



Marshall County, WV  
 Conner Pad  
 Conner 4H  
 GL 1220' & KB 32' @ 1252.00ft (Nabors X7)  
 As Drilled

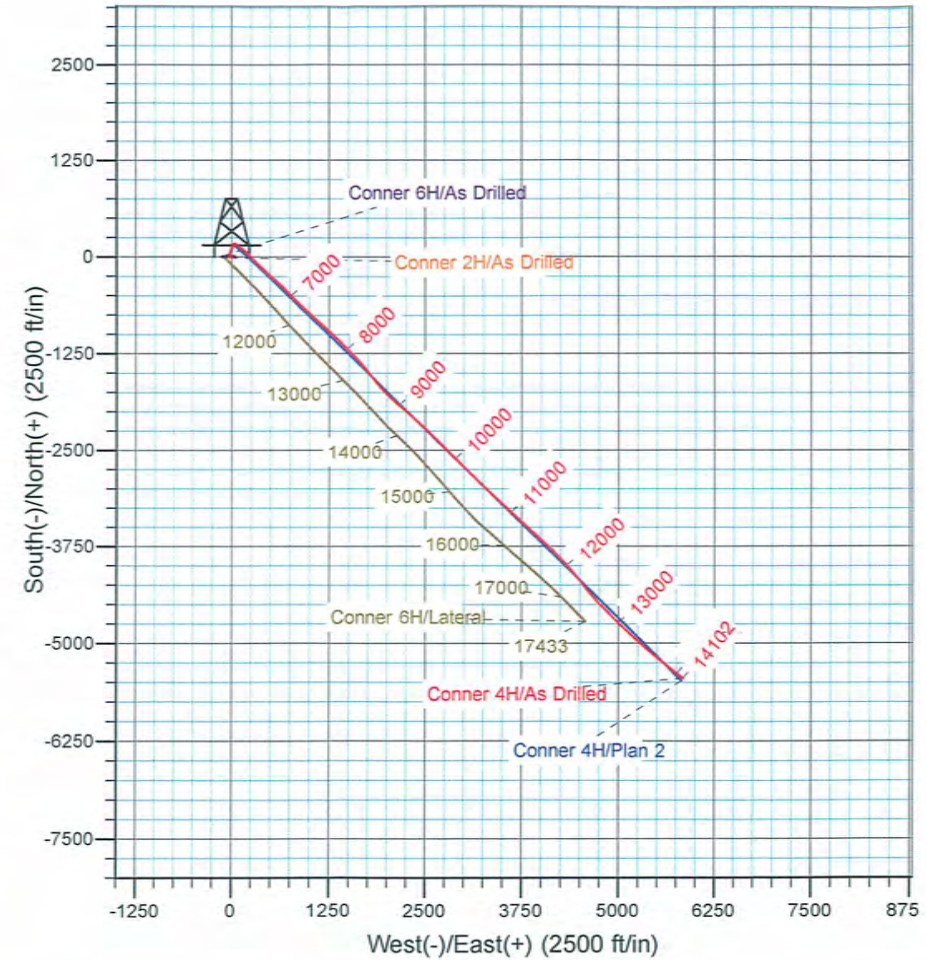
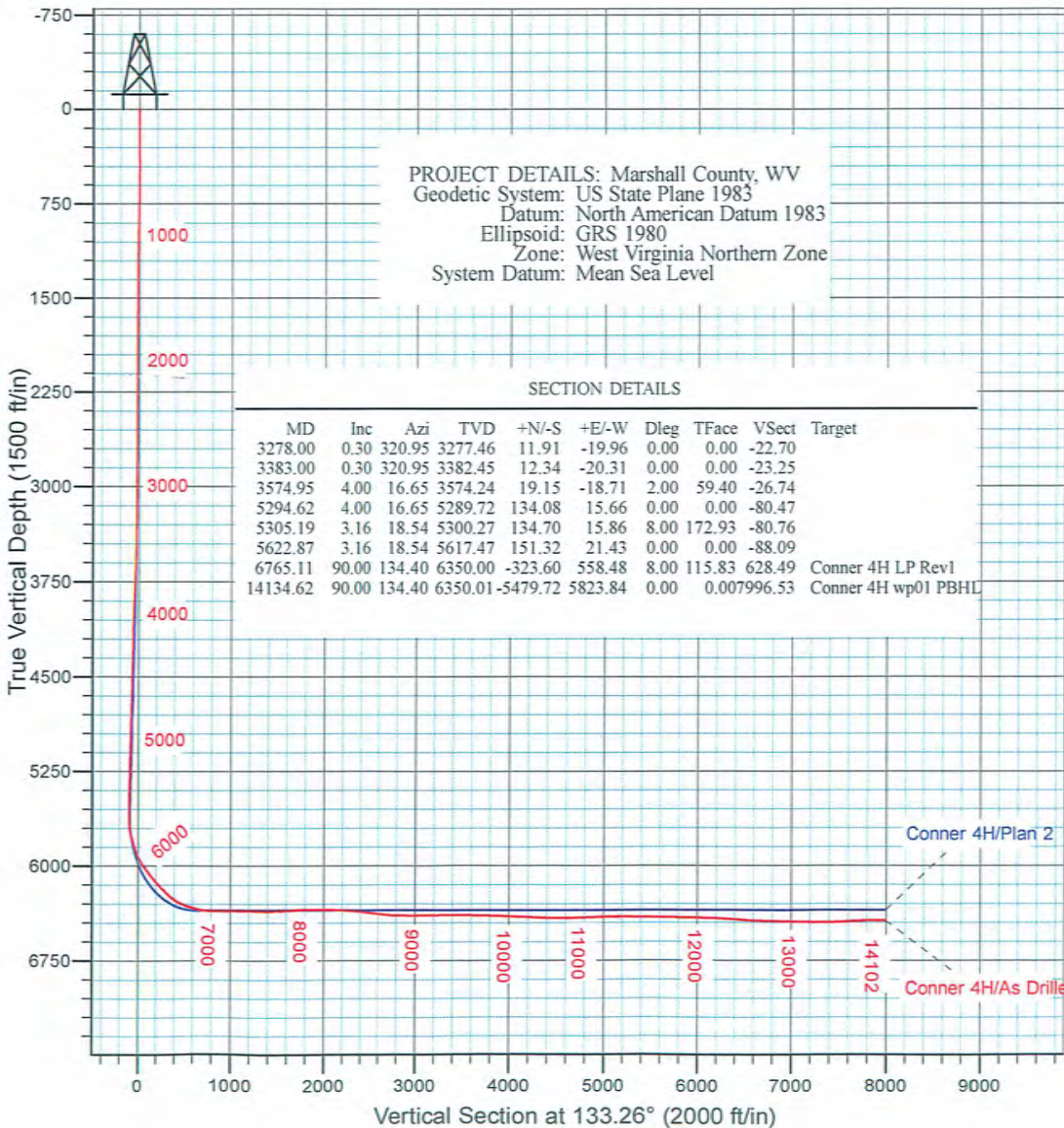
SITE DETAILS: Conner Pad  
 Site Centre Northing: 505327.06  
 Easting: 1617496.30  
 Positional Uncertainty: 0.00  
 Convergence: -0.80  
 Local North: True



Azimuths to True North  
 Magnetic North: -8.64°  
 Magnetic Field  
 Strength: 52622.4snT  
 Dip Angle: 67.35°  
 Date: 10/25/2013  
 Model: BGM12013

WELL DETAILS: Conner 4H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	505331.97	1617510.40	39° 52' 50.444 N	80° 45' 2.639 W



LEGEND

- Conner 4H, OH, Plan 2 V0
- ◇ Conner 6H, Lateral, Lateral V0
- ✕ Conner 6H, Pilot, As Drilled V0
- △ Conner 2H, OH, As Drilled V0
- As Drilled

Robert Ebbecke  
 10:38, October 25 2013

Scientific Drilling International  
 3475 Washington Ave  
 Finleyville, PA 15332

5-1-015-47

51-01597



# **Chevron Appalachia, LLC**

Marshall County, WV

Conner Pad

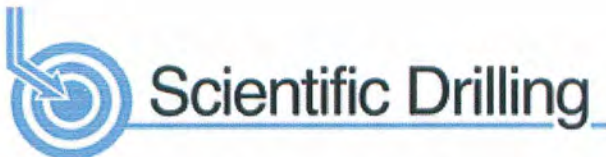
Conner 4H

OH

Design: As Drilled

## **Standard Survey Report**

25 October, 2013

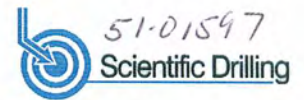


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04/18/2014



**Scientific Drilling International**  
Survey Report



<b>Company:</b>	Chevron Appalachia, LLC	<b>Local Co-ordinate Reference:</b>	Well Conner 4H
<b>Project:</b>	Marshall County, WV	<b>TVD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Site:</b>	Conner Pad	<b>MD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Well:</b>	Conner 4H	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Northeast District

<b>Project</b>	Marshall County, WV		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	West Virginia Northern Zone		

<b>Site</b>	Conner Pad				
<b>Site Position:</b>		<b>Northing:</b>	505,327.06 usft	<b>Latitude:</b>	39° 52' 50.394 N
<b>From:</b>	Map	<b>Easting:</b>	1,617,496.30 usft	<b>Longitude:</b>	80° 45' 2.819 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.80 °

<b>Well</b>	Conner 4H					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	505,331.97 usft	<b>Latitude:</b>	39° 52' 50.444 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,617,510.40 usft	<b>Longitude:</b>	80° 45' 2.639 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	1,220.00 ft	<b>Ground Level:</b>	1,220.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	9/20/2013	-8.63	67.36	52,635

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	133.26	

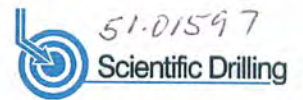
<b>Survey Program</b>	<b>Date</b>	10/25/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.00	3,278.00	Gyro Survey #3 (OH)	GYD_CT	Gyrodata continuous	
3,437.01	14,102.03	SDI MWD Survey #4 (OH)	MWD SDI	MWD - Standard ver 1.0.1	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.41	46.13	100.00	0.25	0.26	0.02	0.41	0.41	0.00	
<b>First Gyro Data Gyro Survey</b>										
200.00	0.79	64.34	199.99	0.79	1.14	0.28	0.42	0.38	18.21	
300.00	1.32	70.67	299.98	1.47	2.85	1.06	0.54	0.53	6.33	
400.00	1.90	71.59	399.94	2.38	5.51	2.38	0.58	0.58	0.92	
500.00	1.06	93.21	499.90	2.85	8.00	3.87	0.99	-0.84	21.62	
600.00	0.15	199.70	599.90	2.68	8.88	4.63	1.11	-0.91	106.49	
700.00	3.19	286.60	699.85	3.35	6.17	2.20	3.19	3.04	86.90	
800.00	2.79	288.58	799.71	4.92	1.20	-2.50	0.41	-0.40	1.98	



# Scientific Drilling International

## Survey Report



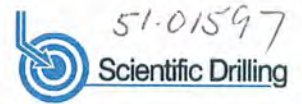
<b>Company:</b>	Chevron Appalachia, LLC	<b>Local Co-ordinate Reference:</b>	Well Conner 4H
<b>Project:</b>	Marshall County, WV	<b>TVD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Site:</b>	Conner Pad	<b>MD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Well:</b>	Conner 4H	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Northeast District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
900.00	2.36	289.88	899.61	6.39	-3.05	-6.60	0.43	-0.43	1.30	
1,000.00	1.73	286.74	999.54	7.53	-6.43	-9.84	0.64	-0.63	-3.14	
1,100.00	1.24	290.40	1,099.51	8.34	-8.89	-12.19	0.50	-0.49	3.66	
1,200.00	0.98	290.48	1,199.49	9.02	-10.70	-13.97	0.26	-0.26	0.08	
1,300.00	0.71	284.80	1,299.48	9.47	-12.10	-15.31	0.28	-0.27	-5.68	
1,400.00	0.62	293.03	1,399.47	9.84	-13.20	-16.36	0.13	-0.09	8.23	
1,500.00	0.38	277.15	1,499.47	10.10	-14.03	-17.13	0.27	-0.24	-15.88	
1,600.00	0.31	284.76	1,599.47	10.21	-14.62	-17.64	0.08	-0.07	7.61	
1,700.00	0.32	300.82	1,699.47	10.42	-15.12	-18.15	0.09	0.01	16.06	
1,800.00	0.42	279.40	1,799.46	10.62	-15.72	-18.73	0.17	0.10	-21.42	
1,900.00	0.13	238.37	1,899.46	10.62	-16.18	-19.06	0.33	-0.29	-41.03	
2,000.00	0.08	284.05	1,999.46	10.58	-16.34	-19.15	0.09	-0.05	45.68	
2,100.00	0.06	295.44	2,099.46	10.62	-16.46	-19.26	0.02	-0.02	11.39	
2,200.00	0.04	219.23	2,199.46	10.61	-16.53	-19.31	0.06	-0.02	-76.21	
2,300.00	0.12	290.96	2,299.46	10.63	-16.65	-19.41	0.11	0.08	71.73	
2,400.00	0.20	274.06	2,399.46	10.68	-16.92	-19.64	0.09	0.08	-16.90	
2,500.00	0.18	288.79	2,499.46	10.74	-17.24	-19.92	0.05	-0.02	14.73	
2,600.00	0.27	295.07	2,599.46	10.89	-17.60	-20.28	0.09	0.09	6.28	
2,700.00	0.26	306.64	2,699.46	11.12	-18.00	-20.73	0.05	-0.01	11.57	
2,800.00	0.27	282.24	2,799.46	11.31	-18.41	-21.16	0.11	0.01	-24.40	
2,900.00	0.21	284.68	2,899.46	11.41	-18.82	-21.52	0.06	-0.06	2.44	
3,000.00	0.12	325.58	2,999.46	11.54	-19.06	-21.78	0.14	-0.09	40.90	
3,100.00	0.19	264.86	3,099.46	11.61	-19.28	-22.00	0.17	0.07	-60.72	
3,200.00	0.27	292.22	3,199.46	11.68	-19.66	-22.33	0.13	0.08	27.36	
3,278.00	0.30	320.95	3,277.46	11.91	-19.96	-22.70	0.19	0.04	36.83	
<b>Last Gyro Data Gyro Survey</b>										
3,300.00	0.29	322.50	3,299.46	12.00	-20.03	-22.81	0.05	-0.03	7.03	
3,400.00	0.27	330.39	3,399.45	12.41	-20.30	-23.29	0.05	-0.03	7.89	
3,437.01	0.26	333.68	3,436.46	12.56	-20.38	-23.45	0.05	-0.02	8.89	
<b>First SDI MWD Survey</b>										
3,500.00	2.12	353.04	3,499.44	13.85	-20.59	-24.48	2.99	2.96	30.74	
3,600.00	4.03	355.54	3,599.27	19.49	-21.13	-28.75	1.91	1.91	2.50	
3,700.00	4.96	356.43	3,698.95	27.42	-21.67	-34.58	0.93	0.93	0.88	
3,800.00	5.51	1.30	3,798.53	36.57	-21.91	-41.02	0.70	0.55	4.87	
3,900.00	6.01	12.91	3,898.03	46.49	-20.73	-46.96	1.26	0.50	11.61	
4,000.00	5.68	13.91	3,997.50	56.45	-18.25	-51.98	0.34	-0.33	1.00	
4,100.00	5.06	24.09	4,097.07	65.31	-15.30	-55.90	1.14	-0.62	10.18	
4,200.00	4.45	22.03	4,196.72	72.92	-12.04	-58.74	0.63	-0.61	-2.06	
4,300.00	4.01	17.84	4,296.45	79.83	-9.60	-61.70	0.54	-0.45	-4.19	
4,400.00	3.98	22.84	4,396.20	86.40	-7.06	-64.35	0.35	-0.02	5.00	
4,500.00	3.42	17.92	4,496.00	92.42	-4.80	-66.83	0.65	-0.56	-4.93	
4,600.00	3.33	13.24	4,595.84	97.88	-3.34	-69.51	0.29	-0.09	-4.68	
4,700.00	4.15	14.84	4,695.62	104.27	-1.78	-72.75	0.83	0.82	1.60	



# Scientific Drilling International

## Survey Report



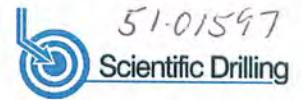
<b>Company:</b>	Chevron Appalachia, LLC	<b>Local Co-ordinate Reference:</b>	Well Conner 4H
<b>Project:</b>	Marshall County, WV	<b>TVD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Site:</b>	Conner Pad	<b>MD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Well:</b>	Conner 4H	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Northeast District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	4.82	17.67	4,795.31	111.75	0.42	-76.28	0.71	0.67	2.83
4,900.00	5.80	23.17	4,894.89	120.35	3.48	-79.94	1.10	0.97	5.50
5,000.00	6.84	30.52	4,994.27	130.26	8.57	-83.02	1.32	1.04	7.35
5,100.00	6.57	31.95	5,093.54	140.46	15.03	-85.31	0.32	-0.27	1.43
5,200.00	5.53	28.81	5,192.98	149.51	20.35	-87.64	1.08	-1.03	-3.14
5,300.00	4.61	26.02	5,292.59	157.35	24.40	-90.07	0.95	-0.92	-2.79
5,400.00	3.71	19.90	5,392.33	163.99	27.31	-92.49	1.00	-0.90	-6.12
5,500.00	3.11	14.43	5,492.15	169.63	29.01	-95.12	0.68	-0.60	-5.46
5,600.00	2.85	52.41	5,592.01	174.56	30.72	-97.26	1.96	-0.27	37.98
5,700.00	8.62	112.30	5,691.57	173.36	39.25	-90.22	7.60	5.78	59.89
5,800.00	18.30	121.73	5,788.83	162.67	59.30	-68.30	9.89	9.67	9.43
5,900.00	29.31	125.39	5,880.14	140.02	92.73	-28.43	11.11	11.01	3.66
6,000.00	38.60	128.86	5,962.67	106.33	137.80	27.49	9.49	9.29	3.47
6,100.00	45.49	133.15	6,036.60	62.14	188.47	94.67	7.46	6.89	4.29
6,200.00	49.84	135.29	6,104.00	10.42	241.18	168.50	4.63	4.35	2.14
6,300.00	51.65	135.83	6,166.80	-45.28	295.52	246.24	1.86	1.81	0.54
6,400.00	55.79	134.82	6,226.52	-102.42	351.77	326.36	4.22	4.14	-1.02
6,500.00	65.18	132.99	6,276.33	-162.47	414.12	412.92	9.52	9.39	-1.83
6,600.00	75.40	132.45	6,310.00	-226.15	483.29	506.94	10.23	10.22	-0.54
6,700.00	77.92	132.34	6,332.62	-291.82	555.23	604.33	2.52	2.52	-0.11
6,800.00	82.67	132.06	6,349.81	-357.90	628.24	702.79	4.76	4.75	-0.28
6,900.00	89.52	136.25	6,356.19	-427.63	699.51	802.47	8.02	6.85	4.19
7,000.00	90.58	135.74	6,355.89	-499.52	769.02	902.36	1.18	1.06	-0.50
7,100.00	89.82	135.09	6,355.45	-571.04	838.90	1,002.27	1.01	-0.76	-0.66
7,200.00	88.77	132.73	6,356.86	-639.94	911.34	1,102.25	2.58	-1.04	-2.36
7,300.00	88.60	132.96	6,359.18	-708.01	984.57	1,202.22	0.29	-0.17	0.23
7,400.00	88.23	132.89	6,361.77	-776.05	1,057.81	1,302.18	0.38	-0.37	-0.07
7,500.00	90.04	133.36	6,364.69	-844.25	1,130.87	1,402.13	1.88	1.82	0.46
7,600.00	92.80	133.72	6,360.79	-913.26	1,203.12	1,502.04	2.78	2.76	0.36
7,700.00	92.58	133.19	6,356.33	-982.05	1,275.56	1,601.94	0.57	-0.22	-0.52
7,800.00	91.85	133.37	6,352.07	-1,050.29	1,348.53	1,701.85	0.75	-0.73	0.18
7,900.00	91.49	133.98	6,349.54	-1,119.39	1,420.77	1,801.81	0.70	-0.36	0.61
8,000.00	90.69	134.76	6,347.31	-1,189.24	1,492.30	1,901.77	1.12	-0.80	0.78
8,100.00	89.40	137.41	6,347.24	-1,261.00	1,561.93	2,001.65	2.94	-1.29	2.64
8,200.00	88.22	138.97	6,349.34	-1,335.72	1,628.34	2,101.23	1.96	-1.18	1.56
8,300.00	89.17	139.17	6,351.89	-1,411.32	1,693.74	2,200.67	0.97	0.95	0.19
8,400.00	85.73	140.76	6,355.96	-1,487.73	1,758.10	2,299.89	3.79	-3.44	1.59
8,500.00	85.56	140.66	6,363.69	-1,564.92	1,821.19	2,398.75	0.20	-0.17	-0.10
8,600.00	85.56	140.83	6,371.40	-1,642.30	1,884.07	2,497.56	0.17	0.00	0.17
8,700.00	85.05	136.46	6,379.64	-1,717.05	1,949.94	2,596.76	4.39	-0.50	-4.37
8,800.00	85.58	133.12	6,388.19	-1,786.96	2,020.91	2,696.35	3.37	0.52	-3.34
8,900.00	87.93	132.07	6,393.61	-1,854.47	2,094.47	2,796.19	2.57	2.35	-1.05
9,000.00	89.46	131.57	6,396.03	-1,921.03	2,169.06	2,896.12	1.61	1.53	-0.50
9,100.00	90.64	131.26	6,395.54	-1,987.26	2,243.98	2,996.07	1.22	1.18	-0.30



# Scientific Drilling International

## Survey Report

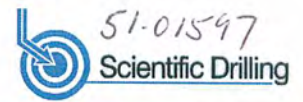


<b>Company:</b> Chevron Appalachia, LLC	<b>Local Co-ordinate Reference:</b> Well Conner 4H
<b>Project:</b> Marshall County, WV	<b>TVD Reference:</b> GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Site:</b> Conner Pad	<b>MD Reference:</b> GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Well:</b> Conner 4H	<b>North Reference:</b> True
<b>Wellbore:</b> OH	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Northeast District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,200.00	90.74	130.96	6,394.36	-2,052.91	2,319.40	3,095.99	0.32	0.10	-0.30	
9,300.00	91.02	131.11	6,392.88	-2,118.51	2,394.86	3,195.90	0.32	0.29	0.15	
9,400.00	91.09	133.74	6,390.92	-2,185.37	2,469.18	3,295.84	2.63	0.06	2.63	
9,500.00	89.76	134.85	6,389.87	-2,255.76	2,540.20	3,395.80	1.73	-1.33	1.11	
9,600.00	89.38	134.55	6,390.95	-2,326.11	2,611.26	3,495.76	0.48	-0.38	-0.30	
9,700.00	89.28	134.45	6,392.08	-2,396.17	2,682.61	3,595.73	0.14	-0.10	-0.10	
9,800.00	89.32	134.60	6,393.32	-2,466.26	2,753.92	3,695.70	0.16	0.04	0.15	
9,900.00	89.11	134.53	6,394.67	-2,536.44	2,825.15	3,795.66	0.23	-0.22	-0.06	
10,000.00	88.77	134.65	6,396.51	-2,606.62	2,896.36	3,895.62	0.35	-0.33	0.12	
10,100.00	88.28	135.29	6,399.11	-2,677.36	2,966.99	3,995.54	0.81	-0.49	0.64	
10,200.00	88.19	134.52	6,402.18	-2,747.82	3,037.89	4,095.45	0.78	-0.09	-0.77	
10,300.00	87.94	134.99	6,405.53	-2,818.17	3,108.87	4,195.36	0.53	-0.25	0.47	
10,400.00	87.90	135.08	6,409.41	-2,889.11	3,179.25	4,295.23	0.10	-0.03	0.09	
10,500.00	88.87	133.73	6,412.12	-2,959.02	3,250.70	4,395.17	1.65	0.96	-1.35	
10,600.00	89.08	132.81	6,413.72	-3,027.46	3,323.58	4,495.15	0.95	0.21	-0.93	
10,700.00	89.97	132.85	6,415.22	-3,095.22	3,397.11	4,595.14	0.89	0.89	0.04	
10,800.00	91.50	133.14	6,413.40	-3,163.59	3,470.06	4,695.12	1.55	1.53	0.29	
10,900.00	91.61	133.39	6,410.64	-3,231.94	3,543.00	4,795.08	0.28	0.11	0.25	
11,000.00	91.34	133.43	6,407.97	-3,300.82	3,615.45	4,895.04	0.27	-0.27	0.03	
11,100.00	90.70	132.84	6,406.12	-3,369.21	3,688.38	4,995.02	0.87	-0.64	-0.58	
11,200.00	91.16	132.19	6,404.83	-3,436.78	3,762.08	5,095.00	0.80	0.46	-0.65	
11,300.00	89.79	133.04	6,403.48	-3,504.24	3,835.88	5,194.98	1.61	-1.37	0.85	
11,400.00	89.25	132.72	6,404.57	-3,572.47	3,908.98	5,294.97	0.62	-0.54	-0.32	
11,500.00	89.14	133.15	6,405.98	-3,640.49	3,982.27	5,394.96	0.45	-0.11	0.43	
11,600.00	89.39	133.14	6,407.29	-3,708.90	4,055.20	5,494.95	0.26	0.26	-0.01	
11,700.00	90.13	134.03	6,407.66	-3,777.80	4,127.67	5,594.95	1.16	0.74	0.89	
11,800.00	88.97	136.22	6,408.50	-3,848.74	4,198.13	5,694.88	2.48	-1.16	2.19	
11,900.00	88.93	136.75	6,410.46	-3,921.22	4,267.00	5,794.70	0.53	-0.04	0.53	
12,000.00	89.76	137.76	6,411.41	-3,994.56	4,334.97	5,894.46	1.30	0.83	1.01	
12,100.00	89.10	139.41	6,412.23	-4,069.62	4,401.04	5,994.01	1.78	-0.66	1.65	
12,200.00	88.58	140.88	6,414.84	-4,146.23	4,465.25	6,093.28	1.56	-0.52	1.48	
12,300.00	89.00	142.23	6,416.13	-4,224.86	4,527.01	6,192.14	1.41	0.41	1.34	
12,400.00	87.40	141.72	6,419.69	-4,303.61	4,588.53	6,290.91	1.68	-1.60	-0.51	
12,500.00	86.43	138.74	6,424.93	-4,380.73	4,651.95	6,389.95	3.13	-0.96	-2.98	
12,600.00	86.76	136.94	6,431.16	-4,454.43	4,719.25	6,489.46	1.82	0.33	-1.80	
12,700.00	89.13	135.62	6,434.97	-4,526.65	4,788.29	6,589.24	2.72	2.37	-1.33	
12,800.00	89.46	135.41	6,436.00	-4,597.92	4,858.43	6,689.16	0.38	0.33	-0.20	
12,900.00	88.98	135.50	6,437.35	-4,669.23	4,928.53	6,789.08	0.48	-0.48	0.08	
13,000.00	88.65	133.23	6,439.41	-4,739.00	5,000.13	6,889.03	2.28	-0.33	-2.26	
13,100.00	88.17	133.18	6,442.17	-4,807.50	5,072.93	6,989.00	0.48	-0.47	-0.06	
13,200.00	88.18	132.54	6,445.75	-4,875.46	5,146.20	7,088.93	0.64	0.00	-0.64	
13,300.00	89.67	131.98	6,447.19	-4,942.70	5,220.20	7,188.90	1.60	1.50	-0.56	
13,400.00	89.15	130.91	6,448.12	-5,009.08	5,294.98	7,288.85	1.19	-0.52	-1.07	



**Scientific Drilling International**  
Survey Report



<b>Company:</b>	Chevron Appalachia, LLC	<b>Local Co-ordinate Reference:</b>	Well Conner 4H
<b>Project:</b>	Marshall County, WV	<b>TVD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Site:</b>	Conner Pad	<b>MD Reference:</b>	GL 1220' & KB 32' @ 1252.00ft (Nabors X7)
<b>Well:</b>	Conner 4H	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Northeast District

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,500.00	90.27	129.60	6,449.69	-5,073.39	5,371.54	7,388.67	1.72	1.12	-1.30
13,600.00	92.74	129.53	6,446.13	-5,137.03	5,448.58	7,488.39	2.47	2.47	-0.07
13,700.00	92.54	129.25	6,441.45	-5,200.50	5,525.71	7,588.06	0.34	-0.19	-0.28
13,800.00	91.87	128.41	6,437.47	-5,263.26	5,603.46	7,687.69	1.08	-0.68	-0.84
13,900.00	91.19	127.83	6,434.90	-5,324.82	5,682.22	7,787.24	0.90	-0.68	-0.59
14,000.00	90.71	127.89	6,433.26	-5,386.12	5,761.22	7,886.77	0.48	-0.48	0.06
14,050.03	90.44	127.95	6,432.75	-5,416.87	5,800.68	7,936.58	0.55	-0.53	0.12
<b>Last SDI MWD Survey</b>									
14,100.00	90.44	127.95	6,432.37	-5,447.60	5,840.08	7,986.34	0.00	0.00	0.00

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Coal Seam Target	0.00	0.00	784.00	0.00	0.00	505,331.97	1,617,510.40	39° 52' 50.444 N	80° 45' 2.639 W
- hit/miss target									
- Shape									
- actual wellpath misses target center by 5.06ft at 784.30ft MD (784.02 TVD, 4.67 N, 1.93 E)									
- Circle (radius 7.60)									
Conner 4H wp01 PBHL	0.00	0.00	6,350.01	-5,479.72	5,823.84	499,771.71	1,623,257.38	39° 51' 56.281 N	80° 43' 47.947 W
- actual wellpath misses target center by 89.88ft at 14100.00ft MD (6432.37 TVD, -5447.60 N, 5840.08 E)									
- Point									
Conner 4H LP	0.00	0.00	6,367.01	59.39	191.76	505,388.68	1,617,702.96	39° 52' 51.031 N	80° 45' 0.179 W
- actual wellpath misses target center by 248.56ft at 6301.38ft MD (6167.66 TVD, -46.06 N, 296.28 E)									
- Circle (radius 200.00)									

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
100.00	100.00	0.25	0.26	First Gyro Data Gyro Survey
3,278.00	3,277.46	11.91	-19.96	Last Gyro Data Gyro Survey
3,437.01	3,436.46	12.56	-20.38	First SDI MWD Survey
14,050.03	6,432.75	-5,416.87	5,800.68	Last SDI MWD Survey
14,102.03	6,432.35	-5,448.85	5,841.68	Projection to Bit

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_