

HOBBS OCD

FEB 26 2019

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Advance Energy Partners, LLC

Merchant State Unit 505H
Lea County, New Mexico
Job No. WT-18-231
H&P 620
Plan 2.0 PVA



SITE DETAILS: Merchant State Unit 505H

Site Centre Northing: 525485.70
Easting: 786421.40

Positional Uncertainty: 0.00
Convergence: 0.43
Local North: Grid



Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.26°

Magnetic Field
Strength: 48137.9nT
Dip Angle: 60.25°
Date: 12/19/2018
Model: MVHD

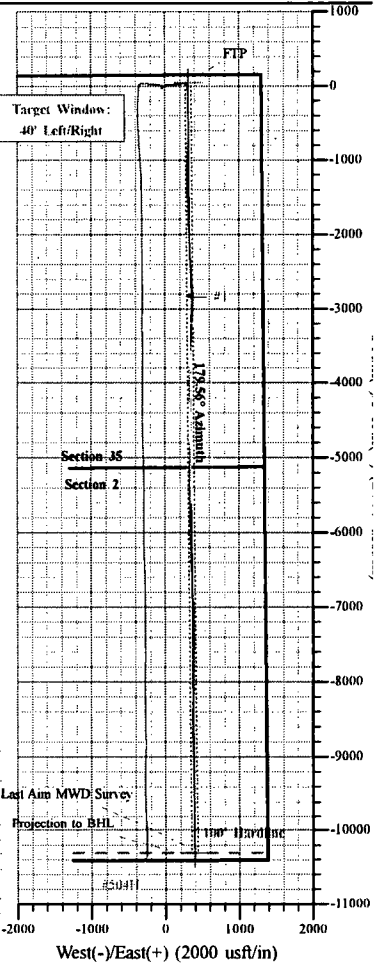
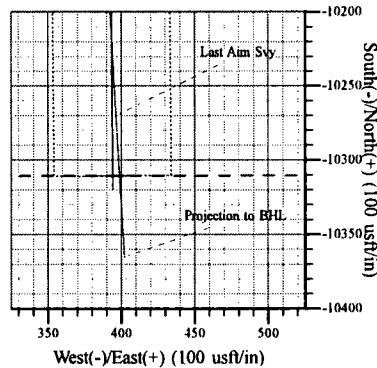
PROJECT DETAILS: Lea County, New Mexico

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:
3664'GL+26.5'KB @ 3690.50usft (H&P 620)

Magnetic North: 6.26° to Grid North

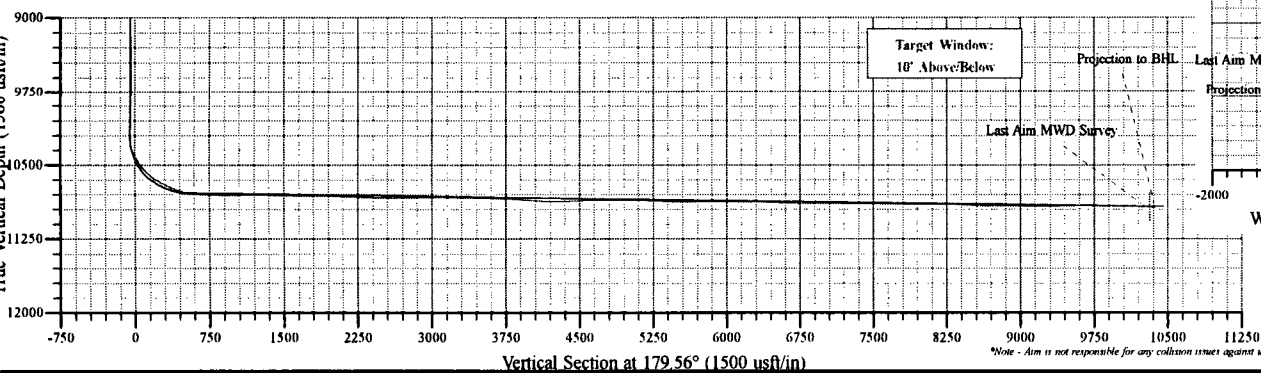


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Annotation
1	20863.00	88.13	176.50	10927.15	-10270.16	396.41	0.000	0.00	10272.90	Last Aim MWD Survey
2	20958.00	88.13	176.50	10930.25	-10364.93	402.21	0.000	0.00	10367.72	Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP (Merchant505H)	0.00	51.60	314.40	525537.30	786735.80	32° 26' 32" N	103° 32' 16.312" W
PBHL r1 (Merchant505H)	10923.00	-10310.70	394.30	515175.00	786815.70	32° 24' 49.580" N	103° 32' 16.280" W



Vertical Section at 179.56° (1500 usft/in)

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

Date Created: 10/2

Date Revised: 10/27, January 06

File: Advance Energy - Merchant State Unit 505H Plan 2.0 PVA

Company:	Advance Energy Partners, LLC	Local Co-ordinate Reference:	Site Merchant State Unit 505H
Project:	Lea County, New Mexico	TVD Reference:	3664'GL+26.5'KB @ 3690.50usft (H&P 620)
Site:	Merchant State Unit 505H	MD Reference:	3664'GL+26.5'KB @ 3690.50usft (H&P 620)
Wellbore:	Aim MWD Surveys	North Reference:	Grid
Design:	Aim MWD Surveys	Survey Calculation Method:	Minimum Curvature
		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 505H		
Site Position:		Northing:	525,485.70 usft
From:	Map	Easting:	786,421.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 31.631 N
		Longitude:	103° 32' 19.985 W
		Grid Convergence:	0.43 °

Well	#505H - Slot 505H		
Well Position	+N/-S	0.00 usft	Northing: 525,485.70 usft
	+E/-W	0.00 usft	Easting: 786,421.40 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 26' 31.631 N
		Longitude:	103° 32' 19.985 W
		Ground Level:	3,664.00 usft

Wellbore	Aim MWD Surveys				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	MVHD	11/8/2018	6.70	60.25	48,150.88481914

Audit Notes:	Aim MWD Surveys				
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	179.56	

Survey Program	Date 1/6/2019				
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
198.00	20,958.00	Aim MWD Surveys (Aim MWD Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100ft)	(°/100ft)	(°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	
198.00	0.44	41.95	198.00	0.57	0.51	-0.56	0.222	0.222	0.000	
First Aim MWD Survey										
322.00	0.66	61.55	321.99	1.26	1.45	-1.25	0.231	0.177	15.806	
446.00	0.97	60.76	445.98	2.11	3.00	-2.09	0.250	0.250	-0.637	
569.00	0.97	56.54	568.96	3.20	4.78	-3.16	0.058	0.000	-3.431	
756.00	1.98	88.10	755.90	4.18	9.32	-4.10	0.674	0.540	16.877	
881.00	2.33	118.68	880.82	3.03	13.71	-2.92	0.948	0.280	24.464	
974.00	1.71	142.06	973.76	1.03	16.22	-0.90	1.096	-0.667	25.140	
1,065.00	1.76	160.17	1,064.72	-1.36	17.53	1.49	0.602	0.055	19.901	
1,156.00	1.23	186.18	1,155.69	-3.65	17.90	3.78	0.932	-0.582	28.582	

Company: Advance Energy Partners, LLC
Project: Lea County, New Mexico
Site: Merchant State Unit 505H
Well: #505H
Wellbore: Aim MWD Surveys
Design: Aim MWD Surveys

Local Co-ordinate Reference: Site Merchant State Unit 505H
TVD Reference: 3664'GL+26.5'KB @ 3690.50usft (H&P 620)
MD Reference: 3664'GL+26.5'KB @ 3690.50usft (H&P 620)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDMRESTORED

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)
1,337.00	1.14	252.28	1,336.66	-6.12	15.98	6.25	0.715	-0.050	36.519
1,429.00	1.36	272.75	1,428.64	-6.35	14.02	6.46	0.537	0.239	22.250
1,616.00	1.85	299.39	1,615.56	-4.76	9.17	4.83	0.471	0.262	14.246
1,710.00	1.71	298.77	1,709.52	-3.34	6.62	3.39	0.150	-0.149	-0.660
1,867.00	0.84	318.81	1,866.48	-1.35	3.81	1.38	0.615	-0.554	12.764
1,962.00	0.62	334.37	1,961.47	-0.36	3.12	0.39	0.310	-0.232	16.379
2,057.00	0.35	34.13	2,056.47	0.34	3.07	-0.32	0.565	-0.284	62.905
2,151.00	0.31	26.66	2,150.47	0.81	3.34	-0.78	0.062	-0.043	-7.947
2,340.00	0.26	343.86	2,339.46	1.67	3.45	-1.65	0.113	-0.026	-22.645
2,435.00	0.04	265.20	2,434.46	1.88	3.36	-1.85	0.269	-0.232	-82.800
2,529.00	0.18	274.51	2,528.46	1.89	3.18	-1.86	0.150	0.149	9.904
2,623.00	0.35	21.56	2,622.46	2.17	3.14	-2.14	0.466	0.181	113.883
2,813.00	0.40	6.80	2,812.46	3.36	3.43	-3.34	0.057	0.026	-7.768
2,907.00	0.53	8.38	2,906.46	4.12	3.53	-4.09	0.139	0.138	1.681
3,002.00	0.70	46.52	3,001.45	4.95	4.02	-4.92	0.456	0.179	40.147
3,096.00	0.84	55.84	3,095.44	5.74	5.00	-5.70	0.199	0.149	9.915
3,191.00	1.27	79.48	3,190.43	6.32	6.61	-6.27	0.635	0.453	24.884
3,285.00	1.67	66.65	3,284.40	7.05	8.90	-6.98	0.549	0.426	-13.649
3,380.00	1.71	53.91	3,379.35	8.44	11.31	-8.35	0.397	0.042	-13.410
3,475.00	1.49	54.87	3,474.32	9.98	13.47	-9.88	0.233	-0.232	1.011
3,569.00	1.23	45.03	3,568.29	11.40	15.18	-11.28	0.371	-0.277	-10.468
3,664.00	0.97	41.34	3,663.27	12.72	16.43	-12.60	0.284	-0.274	-3.884
3,759.00	0.79	54.35	3,758.26	13.71	17.50	-13.57	0.282	-0.189	13.695
3,853.00	0.88	49.07	3,852.25	14.56	18.57	-14.42	0.126	0.096	-5.617
3,948.00	0.79	34.57	3,947.24	15.58	19.49	-15.43	0.241	-0.095	-15.263
4,043.00	0.88	54.61	4,042.23	16.54	20.46	-16.38	0.320	0.095	21.095
4,137.00	0.62	41.34	4,136.22	17.34	21.38	-17.17	0.331	-0.277	-14.117
4,327.00	1.14	51.45	4,326.20	19.29	23.54	-19.11	0.285	0.274	5.321
4,421.00	1.23	60.06	4,420.18	20.37	25.14	-20.18	0.212	0.096	9.160
4,516.00	2.51	93.02	4,515.13	20.77	28.11	-20.56	1.708	1.347	34.695
4,610.00	4.44	95.48	4,608.95	20.32	33.78	-20.06	2.059	2.053	2.617
4,705.00	6.24	96.62	4,703.54	19.37	42.57	-19.04	1.898	1.895	1.200
4,799.00	6.86	95.22	4,796.92	18.27	53.24	-17.86	0.681	0.660	-1.489
4,893.00	6.02	90.03	4,890.33	17.76	63.76	-17.27	1.086	-0.894	-5.521
4,988.00	5.36	88.62	4,984.86	17.86	73.18	-17.30	0.710	-0.695	-1.484
5,082.00	5.01	89.41	5,078.48	18.01	81.67	-17.38	0.380	-0.372	0.840
5,176.00	4.79	90.03	5,172.13	18.05	89.70	-17.36	0.241	-0.234	0.660
5,182.00	4.66	89.68	5,178.11	18.05	90.19	-17.36	2.219	-2.167	-5.833
5,265.00	4.40	89.85	5,260.85	18.08	96.75	-17.34	0.314	-0.313	0.205
5,359.00	4.53	91.00	5,354.57	18.02	104.07	-17.22	0.168	0.138	1.223
5,454.00	4.48	87.83	5,449.28	18.10	111.52	-17.24	0.267	-0.053	-3.337
5,548.00	4.40	89.94	5,542.99	18.24	118.80	-17.33	0.193	-0.085	2.245
5,643.00	4.44	89.06	5,637.71	18.31	126.12	-17.34	0.083	0.042	-0.926

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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)
5,737.00	4.53	72.28	5,731.43	19.49	133.29	-18.47	1.394	0.096	-17.851
5,832.00	4.48	72.63	5,826.13	21.74	140.41	-20.67	0.060	-0.053	0.368
5,926.00	4.40	70.25	5,919.85	24.06	147.31	-22.93	0.214	-0.085	-2.532
6,020.00	4.53	69.11	6,013.57	26.60	154.17	-25.42	0.167	0.138	-1.213
6,114.00	4.75	73.15	6,107.26	29.05	161.36	-27.81	0.419	0.234	4.298
6,209.00	4.88	72.98	6,201.92	31.38	168.99	-30.08	0.138	0.137	-0.179
6,303.00	5.10	84.14	6,295.57	32.97	176.97	-31.61	1.057	0.234	11.872
6,398.00	5.14	85.02	6,390.19	33.77	185.41	-32.35	0.093	0.042	0.926
6,492.00	4.97	81.50	6,483.82	34.74	193.63	-33.25	0.376	-0.181	-3.745
6,586.00	4.75	79.66	6,577.49	36.04	201.49	-34.49	0.287	-0.234	-1.957
6,680.00	4.79	78.08	6,671.16	37.55	209.15	-35.94	0.146	0.043	-1.681
6,774.00	4.66	76.32	6,764.84	39.26	216.70	-37.60	0.207	-0.138	-1.872
6,869.00	4.84	76.41	6,859.52	41.12	224.35	-39.39	0.190	0.189	0.095
6,963.00	4.70	79.13	6,953.19	42.78	231.99	-40.99	0.283	-0.149	2.894
7,058.00	4.75	79.31	7,047.87	44.24	239.67	-42.40	0.055	0.053	0.189
7,152.00	4.70	79.75	7,141.55	45.65	247.29	-43.75	0.066	-0.053	0.468
7,246.00	4.31	77.37	7,235.26	47.10	254.52	-45.15	0.460	-0.415	-2.532
7,341.00	4.31	78.69	7,329.99	48.59	261.51	-46.58	0.104	0.000	1.389
7,436.00	4.40	84.14	7,424.71	49.66	268.63	-47.59	0.446	0.095	5.737
7,530.00	4.26	85.72	7,518.45	50.29	275.70	-48.17	0.196	-0.149	1.681
7,624.00	3.91	85.37	7,612.21	50.81	282.38	-48.64	0.373	-0.372	-0.372
7,719.00	3.52	86.51	7,707.01	51.24	288.52	-49.03	0.418	-0.411	1.200
7,813.00	3.34	86.43	7,800.84	51.59	294.13	-49.33	0.192	-0.191	-0.085
7,908.00	3.16	87.31	7,895.69	51.89	299.51	-49.58	0.197	-0.189	0.926
8,003.00	2.86	80.27	7,990.56	52.41	304.46	-50.07	0.501	-0.316	-7.411
8,097.00	2.95	83.44	8,084.43	53.08	309.17	-50.71	0.196	0.096	3.372
8,192.00	2.73	80.36	8,179.32	53.74	313.83	-51.33	0.282	-0.232	-3.242
8,286.00	1.05	101.63	8,273.26	53.94	316.88	-51.51	1.907	-1.787	22.628
8,381.00	0.79	111.74	8,368.25	53.52	318.34	-51.08	0.322	-0.274	10.642
8,475.00	0.79	95.30	8,462.24	53.22	319.59	-50.77	0.240	0.000	-17.489
8,569.00	0.26	158.85	8,556.24	52.96	320.31	-50.50	0.759	-0.564	67.606
8,664.00	0.48	170.27	8,651.24	52.37	320.46	-49.91	0.243	0.232	12.021
8,758.00	0.79	205.69	8,745.23	51.40	320.25	-48.94	0.517	0.330	37.681
8,853.00	0.75	206.13	8,840.22	50.25	319.69	-47.79	0.043	-0.042	0.463
8,947.00	1.01	210.79	8,934.21	48.99	318.99	-46.54	0.287	0.277	4.957
9,041.00	1.01	212.55	9,028.20	47.58	318.12	-45.13	0.033	0.000	1.872
9,136.00	1.41	233.91	9,123.18	46.18	316.73	-43.75	0.628	0.421	22.484
9,230.00	1.71	207.98	9,217.14	44.26	315.13	-41.84	0.807	0.319	-27.585
9,324.00	1.85	213.87	9,311.10	41.76	313.63	-39.35	0.245	0.149	6.266
9,418.00	0.57	212.64	9,405.08	40.11	312.53	-37.71	1.362	-1.362	-1.309
9,512.00	0.31	214.13	9,499.07	39.51	312.14	-37.11	0.277	-0.277	1.585
9,606.00	0.48	236.72	9,593.07	39.08	311.67	-36.69	0.242	0.181	24.032
9,701.00	0.66	291.39	9,688.07	39.06	310.82	-36.67	0.576	0.189	57.547

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9,795.00	1.80	346.85	9,782.05	40.70	309.98	-38.31	1.623	1.213	59.000
9,889.00	2.51	334.81	9,875.98	44.00	308.77	-41.62	0.892	0.755	-12.808
9,983.00	2.51	329.80	9,969.89	47.64	306.86	-45.28	0.233	0.000	-5.330
10,078.00	2.07	326.02	10,064.81	50.86	304.86	-48.52	0.489	-0.463	-3.979
10,172.00	1.80	325.14	10,158.76	53.48	303.06	-51.15	0.289	-0.287	-0.936
10,249.00	1.45	228.71	10,235.74	53.83	301.64	-51.51	3.162	-0.455	-125.234
10,343.00	16.35	178.09	10,328.39	39.73	301.18	-37.42	16.457	15.851	-53.851
10,438.00	27.96	175.63	10,416.22	4.04	303.33	-1.71	12.257	12.221	-2.589
10,532.00	37.32	176.06	10,495.29	-46.47	306.98	48.83	9.960	9.957	0.457
10,626.00	42.20	178.79	10,567.54	-106.50	309.61	108.88	5.513	5.191	2.904
10,721.00	53.71	181.25	10,631.06	-176.92	309.44	179.29	12.266	12.116	2.589
10,815.00	59.69	178.79	10,682.65	-255.44	309.47	257.81	6.726	6.362	-2.617
10,910.00	65.98	177.82	10,726.00	-339.88	311.99	342.27	6.683	6.621	-1.021
11,004.00	70.59	177.82	10,760.77	-427.13	315.31	429.53	4.904	4.904	0.000
11,099.00	77.54	179.14	10,786.84	-518.39	317.72	520.81	7.437	7.316	1.389
11,193.00	87.87	182.57	10,798.76	-611.47	316.30	613.88	11.568	10.989	3.649
11,287.00	88.31	181.95	10,801.89	-705.35	312.59	707.73	0.808	0.468	-0.660
11,382.00	88.92	181.78	10,804.19	-800.27	309.50	802.62	0.667	0.642	-0.179
11,476.00	89.89	181.78	10,805.16	-894.22	306.58	896.55	1.032	1.032	0.000
11,571.00	90.59	181.60	10,804.77	-989.17	303.78	991.48	0.761	0.737	-0.189
11,665.00	91.43	181.60	10,803.11	-1,083.12	301.16	1,085.40	0.894	0.894	0.000
11,760.00	89.19	180.37	10,802.60	-1,178.10	299.52	1,180.36	2.690	-2.358	-1.295
11,854.00	88.62	179.84	10,804.39	-1,272.08	299.35	1,274.34	0.828	-0.606	-0.564
11,948.00	89.49	179.23	10,805.94	-1,366.06	300.11	1,368.33	1.130	0.926	-0.649
12,043.00	88.44	176.24	10,807.66	-1,460.96	303.87	1,463.25	3.335	-1.105	-3.147
12,137.00	87.82	175.54	10,810.73	-1,554.67	310.60	1,557.01	0.994	-0.660	-0.745
12,231.00	89.27	178.26	10,813.11	-1,648.49	315.68	1,650.87	3.278	1.543	2.894
12,326.00	90.29	179.32	10,813.48	-1,743.47	317.69	1,745.85	1.548	1.074	1.116
12,420.00	90.55	178.79	10,812.79	-1,837.45	319.24	1,839.85	0.628	0.277	-0.564
12,514.00	89.19	177.56	10,813.00	-1,931.40	322.23	1,933.82	1.951	-1.447	-1.309
12,609.00	86.73	176.77	10,816.38	-2,026.21	326.92	2,028.66	2.720	-2.589	-0.832
12,703.00	86.95	175.19	10,821.57	-2,119.84	333.50	2,122.34	1.695	0.234	-1.681
12,797.00	88.48	177.30	10,825.31	-2,213.55	339.65	2,216.10	2.771	1.628	2.245
12,891.00	88.84	177.12	10,827.51	-2,307.41	344.23	2,309.99	0.428	0.383	-0.191
12,986.00	87.25	176.06	10,830.75	-2,402.19	349.87	2,404.80	2.011	-1.674	-1.116
13,080.00	88.79	176.50	10,834.00	-2,495.93	355.97	2,498.59	1.704	1.638	0.468
13,213.00	89.93	176.86	10,835.49	-2,628.70	363.67	2,631.41	0.899	0.857	0.271
13,307.00	90.95	175.98	10,834.76	-2,722.51	369.54	2,725.27	1.433	1.085	-0.936
13,401.00	92.53	176.68	10,831.91	-2,816.27	375.55	2,819.07	1.838	1.681	0.745
13,496.00	91.96	178.79	10,828.19	-2,911.12	379.31	2,913.94	2.299	-0.600	2.221
13,590.00	90.55	181.16	10,826.13	-3,005.08	379.35	3,007.91	2.933	-1.500	2.521
13,685.00	89.05	182.83	10,826.46	-3,100.02	376.04	3,102.82	2.363	-1.579	1.758
13,780.00	87.56	184.33	10,829.27	-3,194.79	370.11	3,197.54	2.225	-1.568	1.579
13,874.00	88.13	183.71	10,832.81	-3,288.49	363.53	3,291.18	0.896	0.606	-0.660

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TVD Reference: 3664'GL+26.5'KB @ 3690.50usft (H&P 620)
MD Reference: 3664'GL+26.5'KB @ 3690.50usft (H&P 620)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDMRESTORED

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)
13,969.00	90.11	183.01	10,834.26	-3,383.31	357.96	3,385.96	2.211	2.084	-0.737
14,063.00	89.23	182.92	10,834.81	-3,477.18	353.10	3,479.79	0.941	-0.936	-0.096
14,158.00	88.00	183.01	10,837.10	-3,572.02	348.18	3,574.59	1.298	-1.295	0.095
14,253.00	89.14	182.48	10,839.47	-3,666.88	343.64	3,669.41	1.323	1.200	-0.558
14,347.00	87.12	183.10	10,842.54	-3,760.72	339.06	3,763.21	2.248	-2.149	0.660
14,442.00	86.42	182.92	10,847.89	-3,855.43	334.08	3,857.89	0.761	-0.737	-0.189
14,536.00	85.71	182.13	10,854.34	-3,949.12	329.95	3,951.54	1.128	-0.755	-0.840
14,630.00	85.54	179.76	10,861.52	-4,042.83	328.41	4,045.23	2.520	-0.181	-2.521
14,725.00	86.24	177.91	10,868.32	-4,137.56	330.33	4,139.97	2.077	0.737	-1.947
14,819.00	89.67	176.33	10,871.68	-4,231.36	335.05	4,233.81	4.017	3.649	-1.681
14,874.00	91.43	175.45	10,871.15	-4,286.22	338.99	4,288.69	3.578	3.200	-1.600
14,913.00	92.35	176.24	10,869.86	-4,325.09	341.82	4,327.59	3.109	2.359	2.026
14,948.00	92.09	175.89	10,868.51	-4,359.98	344.22	4,362.50	1.245	-0.743	-1.000
15,008.00	92.44	177.56	10,866.14	-4,419.84	347.64	4,422.38	2.842	0.583	2.783
15,053.00	93.23	178.17	10,863.91	-4,464.75	349.32	4,467.30	2.217	1.756	1.356
15,102.00	93.54	179.76	10,861.02	-4,513.65	350.20	4,516.21	3.300	0.633	3.245
15,197.00	91.60	181.07	10,856.76	-4,608.55	349.51	4,611.10	2.463	-2.042	1.379
15,291.00	90.15	181.34	10,855.32	-4,702.51	347.54	4,705.05	1.569	-1.543	0.287
15,386.00	88.88	181.43	10,856.13	-4,797.48	345.24	4,799.99	1.340	-1.337	0.095
15,480.00	89.67	180.72	10,857.32	-4,891.46	343.48	4,893.95	1.130	0.840	-0.755
15,574.00	90.42	182.04	10,857.24	-4,985.43	341.21	4,987.90	1.615	0.798	1.404
15,669.00	89.71	182.48	10,857.13	-5,080.35	337.47	5,082.79	0.879	-0.747	0.463
15,763.00	89.10	181.51	10,858.11	-5,174.29	334.20	5,176.70	1.219	-0.649	-1.032
15,858.00	86.37	180.02	10,861.87	-5,269.19	332.93	5,271.59	3.273	-2.874	-1.568
15,952.00	86.77	179.32	10,867.49	-5,363.02	333.47	5,365.43	0.857	0.426	-0.745
16,046.00	87.60	178.35	10,872.11	-5,456.89	335.38	5,459.30	1.357	0.883	-1.032
16,141.00	90.37	178.44	10,873.79	-5,551.83	338.04	5,554.26	2.917	2.916	0.095
16,235.00	91.21	178.09	10,872.49	-5,645.77	340.88	5,648.23	0.968	0.894	-0.372
16,329.00	89.63	179.32	10,871.80	-5,739.74	343.01	5,742.21	2.130	-1.681	1.309
16,424.00	91.03	179.49	10,871.26	-5,834.73	343.99	5,837.20	1.485	1.474	0.179
16,518.00	89.58	179.76	10,870.76	-5,928.73	344.61	5,931.20	1.569	-1.543	0.287
16,613.00	89.98	179.14	10,871.12	-6,023.72	345.52	6,026.20	0.777	0.421	-0.653
16,707.00	88.53	178.97	10,872.34	-6,117.70	347.07	6,120.18	1.553	-1.543	-0.181
16,802.00	88.88	178.35	10,874.49	-6,212.65	349.29	6,215.15	0.749	0.368	-0.653
16,897.00	89.89	177.73	10,875.51	-6,307.58	352.54	6,310.11	1.247	1.063	-0.653
16,991.00	88.70	178.53	10,876.67	-6,401.53	355.61	6,404.07	1.525	-1.266	0.851
17,085.00	87.16	178.53	10,880.06	-6,495.43	358.02	6,497.99	1.638	-1.638	0.000
17,180.00	86.77	177.82	10,885.09	-6,590.25	361.04	6,592.83	0.852	-0.411	-0.747
17,275.00	87.38	177.12	10,889.94	-6,685.03	365.23	6,687.64	0.977	0.642	-0.737
17,369.00	88.70	176.50	10,893.15	-6,778.83	370.45	6,781.47	1.551	1.404	-0.660
17,464.00	91.34	176.86	10,893.12	-6,873.66	375.96	6,876.34	2.805	2.779	0.379
17,558.00	90.24	177.91	10,891.82	-6,967.55	380.24	6,970.26	1.618	-1.170	1.117
17,653.00	89.45	177.91	10,892.08	-7,062.49	383.71	7,065.22	0.832	-0.832	0.000

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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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)
17,747.00	88.53	178.17	10,893.74	-7,156.42	386.92	7,159.18	1.017	-0.979	0.277
17,842.00	89.98	179.84	10,894.97	-7,251.39	388.57	7,254.16	2.328	1.526	1.758
17,936.00	89.93	179.58	10,895.05	-7,345.39	389.05	7,348.16	0.282	-0.053	-0.277
18,030.00	90.59	180.46	10,894.62	-7,439.38	389.02	7,442.15	1.170	0.702	0.936
18,125.00	89.41	181.69	10,894.62	-7,534.36	387.23	7,537.11	1.794	-1.242	1.295
18,219.00	89.19	181.87	10,895.77	-7,628.31	384.31	7,631.04	0.302	-0.234	0.191
18,314.00	88.57	180.37	10,897.63	-7,723.27	382.46	7,725.98	1.708	-0.653	-1.579
18,408.00	88.84	179.32	10,899.75	-7,817.25	382.71	7,819.95	1.153	0.287	-1.117
18,502.00	89.98	178.44	10,900.72	-7,911.22	384.55	7,913.94	1.532	1.213	-0.936
18,597.00	90.51	179.32	10,900.31	-8,006.20	386.41	8,008.93	1.081	0.558	0.926
18,691.00	90.20	181.34	10,899.73	-8,100.19	385.86	8,102.92	2.174	-0.330	2.149
18,786.00	90.68	182.83	10,899.00	-8,195.12	382.41	8,197.82	1.648	0.505	1.568
18,849.00	89.27	183.97	10,899.03	-8,258.01	378.67	8,260.67	2.878	-2.238	1.810
18,881.00	87.25	183.71	10,900.00	-8,289.92	376.53	8,292.57	6.365	-6.312	-0.812
18,975.00	85.54	182.22	10,905.91	-8,383.60	371.68	8,386.21	2.411	-1.819	-1.585
19,069.00	86.51	180.11	10,912.43	-8,477.35	369.77	8,479.94	2.466	1.032	-2.245
19,163.00	87.96	179.40	10,916.96	-8,571.24	370.17	8,573.83	1.717	1.543	-0.755
19,258.00	90.33	179.23	10,918.38	-8,666.21	371.31	8,668.81	2.501	2.495	-0.179
19,352.00	90.90	178.79	10,917.37	-8,760.19	372.93	8,762.80	0.766	0.606	-0.468
19,446.00	90.59	178.61	10,916.15	-8,854.16	375.06	8,856.78	0.381	-0.330	-0.191
19,540.00	88.88	178.79	10,916.58	-8,948.13	377.20	8,950.77	1.829	-1.819	0.191
19,635.00	87.69	178.35	10,919.43	-9,043.06	379.57	9,045.71	1.335	-1.253	-0.463
19,729.00	88.57	177.30	10,922.49	-9,136.94	383.13	9,139.61	1.457	0.936	-1.117
19,824.00	91.52	178.44	10,922.42	-9,231.86	386.66	9,234.56	3.329	3.105	1.200
19,918.00	91.47	178.70	10,919.97	-9,325.80	389.01	9,328.51	0.282	-0.053	0.277
20,012.00	90.77	178.70	10,918.13	-9,419.76	391.14	9,422.48	0.745	-0.745	0.000
20,107.00	91.65	179.32	10,916.12	-9,514.72	392.78	9,517.46	1.133	0.926	0.653
20,201.00	90.81	181.16	10,914.11	-9,608.69	392.39	9,611.42	2.151	-0.894	1.957
20,297.00	89.45	182.13	10,913.89	-9,704.65	389.63	9,707.36	1.740	-1.417	1.010
20,391.00	89.14	181.51	10,915.04	-9,798.59	386.65	9,801.27	0.737	-0.330	-0.660
20,485.00	88.92	180.72	10,916.64	-9,892.56	384.82	9,895.23	0.872	-0.234	-0.840
20,580.00	88.66	178.97	10,918.64	-9,987.54	385.07	9,990.20	1.862	-0.274	-1.842
20,674.00	88.35	178.00	10,921.09	-10,081.47	387.56	10,084.15	1.083	-0.330	-1.032
20,768.00	88.09	177.38	10,924.01	-10,175.35	391.35	10,178.05	0.715	-0.277	-0.660
20,863.00	88.13	176.50	10,927.15	-10,270.16	396.41	10,272.90	0.927	0.042	-0.926
Last Aim Svy									
20,958.00	88.13	176.50	10,930.25	-10,364.93	402.21	10,367.72	0.000	0.000	0.000
Projection to BHL									

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDMRESTORED

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
198.00	198.00	0.57	0.51	First Aim MWD Survey
20,863.00	10,927.15	-10,270.16	396.41	Last Aim Svy
20,958.00	10,930.25	-10,364.93	402.21	Projection to BHL

Checked By: _____ Approved By: _____ Date: _____