



PERCUSSION
PETROLEUM
LLC

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUL 27 2018

RECEIVED

Percussion Petroleum, LLC

**Eddy County, NM
Huber Fed
8H**

30-015-44707

OH

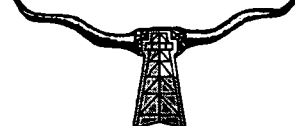
Survey: Survey #1

Standard Survey Report

22 May, 2018

**Provide Signature Page for
Directional Survey**

WELLBENDERS
DIRECTIONAL SERVICES LLC





Azimuths to Grid North
True North: 0.07°
Magnetic North: 7.37°
Magnetic Field
Strength: 47977.4nT
Dip Angle: 60.26°
Date: 5/11/2018
Model: IGRF2015



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Huber Fed
Well: SH
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #3 / 8-08, May 22 2018

TOTAL CORRECTION
Magnetic North is 7.37° East of Grid North (Magnetic Convergence)

WELL DETAILS: SH

RKB=17' @ 3531.00usB (Silver Oak 1)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	588117.70	489928.18	32.811217	-104.487827

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	484.00	0.00	360.00	484.00	0.00	0.00	0.00	0.00
3	1089.08	12.60	187.96	1084.10	-48.42	14.18	2.00	66.21
4	2250.99	12.60	187.96	2218.80	-312.38	66.71	0.00	311.40
5	3029.17	90.00	180.82	2870.00	-872.70	81.00	10.00	871.48
6	7918.87	90.00	180.82	2870.00	-8781.90	11.02	0.00	6781.18

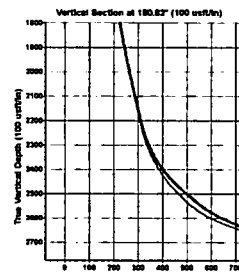
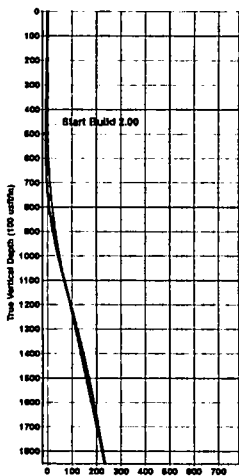
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Huber Fed SH: BHL	2870.00	-8781.90	10.80	620358.80	489938.00	Point
Huber Fed SH: FTP	2870.00	-872.70	81.00	628248.00	600008.10	Point
Huber Fed SH: LTP	2870.00	-8451.90	18.48	620688.00	489940.98	Point

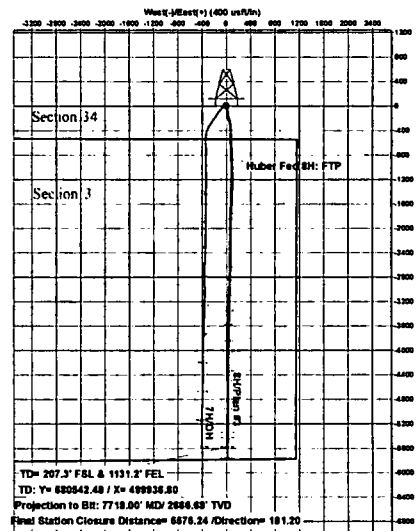
PROJECT DETAILS: Eddy County NM

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Elevation: GDS 1985
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

Disclaimer:
THIS IS A PRELIMINARY DESIGN.
IT IS NOT A FINAL DESIGN.
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Vertical Section at 180.82° (100 usB/in)



TD= 207.3' FSL & 1131.2' FEL
TD= Y= 620642.48 / X= 489938.80
Projection to SH: 7718.80' MD/ 2866.60' TVD
Final Station Closure Distance= 6878.24 / Direction= 181.20

Projection to SH: 7718.00' MD/ 2866.80' TVD
TD= Y= 620642.48 / X= 489938.80
TD= 207.3' FSL & 1131.2' FEL
Final Station Closure Distance= 6878.24 / Direction= 181.20

Plan: Plan #3 (SH/OH) Silver Oak 1
Created By: Daniel Bern Date: 8-08, May 22 2018



Wellbenders Survey Report



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Huber Fed
Well: 8H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 8H
TVD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

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

Site	Huber Fed				
Site Position:		Northing:	586,082.90 usft	Latitude:	32.611121
From:	Map	Easting:	499,887.10 usft	Longitude:	-104.467950
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	-0.07 °

Well	8H					
Well Position	+N/-S	0.00 usft	Northing:	586,117.70 usft	Latitude:	32.611217
	+E/-W	0.00 usft	Easting:	499,925.10 usft	Longitude:	-104.467827
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,514.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2018	7.30	60.26	47,977.42559933

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	180.82	

Survey Program		Date	5/22/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
133.00	7,718.00	Survey #1 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM	

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	0.00	0.00	0.00
133.00	1.20	8.60	132.99	1.38	0.21	-1.38	0.90	0.90	0.00
224.00	1.20	6.30	223.97	3.27	0.46	-3.27	0.05	0.00	-2.53
317.00	1.50	8.30	316.94	5.44	0.74	-5.45	0.33	0.32	2.15
408.00	1.50	6.70	407.91	7.80	1.05	-7.81	0.05	0.00	-1.76
500.00	0.30	57.60	499.90	9.13	1.39	-9.14	1.45	-1.30	55.33
592.00	1.50	161.80	591.89	8.11	1.97	-8.14	1.74	1.30	113.26
683.00	3.60	171.80	682.80	4.15	2.75	-4.19	2.35	2.31	10.99
776.00	6.70	174.30	775.41	-4.14	3.71	4.09	3.34	3.33	2.69
866.00	9.30	175.90	864.53	-16.62	4.75	16.55	2.90	2.89	1.78



Wellbenders Survey Report



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Huber Fed
Well: 8H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 8H
TVD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

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)
958.00	12.10	174.50	954.92	-33.64	6.20	33.54	3.06	3.04	-1.52
1,050.00	14.20	172.50	1,044.50	-54.42	8.60	54.30	2.34	2.28	-2.17
1,141.00	14.60	171.60	1,132.64	-76.84	11.73	76.66	0.50	0.44	-0.99
1,234.00	14.70	172.30	1,222.62	-100.12	15.03	99.90	0.22	0.11	0.75
1,359.00	14.40	171.70	1,343.61	-131.22	19.40	130.93	0.27	-0.24	-0.48
1,453.00	13.00	164.40	1,434.94	-152.97	23.93	152.62	2.36	-1.49	-7.77
1,547.00	13.30	164.50	1,526.47	-173.58	29.66	173.13	0.32	0.32	0.11
1,641.00	10.80	162.80	1,618.40	-192.41	35.15	191.89	2.69	-2.66	-1.81
1,735.00	10.40	164.90	1,710.79	-209.02	39.97	208.42	0.59	-0.43	2.23
1,828.00	10.70	165.70	1,802.22	-225.49	44.29	224.83	0.36	0.32	0.86
1,921.00	11.10	164.80	1,893.54	-242.49	48.77	241.77	0.47	0.43	-0.97
2,016.00	12.80	169.10	1,986.48	-261.65	53.16	260.86	2.02	1.79	4.53
2,110.00	13.10	168.70	2,078.09	-282.32	57.21	281.48	0.33	0.32	-0.43
2,204.00	13.50	171.50	2,169.57	-303.62	60.92	302.72	0.81	0.43	2.98
2,251.00	14.80	174.10	2,215.14	-315.02	62.35	314.09	3.08	2.77	5.53
2,298.00	19.00	175.50	2,260.10	-328.62	63.57	327.68	8.98	8.94	2.98
2,345.00	24.20	175.90	2,303.79	-345.87	64.86	344.91	11.07	11.06	0.85
2,392.00	28.80	176.00	2,345.84	-366.78	66.34	365.80	9.79	9.79	0.21
2,438.00	34.40	175.60	2,385.00	-390.81	68.11	389.80	12.18	12.17	-0.87
2,485.00	40.70	177.60	2,422.25	-419.39	69.77	418.35	13.65	13.40	4.26
2,532.00	45.40	179.50	2,456.59	-451.45	70.56	450.40	10.37	10.00	4.04
2,580.00	48.30	179.30	2,489.41	-486.47	70.93	485.40	6.05	6.04	-0.42
2,627.00	51.00	178.80	2,519.84	-522.28	71.52	521.20	5.80	5.74	-1.06
2,674.00	54.50	178.80	2,548.28	-559.68	72.31	558.58	7.45	7.45	0.00
2,720.00	57.80	178.40	2,573.90	-597.86	73.24	596.75	7.21	7.17	-0.87
2,767.00	61.40	178.00	2,597.68	-638.37	74.52	637.24	7.69	7.66	-0.85
2,814.00	65.20	177.40	2,618.80	-680.32	76.21	679.16	8.17	8.09	-1.28
2,861.00	71.30	177.90	2,636.20	-723.92	77.99	722.73	13.02	12.98	1.06
2,907.00	74.60	178.10	2,649.69	-767.86	79.53	766.64	7.19	7.17	0.43
2,954.00	79.50	177.80	2,660.22	-813.62	81.17	812.38	10.44	10.43	-0.64
3,001.00	82.80	177.40	2,667.45	-860.02	83.11	858.74	7.07	7.02	-0.85
3,048.00	88.90	178.30	2,670.85	-906.84	84.87	905.53	13.12	12.98	1.91
3,142.00	90.80	178.80	2,671.09	-1,000.80	87.25	999.45	2.09	2.02	0.53
3,237.00	91.50	178.80	2,669.19	-1,095.76	89.23	1,094.37	0.74	0.74	0.00
3,332.00	89.90	180.00	2,668.03	-1,190.74	90.23	1,189.33	2.11	-1.68	1.26
3,426.00	91.20	180.50	2,667.13	-1,284.74	89.82	1,283.32	1.48	1.38	0.53
3,519.00	89.90	181.80	2,666.23	-1,377.71	87.95	1,376.31	1.98	-1.40	1.40
3,614.00	91.00	182.60	2,665.49	-1,472.63	84.31	1,471.28	1.43	1.16	0.84
3,708.00	89.70	183.10	2,664.91	-1,566.51	79.63	1,565.21	1.48	-1.38	0.53
3,802.00	90.20	183.30	2,664.99	-1,660.37	74.38	1,659.13	0.57	0.53	0.21
3,895.00	89.80	182.00	2,664.99	-1,753.27	70.08	1,752.08	1.46	-0.43	-1.40
3,989.00	90.80	181.90	2,664.50	-1,847.21	66.89	1,846.06	1.07	1.06	-0.11
4,084.00	89.10	180.80	2,664.58	-1,942.18	64.65	1,941.05	2.13	-1.79	-1.16
4,178.00	89.80	180.80	2,665.49	-2,036.16	63.34	2,035.05	0.74	0.74	0.00

Company: Percussion Petroleum, LLC
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Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 8H
TVD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

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)
4,273.00	90.70	181.00	2,665.07	-2,131.15	61.84	2,130.05	0.97	0.95	0.21
4,367.00	92.20	181.60	2,662.69	-2,225.09	59.71	2,224.01	1.72	1.60	0.64
4,458.00	89.90	181.00	2,661.03	-2,316.05	57.65	2,314.98	2.61	-2.53	-0.66
4,550.00	87.60	180.00	2,663.03	-2,408.01	56.85	2,406.95	2.73	-2.50	-1.09
4,642.00	88.60	180.00	2,666.08	-2,499.96	56.85	2,498.89	1.09	1.09	0.00
4,734.00	89.90	180.20	2,667.29	-2,591.95	56.68	2,590.88	1.43	1.41	0.22
4,772.00	89.90	180.70	2,667.35	-2,629.95	56.39	2,628.87	1.32	0.00	1.32
4,866.00	90.40	181.50	2,667.11	-2,723.93	54.58	2,722.87	1.00	0.53	0.85
4,959.00	90.90	182.50	2,666.05	-2,816.87	51.34	2,815.85	1.20	0.54	1.08
5,053.00	88.80	180.90	2,666.30	-2,910.82	48.55	2,909.83	2.81	-2.23	-1.70
5,147.00	89.00	181.10	2,668.10	-3,004.79	46.91	3,003.81	0.30	0.21	0.21
5,242.00	89.60	182.20	2,669.26	-3,099.74	44.17	3,098.79	1.32	0.63	1.16
5,337.00	89.90	183.10	2,669.68	-3,194.63	39.78	3,193.74	1.00	0.32	0.95
5,431.00	89.60	180.70	2,670.09	-3,288.57	36.66	3,287.71	2.57	-0.32	-2.55
5,526.00	89.70	180.50	2,670.67	-3,383.57	35.67	3,382.71	0.24	0.11	-0.21
5,621.00	89.80	181.00	2,671.08	-3,478.56	34.43	3,477.71	0.54	0.11	0.53
5,715.00	89.90	181.20	2,671.33	-3,572.54	32.62	3,571.71	0.24	0.11	0.21
5,810.00	90.00	181.80	2,671.41	-3,667.51	30.13	3,666.70	0.64	0.11	0.63
5,905.00	89.80	182.50	2,671.58	-3,762.44	26.57	3,761.67	0.77	-0.21	0.74
5,997.00	90.00	179.60	2,671.74	-3,854.41	24.88	3,853.66	3.16	0.22	-3.15
6,088.00	90.20	179.60	2,671.58	-3,945.41	25.52	3,944.64	0.22	0.22	0.00
6,180.00	90.20	179.80	2,671.26	-4,037.41	26.00	4,036.62	0.22	0.00	0.22
6,272.00	90.20	180.30	2,670.94	-4,129.41	25.92	4,128.62	0.54	0.00	0.54
6,364.00	90.00	180.40	2,670.78	-4,221.41	25.36	4,220.61	0.24	-0.22	0.11
6,456.00	90.00	180.40	2,670.78	-4,313.41	24.72	4,312.61	0.00	0.00	0.00
6,547.00	90.10	180.80	2,670.70	-4,404.40	23.76	4,403.61	0.45	0.11	0.44
6,639.00	90.10	181.00	2,670.54	-4,496.39	22.32	4,495.61	0.22	0.00	0.22
6,730.00	90.40	179.80	2,670.14	-4,587.38	21.68	4,586.60	1.36	0.33	-1.32
6,822.00	90.70	180.20	2,669.26	-4,679.38	21.68	4,678.59	0.54	0.33	0.43
6,913.00	90.90	180.70	2,667.99	-4,770.37	20.97	4,769.58	0.59	0.22	0.55
7,005.00	90.90	180.70	2,666.54	-4,862.35	19.85	4,861.57	0.00	0.00	0.00
7,099.00	91.00	180.90	2,664.98	-4,956.33	18.53	4,955.55	0.24	0.11	0.21
7,192.00	91.20	181.30	2,663.20	-5,049.29	16.75	5,048.54	0.48	0.22	0.43
7,284.00	89.00	179.90	2,663.04	-5,141.28	15.78	5,140.53	2.83	-2.39	-1.52
7,378.00	89.20	180.00	2,664.51	-5,235.27	15.87	5,234.50	0.24	0.21	0.11
7,472.00	89.50	180.30	2,665.58	-5,329.26	15.62	5,328.49	0.45	0.32	0.32
7,566.00	89.80	180.90	2,666.15	-5,423.25	14.64	5,422.49	0.71	0.32	0.64
7,661.00	89.80	181.20	2,666.49	-5,518.24	12.90	5,517.49	0.32	0.00	0.32
7,718.00	89.80	181.20	2,666.68	-5,575.22	11.70	5,574.49	0.00	0.00	0.00

TD= 207.3' FSL & 1131.2' FEL - TD: Y= 580542.48 / X= 499936.80 - Projection to Bit: 7718.00' MD/ 2666.68' TVD - Final St



Wellbenders Survey Report



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Huber Fed
Well: 8H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 8H
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MD Reference: RKB=17' @ 3531.00usft (Silver Oak 1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,718.00	2,666.68	-5,575.22	11.70	TD= 207.3' FSL & 1131.2' FEL
7,718.00	2,666.68	-5,575.22	11.70	TD: Y= 580542.48 / X= 499936.80
7,718.00	2,666.68	-5,575.22	11.70	Projection to Bit: 7718.00' MD/ 2666.68' TVD
7,718.00	2,666.68	-5,575.22	11.70	Final Station Closure Distance= 5575.24 /Direction= 181.20

Checked By: _____ Approved By: _____ Date: _____