



PERCUSSION
PETROLEUM
LLC

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUN 20 2018

RECEIVED

Percussion Petroleum, LLC

**Eddy County, NM
Morris Boyd State Com
6H**

30-015-44867

OH

Survey: Survey #1

Standard Survey Report

10 May, 2018

**Provide Signature Page for
Directional Survey**





Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Morris Boyd State Com
Well: 6H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #1 / 11:07, May 10 2018

PROJECT DETAILS Eddy County, NM
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Elevation: GDS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



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

WELL DETAILS: 6H

RKB=17° @ 3448.00usft (Silver Oak 1)

3431.00
+N-S +E-W Northing Easting Latitude Longitude
0.00 0.00 694791.50 603898.60 32.840870 -104.458612

SECTION DETAILS

Sec	MD	Inc	Adj	TVD	+N-S	+E-W	Diag	Vsact
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	430.00	0.00	0.00	430.00	0.00	0.00	0.00	0.00
3	854.79	8.50	250.87	853.23	-10.41	-29.86	2.00	10.44
4	2245.29	8.50	250.87	2229.47	-78.41	-223.51	0.00	78.64
5	3117.17	80.00	180.00	2768.00	-450.60	-300.10	10.00	650.91
6	3348.48	99.00	180.00	2768.00	-450.60	-300.10	0.00	650.22

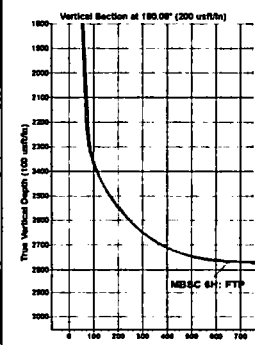
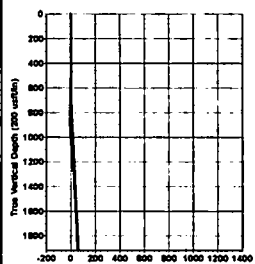
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
MSBC OH: BHL	2768.00	-450.60	-300.10	694791.50	603383.30	Point
MSBC OH: FTP	2768.00	-450.60	-300.10	694791.50	603383.30	Point
MSBC OH: LTP	2768.00	-450.60	-300.10	694791.50	603383.30	Point

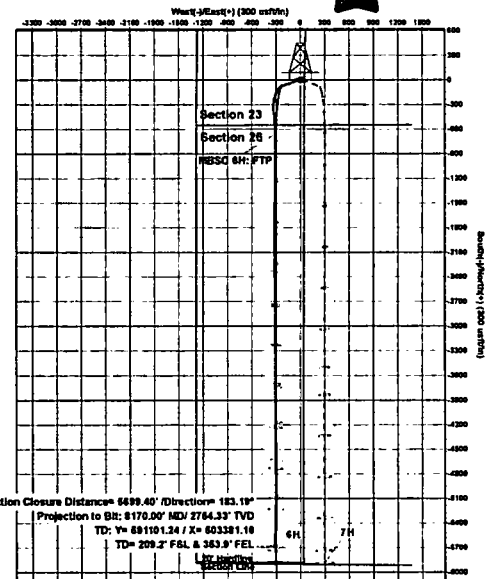


Azimuth to Grid North
True North: 0.07°
Magnetic North: 7.37°
Magnetic Field
Strength: 48004.3nT
Dip Angle: 60.29°
Date: 4/14/2018
Model: IGRF2015

Disclaimer:
All P & D details, including
1" up and 1" down well
section and any other
information, are not
guaranteed to be
correct.



Vertical Section at 190.0° (100 usft)



Final Station Closure Distance= 6699.40' /Direction= 183.19°
Projection to BH: 6170.00' MD/ 2764.33' TVD
TD: Y= 691101.24 / X= 603381.18
TD= 209.2' FSL & 343.9' FEL
LTP location
Section 23

Final Station Closure Distance= 6699.40' /Direction= 183.19°
Projection to BH: 6170.00' MD/ 2764.33' TVD
TD: Y= 691101.24 / X= 603381.18
TD= 209.2' FSL & 343.9' FEL

Plan: Plan #1 (BUOH) Silver Oak 1

Created By: Daniel Benn Date: 11:07, May 10 2018



Wellbenders Survey Report



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Morris Boyd State Com
Well: 6H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 6H
TVD Reference: RKB=17' @ 3448.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3448.00usft (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		Morris Boyd State Com				
Site Position:		Northing:	596,686.20 usft	Latitude:	32.640272	
From:	Map	Easting:	501,469.20 usft	Longitude:	-104.462854	
Position Uncertainty:		0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	-0.07 °

Well	6H					
Well Position	+N/-S	0.00 usft	Northing:	596,791.80 usft	Latitude:	32.640570
	+E/-W	0.00 usft	Easting:	503,698.60 usft	Longitude:	-104.455612
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	3,431.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/14/2018	7.30	60.29	48,004.32744668

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	180.06	

Survey Program		Date	5/10/2018	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
132.00	8,170.00	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
132.00	1.10	122.10	131.99	-0.67	1.07	0.67	0.83	0.83	0.00
224.00	0.60	144.70	223.98	-1.54	2.10	1.53	0.64	-0.54	24.57
316.00	0.40	175.90	315.98	-2.25	2.40	2.25	0.36	-0.22	33.91
407.00	1.10	299.30	406.97	-2.14	1.66	2.14	1.50	0.77	135.60
498.00	2.10	313.00	497.94	-0.57	-0.32	0.57	1.17	1.10	15.05
590.00	4.10	292.10	589.80	1.81	-4.60	-1.81	2.46	2.17	-22.72
682.00	7.00	287.30	681.36	4.72	-13.00	-4.70	3.19	3.15	-5.22
774.00	7.40	279.80	772.64	7.39	-24.19	-7.37	1.11	0.43	-8.15
865.00	7.30	262.40	862.90	7.63	-35.70	-7.59	2.44	-0.11	-19.12



Wellbenders Survey Report



Company: Percussion Petroleum, LLC
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Well: 6H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 6H
TVD Reference: RKB=17' @ 3448.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3448.00usft (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)
956.00	8.10	245.10	953.09	4.16	-47.25	-4.11	2.68	0.88	-19.01
1,047.00	8.60	238.80	1,043.13	-2.06	-58.88	2.12	1.14	0.55	-6.92
1,139.00	8.80	239.40	1,134.07	-9.21	-70.82	9.28	0.24	0.22	0.65
1,178.00	8.80	238.80	1,172.61	-12.27	-75.94	12.35	0.24	0.00	-1.54
1,263.00	8.50	238.00	1,256.64	-18.97	-86.83	19.06	0.38	-0.35	-0.94
1,358.00	8.30	239.90	1,350.62	-26.13	-98.72	26.23	0.36	-0.21	2.00
1,451.00	7.90	242.60	1,442.70	-32.44	-110.20	32.55	0.59	-0.43	2.90
1,544.00	7.70	242.30	1,534.84	-38.27	-121.39	38.40	0.22	-0.22	-0.32
1,637.00	8.40	251.00	1,626.92	-43.38	-133.33	43.52	1.51	0.75	9.35
1,731.00	8.60	254.30	1,719.89	-47.52	-146.59	47.67	0.56	0.21	3.51
1,824.00	8.50	253.30	1,811.86	-51.37	-159.86	51.54	0.19	-0.11	-1.08
1,917.00	8.50	253.40	1,903.84	-55.31	-173.03	55.49	0.02	0.00	0.11
2,010.00	8.60	253.60	1,995.80	-59.24	-186.29	59.43	0.11	0.11	0.22
2,104.00	8.80	254.30	2,088.72	-63.17	-199.96	63.38	0.24	0.21	0.74
2,197.00	9.10	254.40	2,180.59	-67.07	-213.89	67.30	0.32	0.32	0.11
2,291.00	14.20	238.80	2,272.64	-75.05	-230.92	75.29	6.33	5.43	-16.60
2,385.00	24.60	222.50	2,361.25	-95.52	-254.08	95.79	12.37	11.06	-17.34
2,477.00	32.80	209.80	2,441.95	-131.36	-279.47	131.65	11.06	8.91	-13.80
2,571.00	39.00	203.30	2,518.08	-180.68	-303.86	181.00	7.73	6.60	-6.91
2,665.00	41.90	192.20	2,589.70	-238.61	-322.22	238.95	8.25	3.09	-11.81
2,758.00	51.20	182.80	2,653.66	-305.39	-330.58	305.73	12.38	10.00	-10.11
2,852.00	62.60	176.10	2,704.95	-383.93	-329.53	384.27	13.51	12.13	-7.13
2,899.00	69.70	174.20	2,723.95	-426.73	-325.87	427.07	15.55	15.11	-4.04
2,946.00	75.30	174.50	2,738.07	-471.32	-321.46	471.65	11.93	11.91	0.64
2,992.00	78.30	174.60	2,748.58	-515.89	-317.21	516.22	6.53	6.52	0.22
3,039.00	82.30	176.10	2,756.50	-562.06	-313.46	562.39	9.07	8.51	3.19
3,086.00	84.80	178.30	2,761.78	-608.70	-311.18	609.02	7.07	5.32	4.68
3,133.00	85.20	179.00	2,765.87	-655.51	-310.08	655.83	1.71	0.85	1.49
3,227.00	85.80	179.20	2,773.25	-749.20	-308.61	749.53	0.67	0.64	0.21
3,323.00	88.60	179.20	2,777.94	-845.07	-307.27	845.39	2.92	2.92	0.00
3,416.00	90.80	179.90	2,778.42	-938.06	-306.54	938.38	2.48	2.37	0.75
3,511.00	91.90	180.50	2,776.19	-1,033.03	-306.87	1,033.35	1.32	1.16	0.63
3,605.00	89.70	180.40	2,774.87	-1,127.01	-307.61	1,127.34	2.34	-2.34	-0.11
3,699.00	90.10	180.80	2,775.04	-1,221.01	-308.59	1,221.33	0.60	0.43	0.43
3,795.00	91.10	181.20	2,774.03	-1,316.99	-310.27	1,317.31	1.12	1.04	0.42
3,890.00	89.10	181.00	2,773.87	-1,411.96	-312.09	1,412.29	2.12	-2.11	-0.21
3,985.00	89.50	181.40	2,775.03	-1,506.94	-314.08	1,507.26	0.60	0.42	0.42
4,080.00	89.50	180.30	2,775.86	-1,601.92	-315.49	1,602.25	1.16	0.00	-1.16
4,171.00	90.10	180.30	2,776.17	-1,692.92	-315.97	1,693.25	0.66	0.66	0.00
4,263.00	90.50	180.30	2,775.69	-1,784.92	-316.45	1,785.25	0.43	0.43	0.00
4,355.00	90.40	180.70	2,774.97	-1,876.91	-317.25	1,877.24	0.45	-0.11	0.43
4,446.00	88.90	179.60	2,775.52	-1,967.90	-317.49	1,968.23	2.04	-1.65	-1.21
4,538.00	89.90	179.60	2,776.49	-2,059.89	-316.85	2,060.23	1.09	1.09	0.00
4,630.00	90.20	179.90	2,776.41	-2,151.89	-316.44	2,152.22	0.46	0.33	0.33

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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)
4,721.00	91.00	179.80	2,775.45	-2,242.89	-316.21	2,243.22	0.89	0.88	-0.11
4,813.00	89.30	179.10	2,775.21	-2,334.88	-315.32	2,335.21	2.00	-1.85	-0.76
4,904.00	89.00	179.00	2,776.56	-2,425.86	-313.81	2,426.18	0.35	-0.33	-0.11
4,995.00	89.30	179.10	2,777.91	-2,516.83	-312.31	2,517.16	0.35	0.33	0.11
5,087.00	91.10	179.50	2,777.59	-2,608.82	-311.18	2,609.15	2.00	1.96	0.43
5,179.00	91.40	179.50	2,775.59	-2,700.80	-310.38	2,701.12	0.33	0.33	0.00
5,239.00	92.10	179.60	2,773.75	-2,760.77	-309.91	2,761.09	1.18	1.17	0.17
5,334.00	91.00	179.70	2,771.18	-2,855.73	-309.33	2,856.05	1.16	-1.16	0.11
5,428.00	90.70	179.60	2,769.79	-2,949.72	-308.75	2,950.04	0.34	-0.32	-0.11
5,521.00	91.40	179.60	2,768.09	-3,042.70	-308.11	3,043.02	0.75	0.75	0.00
5,616.00	92.20	179.90	2,765.10	-3,137.65	-307.69	3,137.97	0.90	0.84	0.32
5,709.00	91.60	180.10	2,762.02	-3,230.60	-307.69	3,230.92	0.68	-0.65	0.22
5,804.00	92.00	180.60	2,759.03	-3,325.55	-308.27	3,325.87	0.67	0.42	0.53
5,901.00	91.20	180.40	2,756.33	-3,422.51	-309.12	3,422.83	0.85	-0.82	-0.21
5,991.00	91.40	180.30	2,754.28	-3,512.48	-309.67	3,512.80	0.25	0.22	-0.11
6,086.00	89.50	179.40	2,753.54	-3,607.47	-309.42	3,607.79	2.21	-2.00	-0.95
6,179.00	90.10	179.60	2,753.86	-3,700.47	-308.61	3,700.79	0.68	0.65	0.22
6,273.00	88.80	179.80	2,754.76	-3,794.46	-308.11	3,794.78	1.40	-1.38	0.21
6,366.00	88.90	179.70	2,756.63	-3,887.44	-307.71	3,887.76	0.15	0.11	-0.11
6,459.00	89.60	180.20	2,757.85	-3,980.43	-307.63	3,980.75	0.92	0.75	0.54
6,552.00	89.50	179.60	2,758.58	-4,073.43	-307.46	4,073.75	0.65	-0.11	-0.65
6,646.00	90.20	179.60	2,758.82	-4,167.43	-306.81	4,167.74	0.74	0.74	0.00
6,741.00	91.10	180.10	2,757.75	-4,262.42	-306.56	4,262.74	1.08	0.95	0.53
6,835.00	89.80	179.00	2,757.01	-4,356.41	-305.82	4,356.73	1.81	-1.38	-1.17
6,928.00	90.00	179.30	2,757.17	-4,449.40	-304.44	4,449.71	0.39	0.22	0.32
7,023.00	89.00	178.70	2,758.00	-4,544.38	-302.78	4,544.69	1.23	-1.05	-0.63
7,114.00	88.50	178.70	2,759.99	-4,635.33	-300.72	4,635.64	0.55	-0.55	0.00
7,206.00	90.00	178.90	2,761.19	-4,727.30	-298.79	4,727.61	1.64	1.63	0.22
7,298.00	88.10	180.10	2,762.71	-4,819.28	-297.99	4,819.59	2.44	-2.07	1.30
7,389.00	88.10	180.30	2,765.73	-4,910.23	-298.31	4,910.54	0.22	0.00	0.22
7,480.00	88.70	180.70	2,768.27	-5,001.19	-299.10	5,001.50	0.79	0.66	0.44
7,572.00	89.50	181.00	2,769.72	-5,093.17	-300.47	5,093.48	0.93	0.87	0.33
7,664.00	90.40	181.10	2,769.80	-5,185.15	-302.15	5,185.46	0.98	0.98	0.11
7,756.00	91.10	181.00	2,768.59	-5,277.13	-303.84	5,277.44	0.77	0.76	-0.11
7,847.00	90.80	181.10	2,767.09	-5,368.10	-305.51	5,368.42	0.35	-0.33	0.11
7,938.00	91.40	181.30	2,765.34	-5,459.06	-307.41	5,459.38	0.69	0.66	0.22
8,029.00	92.70	182.20	2,762.08	-5,549.96	-310.19	5,550.28	1.74	1.43	0.99
8,099.00	93.30	183.20	2,758.42	-5,619.78	-313.48	5,620.11	1.66	0.86	1.43
8,170.00	93.30	183.20	2,754.33	-5,690.56	-317.44	5,690.88	0.00	0.00	0.00

TD= 209.2' FSL & 353.9' FEL - TD: Y= 591101.24 / X= 503381.16 - Projection to Bit: 8170.00' MD/ 2754.33' TVD - Final Stat

Company: Percussion Petroleum, LLC
Project: Eddy County, NM
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Design: OH

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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)	
8,170.00	2,754.33	-5,690.56	-317.44	TD= 209.2' FSL & 353.9' FEL
8,170.00	2,754.33	-5,690.56	-317.44	TD: Y= 591101.24 / X= 503381.16
8,170.00	2,754.33	-5,690.56	-317.44	Projection to Bit: 8170.00' MD/ 2754.33' TVD
8,170.00	2,754.33	-5,690.56	-317.44	Final Station Closure Distance= 5699.40' /Direction= 183.19°

Checked By: _____ Approved By: _____ Date: _____