.00	0.79	53.75	2,958.31	-25.11	-15.24	24.99	0.23	-0.06	15.79
3,048.00	1.07	62.25	3,047.30	-24.36	-14.01	24.25	0.35	0.31	9.55
3,138.00	1.25	73.31	3,137.28	-23.68	-12.32	23.59	0.32	0.20	12.29
3,227.00	1.36	78.21	3,226.26	-23.19	-10.36	23.11	0.18	0.12	5.51
3,317.00	1.31	70.49	3,316.24	-22.63	-8.34	22.56	0.21	-0.06	-8.58
3,406.00	1.01	48.57	3,405.22	-21.77	-6.80	21.71	0.60	-0.34	-24.63
3,496.00	1.29	41.88	3,495.20	-20.49	-5.53	20.44	0.34	0.31	-7.43
3,586.00	1.03	43.21	3,585.18	-19.14	-4.30	19.11	0.29	-0.29	1.48
3,675.00	1.08	41.35	3,674.17	-17.93	-3.19	17.91	0.07	0.06	-2.09
3,855.00	0.55	44.69	3,854.15	-16.04	-1.47	16.03	0.30	-0.29	1.86
4,035.00	0.69	30.94	4,034.14	-14.50	-0.30	14.50	0.11	0.08	-7.64
4,125.00	0.54	37.06	4,124.13	-13.70	0.23	13.70	0.18	-0.17	6.80
4,214.00	0.66	56.74	4,213.13	-13.08	0.91	13.09	0.27	0.13	22.11
4,304.00	1.13	131.08	4,303.12	-13.38	2.02	13.40	1.27	0.52	82.60
4,394.00	0.79	211.90	4,393.11	-14.49	2.36	14.51	1.41	-0.38	89.80
4,484.00	0.60	303.14	4,483.11	-14.76	1.64	14.77	1.11	-0.21	101.38
4,573.00	0.59	272.62	4,572.10	-14.48	0.79	14.49	0.35	-0.01	-34.29
4,663.00	0.80	314.22	4,662.09	-14.02	-0.13	14.02	0.59	0.23	46.22
4,752.00	1.77	271.29	4,751.07	-13.56	-1.95	13.54	1.46	1.09	-48.24

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
4,842.00	0.77	298.59	4,841.05	-13.24	-3.87	13.21	1.27	-1.11	30.33
4,932.00	0.45	258.93	4,931.05	-13.02	-4.74	12.98	0.57	-0.36	-44.07
5,021.00	0.36	240.96	5,020.04	-13.22	-5.33	13.18	0.17	-0.10	-20.19
5,198.00	0.59	251.30	5,197.04	-13.78	-6.68	13.73	0.14	0.13	5.84
5,287.00	0.39	245.55	5,286.03	-14.05	-7.39	14.00	0.23	-0.22	-6.46
5,466.00	0.40	265.08	5,465.03	-14.36	-8.57	14.29	0.08	0.01	10.91
5,556.00	0.31	289.73	5,555.03	-14.31	-9.11	14.23	0.19	-0.10	27.39
5,646.00	0.63	289.61	5,645.03	-14.06	-9.81	13.98	0.36	0.36	-0.13
5,736.00	0.52	269.73	5,735.02	-13.89	-10.68	13.81	0.25	-0.12	-22.09
5,825.00	0.64	292.60	5,824.02	-13.70	-11.54	13.61	0.29	0.13	25.70
5,915.00	0.69	274.29	5,914.01	-13.47	-12.55	13.37	0.24	0.06	-20.34
6,005.00	0.69	272.51	6,004.00	-13.41	-13.63	13.30	0.02	0.00	-1.98
6,094.00	0.63	281.03	6,093.00	-13.29	-14.64	13.17	0.13	-0.07	9.57
6,184.00	0.75	286.00	6,182.99	-13.03	-15.70	12.91	0.15	0.13	5.52
6,274.00	0.76	286.73	6,272.98	-12.70	-16.83	12.57	0.02	0.01	0.81
6,363.00	0.67	290.66	6,361.98	-12.34	-17.89	12.20	0.12	-0.10	4.42
6,452.00	0.73	287.29	6,450.97	-11.99	-18.91	11.84	0.08	0.07	-3.79
6,542.00	0.94	73.90	6,540.97	-11.62	-18.75	11.47	1.78	0.23	162.90
6,631.00	1.29	70.87	6,629.95	-11.09	-17.10	10.95	0.40	0.39	-3.40
6,721.00	1.26	71.15	6,719.93	-10.43	-15.21	10.32	0.03	-0.03	0.31
6,810.00	1.13	68.81	6,808.91	-9.80	-13.47	9.70	0.16	-0.15	-2.63
6,900.00	1.08	72.54	6,898.89	-9.23	-11.83	9.13	0.10	-0.06	4.14
6,990.00	1.03	64.71	6,988.88	-8.63	-10.29	8.55	0.17	-0.06	-8.70
7,079.00	0.86	83.98	7,077.86	-8.21	-8.90	8.14	0.40	-0.19	21.65
7,169.00	1.06	97.29	7,167.85	-8.25	-7.40	8.19	0.33	0.22	14.79
7,258.00	0.68	98.18	7,256.84	-8.43	-6.07	8.38	0.43	-0.43	1.00
7,348.00	0.64	122.86	7,346.83	-8.78	-5.11	8.74	0.32	-0.04	27.42
7,437.00	0.78	147.49	7,435.83	-9.56	-4.37	9.52	0.37	0.16	27.67
7,527.00	1.18	159.84	7,525.81	-10.94	-3.72	10.91	0.50	0.44	13.72
7,617.00	0.27	107.14	7,615.81	-11.88	-3.20	11.85	1.15	-1.01	-58.56
7,706.00	0.13	24.90	7,704.81	-11.85	-2.96	11.82	0.32	-0.16	-92.40
7,796.00	0.15	51.52	7,794.81	-11.68	-2.82	11.66	0.07	0.02	29.58
7,886.00	0.11	158.21	7,884.81	-11.69	-2.70	11.67	0.23	-0.04	118.54
7,976.00	0.29	244.87	7,974.81	-11.86	-2.87	11.84	0.34	0.20	96.29
8,065.00	0.33	239.51	8,063.80	-12.09	-3.30	12.06	0.06	0.04	-6.02
8,155.00	0.78	217.77	8,153.80	-12.71	-3.90	12.68	0.54	0.50	-24.16
8,245.00	0.94	216.69	8,243.79	-13.78	-4.71	13.75	0.18	0.18	-1.20
8,334.00	1.16	212.88	8,332.78	-15.12	-5.64	15.08	0.26	0.25	-4.28
8,424.00	0.79	218.05	8,422.76	-16.38	-6.51	16.33	0.42	-0.41	5.74
8,514.00	0.81	226.95	8,512.75	-17.30	-7.36	17.24	0.14	0.02	9.89
8,604.00	0.89	235.69	8,602.74	-18.13	-8.40	18.06	0.17	0.09	9.71
8,694.00	1.08	231.12	8,692.73	-19.06	-9.64	18.98	0.23	0.21	-5.08

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
8,783.00	1.10	231.31	8,781.71	-20.12	-10.96	20.03	0.02	0.02	0.21
8,873.00	1.57	235.72	8,871.69	-21.35	-12.65	21.25	0.53	0.52	4.90
8,963.00	0.85	273.41	8,961.67	-22.01	-14.34	21.89	1.15	-0.80	41.88
9,052.00	1.45	344.24	9,050.66	-20.88	-15.30	20.76	1.60	0.67	79.58
9,142.00	1.95	337.81	9,140.62	-18.37	-16.19	18.24	0.59	0.56	-7.14
9,232.00	2.02	323.69	9,230.56	-15.67	-17.71	15.53	0.55	0.08	-15.69
9,321.00	2.13	356.20	9,319.51	-12.76	-18.75	12.61	1.31	0.12	36.53
9,411.00	2.61	354.00	9,409.43	-9.05	-19.07	8.90	0.54	0.53	-2.44
9,501.00	2.64	9.72	9,499.34	-4.97	-18.94	4.82	0.80	0.03	17.47
9,591.00	2.34	9.87	9,589.25	-1.12	-18.27	0.98	0.33	-0.33	0.17
9,681.00	2.34	3.75	9,679.18	2.53	-17.84	-2.66	0.28	0.00	-6.80
9,770.00	2.33	6.27	9,768.10	6.14	-17.52	-6.27	0.12	-0.01	2.83
9,860.00	1.66	352.42	9,858.05	9.25	-17.49	-9.38	0.91	-0.74	-15.39
9,949.00	1.13	351.53	9,947.02	11.39	-17.79	-11.53	0.60	-0.60	-1.00
10,039.00	1.44	298.61	10,037.00	12.81	-18.92	-12.96	1.31	0.34	-58.80
10,129.00	1.87	284.62	10,126.96	13.73	-21.33	-13.89	0.65	0.48	-15.54
10,218.00	0.34	220.82	10,215.95	13.89	-22.91	-14.07	1.96	-1.72	-71.69
10,308.00	0.41	137.67	10,305.95	13.45	-22.87	-13.63	0.56	0.08	-92.39
10,439.00	3.42	201.74	10,436.86	9.48	-24.00	-9.66	2.49	2.30	48.91
10,484.00	8.42	200.92	10,481.61	5.15	-25.67	-5.35	11.11	11.11	-1.82
10,528.00	13.07	193.05	10,524.83	-2.71	-27.95	2.50	11.06	10.57	-17.89
10,573.00	18.74	188.11	10,568.09	-14.84	-30.12	14.60	12.94	12.60	-10.98
10,618.00	23.70	185.40	10,610.03	-31.01	-31.99	30.76	11.23	11.02	-6.02
10,662.00	27.76	183.48	10,649.66	-50.05	-33.44	49.79	9.42	9.23	-4.36
10,707.00	29.64	182.21	10,689.13	-71.63	-34.51	71.36	4.39	4.18	-2.82
10,752.00	30.76	181.71	10,728.02	-94.25	-35.28	93.97	2.55	2.49	-1.11
10,796.00	31.39	184.53	10,765.70	-116.92	-36.52	116.63	3.60	1.43	6.41
10,841.00	36.16	183.39	10,803.10	-141.87	-38.23	141.57	10.69	10.60	-2.53
10,885.00	40.81	182.79	10,837.53	-169.21	-39.70	168.89	10.60	10.57	-1.36
10,930.00	45.70	182.13	10,870.30	-200.00	-41.02	199.68	10.91	10.87	-1.47
10,972.28	50.27	181.17	10,898.59	-231.40	-41.91	231.06	10.94	10.81	-2.27
FTP - Merchant State Unit 503H									
10,977.00	50.78	181.07	10,901.59	-235.04	-41.98	234.70	10.94	10.82	-2.10
11,022.00	61.37	181.67	10,926.67	-272.31	-42.89	271.97	23.56	23.53	1.33
11,067.00	72.59	182.01	10,944.24	-313.64	-44.22	313.29	24.94	24.93	0.76
11,092.00	78.49	181.60	10,950.48	-337.83	-44.98	337.47	23.65	23.60	-1.64
11,180.00	88.29	179.38	10,960.60	-425.13	-45.71	424.76	11.41	11.14	-2.52
11,270.00	90.11	178.03	10,961.85	-515.09	-43.68	514.74	2.52	2.02	-1.50
11,359.00	91.99	175.68	10,960.22	-603.93	-38.80	603.61	3.38	2.11	-2.64
11,449.00	93.08	174.44	10,956.24	-693.50	-31.05	693.24	1.83	1.21	-1.38
11,538.00	93.11	173.41	10,951.44	-781.87	-21.65	781.68	1.16	0.03	-1.16
11,628.00	90.76	172.74	10,948.40	-871.16	-10.80	871.05	2.72	-2.61	-0.74

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
11,717.00	91.18	175.60	10,946.89	-959.68	-1.77	959.64	3.25	0.47	3.21
11,807.00	91.18	174.60	10,945.04	-1,049.33	5.92	1,049.34	1.11	0.00	-1.11
11,896.00	90.14	176.50	10,944.01	-1,138.05	12.82	1,138.11	2.43	-1.17	2.13
11,986.00	90.78	178.94	10,943.29	-1,227.97	16.40	1,228.06	2.80	0.71	2.71
12,075.00	92.05	179.80	10,941.09	-1,316.93	17.38	1,317.03	1.72	1.43	0.97
12,165.00	91.40	178.46	10,938.38	-1,406.88	18.75	1,406.98	1.65	-0.72	-1.49
12,254.00	89.89	177.83	10,937.38	-1,495.82	21.63	1,495.95	1.84	-1.70	-0.71
12,344.00	89.69	177.07	10,937.71	-1,585.73	25.63	1,585.88	0.87	-0.22	-0.84
12,433.00	90.11	174.83	10,937.86	-1,674.51	31.92	1,674.70	2.56	0.47	-2.52
12,523.00	89.33	176.69	10,938.30	-1,764.25	38.57	1,764.50	2.24	-0.87	2.07
12,613.00	89.19	177.47	10,939.47	-1,854.13	43.16	1,854.41	0.88	-0.16	0.87
12,628.17	89.41	177.90	10,939.65	-1,869.28	43.77	1,869.57	3.20	1.47	2.84
Target B - Merchant State Unit 503H									
12,702.00	90.50	180.00	10,939.71	-1,943.10	45.12	1,943.39	3.20	1.47	2.84
12,792.00	91.90	180.56	10,937.82	-2,033.07	44.68	2,033.36	1.68	1.56	0.62
12,882.00	90.78	179.59	10,935.72	-2,123.05	44.56	2,123.33	1.65	-1.24	-1.08
12,971.00	87.62	180.64	10,936.96	-2,212.03	44.39	2,212.30	3.74	-3.55	1.18
13,061.00	84.30	180.90	10,943.30	-2,301.78	43.18	2,302.05	3.70	-3.69	0.29
13,150.00	86.41	182.81	10,950.51	-2,390.43	40.31	2,390.67	3.19	2.37	2.15
13,240.00	89.97	184.32	10,953.35	-2,480.20	34.71	2,480.39	4.30	3.96	1.68
13,329.00	90.76	182.97	10,952.78	-2,569.01	29.06	2,569.16	1.76	0.89	-1.52
13,419.00	92.35	181.70	10,950.34	-2,658.90	25.39	2,659.02	2.26	1.77	-1.41
13,509.00	91.65	181.01	10,947.20	-2,748.82	23.26	2,748.92	1.09	-0.78	-0.77
13,598.00	92.24	179.36	10,944.18	-2,837.76	22.98	2,837.86	1.97	0.66	-1.85
13,688.00	89.66	180.05	10,942.69	-2,927.74	23.44	2,927.84	2.97	-2.87	0.77
13,778.00	90.22	179.70	10,942.78	-3,017.74	23.63	3,017.83	0.73	0.62	-0.39
13,868.00	91.51	178.83	10,941.42	-3,107.72	24.79	3,107.82	1.73	1.43	-0.97
13,957.00	89.44	178.94	10,940.69	-3,196.70	26.52	3,196.80	2.33	-2.33	0.12
14,047.00	90.00	176.91	10,941.12	-3,286.63	29.78	3,286.76	2.34	0.62	-2.26
14,136.00	87.76	177.94	10,942.86	-3,375.52	33.78	3,375.68	2.77	-2.52	1.16
14,226.00	87.56	179.12	10,946.54	-3,465.41	36.08	3,465.59	1.33	-0.22	1.31
14,316.00	88.04	178.49	10,949.99	-3,555.32	37.96	3,555.51	0.88	0.53	-0.70
14,405.00	87.36	179.67	10,953.57	-3,644.24	39.39	3,644.43	1.53	-0.76	1.33
14,495.00	88.37	179.58	10,956.92	-3,734.17	39.98	3,734.37	1.13	1.12	-0.10
14,585.00	89.16	178.46	10,958.86	-3,824.14	41.52	3,824.34	1.52	0.88	-1.24
14,674.00	90.64	178.03	10,959.01	-3,913.09	44.24	3,913.32	1.73	1.66	-0.48
14,764.00	91.82	177.54	10,957.08	-4,003.00	47.72	4,003.25	1.42	1.31	-0.54
14,854.00	90.28	178.80	10,955.43	-4,092.94	50.59	4,093.21	2.21	-1.71	1.40
14,943.00	90.64	178.40	10,954.72	-4,181.91	52.77	4,182.19	0.60	0.40	-0.45
15,033.00	91.43	177.85	10,953.09	-4,271.84	55.71	4,272.15	1.07	0.88	-0.61
15,123.00	89.47	178.90	10,952.39	-4,361.80	58.26	4,362.12	2.47	-2.18	1.17
15,212.00	87.53	181.55	10,954.72	-4,450.76	57.91	4,451.07	3.69	-2.18	2.98

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
15,302.00	89.08	181.04	10,957.38	-4,540.69	55.88	4,540.99	1.81	1.72	-0.57
15,391.00	91.18	180.38	10,957.18	-4,629.68	54.78	4,629.96	2.47	2.36	-0.74
15,481.00	88.99	181.77	10,957.04	-4,719.65	53.09	4,719.92	2.88	-2.43	1.54
15,570.00	87.79	182.73	10,959.54	-4,808.55	49.60	4,808.79	1.73	-1.35	1.08
15,660.00	89.30	181.83	10,961.83	-4,898.44	46.02	4,898.65	1.95	1.68	-1.00
15,749.00	88.38	182.69	10,963.63	-4,987.35	42.51	4,987.53	1.41	-1.03	0.97
15,839.00	85.69	182.79	10,968.28	-5,077.12	38.21	5,077.27	2.99	-2.99	0.11
15,928.00	85.74	182.53	10,974.93	-5,165.78	34.09	5,165.89	0.30	0.06	-0.29
16,018.00	87.06	182.07	10,980.59	-5,255.53	30.49	5,255.60	1.55	1.47	-0.51
16,108.00	87.54	181.35	10,984.83	-5,345.39	27.81	5,345.44	0.96	0.53	-0.80
16,197.00	88.27	180.94	10,988.08	-5,434.31	26.03	5,434.35	0.94	0.82	-0.46
16,287.00	90.03	180.26	10,989.41	-5,524.29	25.09	5,524.32	2.10	1.96	-0.76
16,377.00	91.91	179.48	10,987.89	-5,614.27	25.29	5,614.30	2.26	2.09	-0.87
16,466.00	92.89	178.54	10,984.16	-5,703.18	26.83	5,703.21	1.53	1.10	-1.06
16,556.00	92.52	176.78	10,979.92	-5,793.00	30.50	5,793.06	2.00	-0.41	-1.96
16,646.00	90.23	178.40	10,977.76	-5,882.88	34.28	5,882.97	3.12	-2.54	1.80
16,735.00	91.26	177.67	10,976.60	-5,971.82	37.33	5,971.93	1.42	1.16	-0.82
16,825.00	89.66	179.64	10,975.88	-6,061.79	39.44	6,061.91	2.82	-1.78	2.19
16,914.00	91.46	179.24	10,975.01	-6,150.77	40.31	6,150.90	2.07	2.02	-0.45
17,004.00	92.97	178.39	10,971.53	-6,240.68	42.17	6,240.82	1.92	1.68	-0.94
17,094.00	90.00	178.76	10,969.20	-6,330.62	44.41	6,330.77	3.33	-3.30	0.41
17,183.00	90.90	178.49	10,968.50	-6,419.59	46.55	6,419.75	1.06	1.01	-0.30
17,273.00	88.43	178.27	10,969.02	-6,509.54	49.09	6,509.73	2.76	-2.74	-0.24
17,363.00	89.58	177.63	10,970.59	-6,599.47	52.31	6,599.68	1.46	1.28	-0.71
17,453.00	88.07	179.54	10,972.43	-6,689.42	54.53	6,689.64	2.70	-1.68	2.12
17,543.00	89.27	178.88	10,974.52	-6,779.38	55.77	6,779.61	1.52	1.33	-0.73
17,632.00	90.65	178.09	10,974.58	-6,868.35	58.13	6,868.59	1.79	1.55	-0.89
17,722.00	89.11	179.80	10,974.77	-6,958.33	59.78	6,958.58	2.56	-1.71	1.90
17,812.00	90.31	179.53	10,975.23	-7,048.32	60.31	7,048.58	1.37	1.33	-0.30
17,901.00	89.22	180.88	10,975.59	-7,137.32	59.99	7,137.57	1.95	-1.22	1.52
17,991.00	89.97	180.46	10,976.23	-7,227.31	58.94	7,227.55	0.96	0.83	-0.47
18,080.00	91.52	179.55	10,975.07	-7,316.30	58.93	7,316.53	2.02	1.74	-1.02
18,170.00	89.30	179.56	10,974.43	-7,406.29	59.63	7,406.53	2.47	-2.47	0.01
18,260.00	89.02	179.09	10,975.75	-7,496.27	60.69	7,496.51	0.61	-0.31	-0.52
18,349.00	90.45	178.28	10,976.16	-7,585.24	62.73	7,585.50	1.85	1.61	-0.91
18,439.00	88.57	179.65	10,976.93	-7,675.22	64.36	7,675.49	2.58	-2.09	1.52
18,529.00	89.69	179.52	10,978.29	-7,765.20	65.01	7,765.47	1.25	1.24	-0.14
18,618.00	91.29	178.53	10,977.53	-7,854.18	66.52	7,854.46	2.11	1.80	-1.11
18,708.00	89.02	179.37	10,977.29	-7,944.16	68.17	7,944.45	2.69	-2.52	0.93
18,798.00	88.69	179.10	10,979.09	-8,034.14	69.37	8,034.43	0.47	-0.37	-0.30
18,887.00	89.50	177.98	10,980.49	-8,123.09	71.64	8,123.40	1.55	0.91	-1.26
18,977.00	88.26	180.24	10,982.25	-8,213.06	73.04	8,213.38	2.86	-1.38	2.51

Survey Report

Company:	Advance Energy Partners	Local Co-ordinate Reference:	Well Well #503H
Project:	Lea County, NM (NAD 83)	TVD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Site:	Merchant State Unit	MD Reference:	GL 3680.1 + 25' KB @ 3705.10usft (Precision 595)
Well:	Well #503H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
19,066.00	88.83	180.29	10,984.51	-8,302.03	72.63	8,302.34	0.64	0.64	0.06
19,156.00	90.34	179.40	10,985.16	-8,392.02	72.87	8,392.33	1.95	1.68	-0.99
19,246.00	88.71	181.00	10,985.91	-8,482.01	72.56	8,482.32	2.54	-1.81	1.78
19,335.00	89.78	180.64	10,987.08	-8,570.99	71.28	8,571.29	1.27	1.20	-0.40
19,425.00	90.48	179.60	10,986.88	-8,660.99	71.09	8,661.28	1.39	0.78	-1.16
19,514.00	91.96	178.71	10,984.98	-8,749.96	72.41	8,750.26	1.94	1.66	-1.00
19,604.00	90.36	179.35	10,983.16	-8,839.92	73.93	8,840.23	1.91	-1.78	0.71
19,694.00	88.37	179.70	10,984.16	-8,929.91	74.68	8,930.22	2.25	-2.21	0.39
19,783.00	89.35	179.57	10,985.93	-9,018.89	75.24	9,019.20	1.11	1.10	-0.15
19,873.00	87.48	180.90	10,988.42	-9,108.85	74.87	9,109.15	2.55	-2.08	1.48
19,962.00	88.74	180.59	10,991.36	-9,197.79	73.72	9,198.09	1.46	1.42	-0.35
20,052.00	90.42	179.99	10,992.02	-9,287.78	73.26	9,288.07	1.98	1.87	-0.67
20,141.00	88.60	180.57	10,992.78	-9,376.77	72.83	9,377.06	2.15	-2.04	0.65
20,230.00	86.50	181.25	10,996.58	-9,465.68	71.42	9,465.95	2.48	-2.36	0.76
20,320.00	87.59	180.61	11,001.22	-9,555.54	69.96	9,555.80	1.40	1.21	-0.71
20,409.00	89.33	179.70	11,003.61	-9,644.51	69.72	9,644.76	2.21	1.96	-1.02
20,499.00	90.81	178.85	11,003.50	-9,734.50	70.86	9,734.75	1.90	1.64	-0.94
20,588.00	92.58	177.94	11,000.87	-9,823.42	73.35	9,823.69	2.24	1.99	-1.02
20,678.00	91.12	177.25	10,997.96	-9,913.29	77.12	9,913.59	1.79	-1.62	-0.77
20,767.00	89.52	177.09	10,997.47	-10,002.18	81.52	10,002.51	1.81	-1.80	-0.18
20,856.00	90.25	176.38	10,997.65	-10,091.03	86.58	10,091.40	1.14	0.82	-0.80
20,946.00	91.85	176.27	10,996.00	-10,180.83	92.35	10,181.24	1.78	1.78	-0.12
21,035.00	93.67	175.72	10,991.71	-10,269.50	98.56	10,269.96	2.14	2.04	-0.62
21,080.00	94.57	175.56	10,988.48	-10,314.26	101.97	10,314.74	2.03	2.00	-0.36
Last Survey 21080'MD / 10988.48'TVD									
21,120.98	94.57	175.56	10,985.21	-10,354.98	105.13	10,355.48	0.00	0.00	0.00
BHL - Merchant State Unit 503H									
21,126.00	94.57	175.56	10,984.81	-10,359.97	105.52	10,360.48	0.00	0.00	0.00
PTB 21126'MD / 10984.81'TVD - Target Line (Well #503H OH Plan 1.0)									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
21,080.00	10,988.48	-10,314.26	101.97	Last Survey 21080'MD / 10988.48'TVD
21,126.00	10,984.81	-10,359.97	105.52	PTB 21126'MD / 10984.81'TVD

Checked By: _____	Approved By: _____	Date: _____
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