

# Citation Oil & Gas Corp

Stafford Co., Kansas  
Section 1-T22S-R14W  
Bordewick #10 (New SHL)

OH

Design: OH

## Standard Survey Report

10 June, 2013





Citation Oil & Gas Corp  
 Project: Stafford Co., Kansas  
 Site: Section 1-T22S-R14W  
 Well: Bordewick #10 (New SHL)  
 Wellbore: OH  
 Design: Plan #3 05Mar13 DS  
 Latitude: 38.173245  
 Longitude: -98.807073  
 Ground Level: 1917.00  
 Est 20' KB @ 1937.00ft (Duke #10)



REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Bordewick #10 (New SHL), Grid North  
 Vertical (TVD) Reference: Est 20' KB @ 1937.00ft (Duke #10)  
 Section (VS) Reference: Slot - (0.00N, 0.00E)  
 Measured Depth Reference: Est 20' KB @ 1937.00ft (Duke #10)  
 Calculation Method: Minimum Curvature

PROJECT DETAILS: Stafford Co., Kansas

Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Kansas South 1502  
 System Datum: Mean Sea Level

CASING DETAILS

TVD	MD	Name
790.00	790.00	Surface Casing

WELL DETAILS: Bordewick #10 (New SHL)

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.00	0.00	548717.00	1911724.00	38.173245	-98.807073	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	
1284.02	6.51	86.40	1283.09	1.55	24.58	1.50	86.40	24.63	
3744.80	6.51	86.40	3728.00	19.05	303.04	0.00	0.00	303.64	
4018.57	6.51	86.40	4000.00	21.00	334.02	0.00	0.00	334.68	

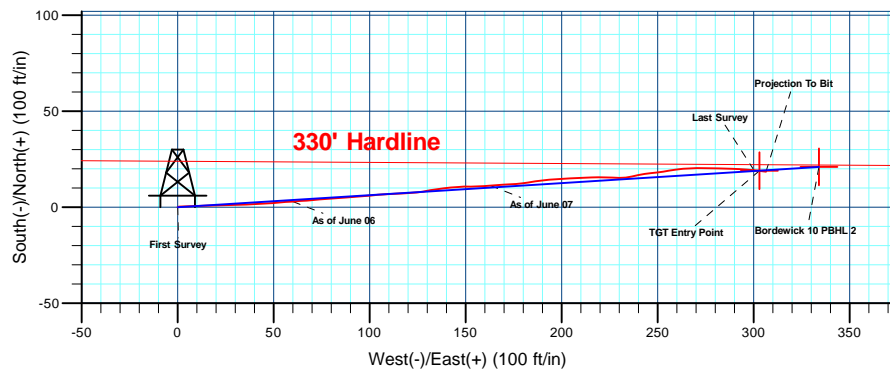
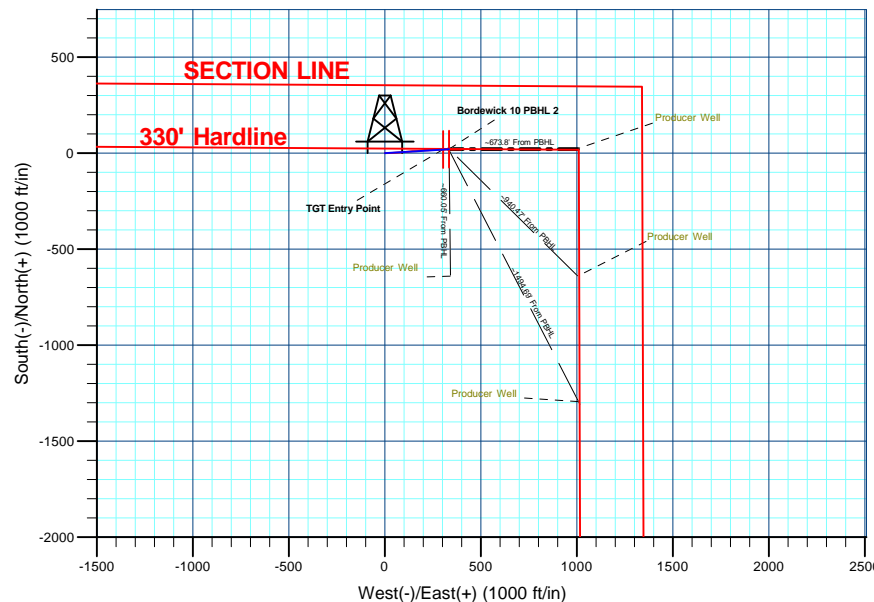
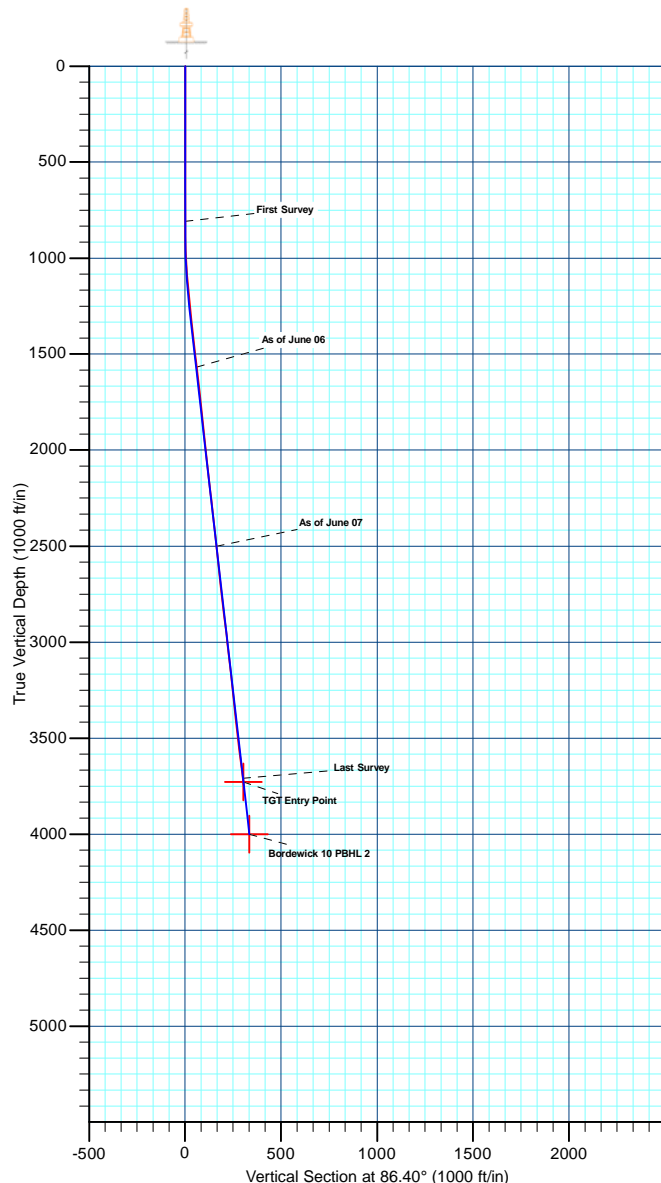
TGT Entry Point  
Bordewick 10 PBHL 2

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TGT Entry Point	3728.00	19.05	303.04	548736.05	1912027.02	38.173300	-98.806019	Point
Bordewick 10 PBHL 2	4000.00	21.00	334.02	548738.00	1912058.00	38.173306	-98.805911	Point

Azimuths to Grid North  
 True North: 0.19°  
 Magnetic North: 5.16°

Magnetic Field  
 Strength: 52279.3snT  
 Dip Angle: 66.01°  
 Date: 05/29/2013  
 Model: IGRF2010



Plan: Plan #3 05Mar13 DS (Bordewick #10 (New SHL)/OH)

Created By: Rolando Garza Date: 10:15, June 10 2013

<b>Company:</b>	Citation Oil & Gas Corp	<b>Local Co-ordinate Reference:</b>	Well Bordewick #10 (New SHL)
<b>Project:</b>	Stafford Co., Kansas	<b>TVD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Site:</b>	Section 1-T22S-R14W	<b>MD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Well:</b>	Bordewick #10 (New SHL)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	CompassVM

<b>Project</b>	Stafford Co., Kansas		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Kansas South 1502		Using geodetic scale factor

<b>Site</b>	Section 1-T22S-R14W				
<b>Site Position:</b>		<b>Northing:</b>	548,690.02 usft	<b>Latitude:</b>	38.173177
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,912,359.23 usft	<b>Longitude:</b>	-98.804863
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	1.10 ft	<b>Grid Convergence:</b>	-0.19 °

<b>Well</b>	Bordewick #10 (New SHL)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	548,717.00 usft	<b>Latitude:</b>	38.173245
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,911,724.00 usft	<b>Longitude:</b>	-98.807073
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,917.00 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>
	IGRF2010	05/29/13	4.97	66.01	52,279

<b>Design</b>	OH				
<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	86.40	

<b>Survey Program</b>	<b>Date</b>	06/10/13			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
808.00	3,777.00	OH (OH)	MWD	MWD - Standard	

<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 (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
808.00	0.00	360.00	808.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>First Survey</b>										
817.00	0.30	52.80	817.00	0.01	0.02	0.02	3.33	3.33	0.00	
849.00	0.10	318.40	849.00	0.09	0.07	0.07	1.01	-0.63	-295.00	
880.00	0.40	70.40	880.00	0.14	0.15	0.16	1.44	0.97	361.29	
910.00	1.20	75.90	910.00	0.25	0.55	0.57	2.68	2.67	18.33	
942.00	1.90	85.80	941.98	0.37	1.41	1.43	2.33	2.19	30.94	
974.00	2.50	86.90	973.96	0.45	2.63	2.66	1.88	1.88	3.44	
1,001.00	3.30	85.80	1,000.93	0.54	4.00	4.02	2.97	2.96	-4.07	
1,036.00	4.00	88.50	1,035.85	0.65	6.22	6.25	2.06	2.00	7.71	

<b>Company:</b>	Citation Oil & Gas Corp	<b>Local Co-ordinate Reference:</b>	Well Bordewick #10 (New SHL)
<b>Project:</b>	Stafford Co., Kansas	<b>TVD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Site:</b>	Section 1-T22S-R14W	<b>MD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Well:</b>	Bordewick #10 (New SHL)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	CompassVM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,068.00	4.50	89.00	1,067.77	0.70	8.59	8.62	1.57	1.56	1.56	
1,100.00	4.60	88.90	1,099.67	0.74	11.13	11.16	0.31	0.31	-0.31	
1,131.00	4.70	91.00	1,130.56	0.74	13.64	13.66	0.64	0.32	6.77	
1,162.00	5.10	90.40	1,161.45	0.71	16.29	16.30	1.30	1.29	-1.94	
1,194.00	5.40	88.50	1,193.32	0.74	19.22	19.23	1.08	0.94	-5.94	
1,225.00	5.70	85.20	1,224.17	0.91	22.21	22.22	1.41	0.97	-10.65	
1,256.00	5.90	86.60	1,255.01	1.13	25.34	25.36	0.79	0.65	4.52	
1,288.00	6.10	89.00	1,286.84	1.26	28.68	28.70	1.00	0.63	7.50	
1,319.00	6.00	90.10	1,317.66	1.29	31.94	31.96	0.49	-0.32	3.55	
1,350.00	6.20	88.50	1,348.49	1.33	35.24	35.25	0.85	0.65	-5.16	
1,382.00	6.20	85.60	1,380.30	1.50	38.69	38.71	0.98	0.00	-9.06	
1,413.00	6.30	85.30	1,411.12	1.77	42.05	42.08	0.34	0.32	-0.97	
1,444.00	6.60	87.80	1,441.92	1.98	45.53	45.56	1.33	0.97	8.06	
1,476.00	6.60	87.20	1,473.71	2.14	49.20	49.24	0.22	0.00	-1.88	
1,507.00	6.80	84.90	1,504.50	2.39	52.81	52.86	1.08	0.65	-7.42	
1,538.00	6.50	85.00	1,535.29	2.71	56.39	56.44	0.97	-0.97	0.32	
1,570.00	6.70	86.50	1,567.08	2.98	60.05	60.12	0.83	0.63	4.69	
<b>As of June 06</b>										
1,601.00	6.70	86.40	1,597.87	3.20	63.66	63.74	0.04	0.00	-0.32	
1,633.00	6.50	86.30	1,629.65	3.44	67.33	67.42	0.63	-0.63	-0.31	
1,663.00	6.40	83.60	1,659.46	3.73	70.69	70.79	1.06	-0.33	-9.00	
1,695.00	6.40	84.70	1,691.26	4.10	74.24	74.35	0.38	0.00	3.44	
1,727.00	6.60	85.50	1,723.06	4.41	77.85	77.97	0.69	0.63	2.50	
1,758.00	6.70	87.80	1,753.85	4.61	81.43	81.56	0.92	0.32	7.42	
1,789.00	6.10	85.40	1,784.66	4.82	84.88	85.01	2.12	-1.94	-7.74	
1,821.00	5.80	84.40	1,816.48	5.11	88.18	88.33	0.99	-0.94	-3.13	
1,853.00	5.80	85.60	1,848.32	5.39	91.41	91.56	0.38	0.00	3.75	
1,884.00	5.80	85.40	1,879.16	5.64	94.53	94.70	0.07	0.00	-0.65	
1,915.00	6.10	85.80	1,909.99	5.88	97.73	97.91	0.98	0.97	1.29	
1,946.00	6.00	84.70	1,940.82	6.15	100.99	101.18	0.49	-0.32	-3.55	
1,978.00	6.00	84.90	1,972.65	6.46	104.32	104.52	0.07	0.00	0.63	
2,009.00	6.10	86.20	2,003.47	6.71	107.58	107.79	0.55	0.32	4.19	
2,040.00	6.10	87.50	2,034.30	6.89	110.87	111.08	0.45	0.00	4.19	
2,072.00	6.10	86.50	2,066.12	7.07	114.26	114.48	0.33	0.00	-3.13	
2,103.00	6.10	87.40	2,096.94	7.25	117.55	117.77	0.31	0.00	2.90	
2,134.00	6.20	86.90	2,127.76	7.41	120.87	121.09	0.37	0.32	-1.61	
2,165.00	6.40	84.70	2,158.58	7.66	124.26	124.50	1.01	0.65	-7.10	
2,197.00	6.70	79.30	2,190.37	8.17	127.87	128.13	2.14	0.94	-16.88	
2,228.00	6.80	79.70	2,221.15	8.84	131.45	131.75	0.36	0.32	1.29	
2,259.00	6.80	83.10	2,251.93	9.38	135.08	135.40	1.30	0.00	10.97	
2,290.00	6.70	82.60	2,282.72	9.84	138.70	139.04	0.37	-0.32	-1.61	
2,321.00	6.80	84.20	2,313.50	10.26	142.31	142.68	0.69	0.32	5.16	
2,353.00	6.60	86.50	2,345.29	10.56	146.03	146.41	1.05	-0.63	7.19	

<b>Company:</b>	Citation Oil & Gas Corp	<b>Local Co-ordinate Reference:</b>	Well Bordewick #10 (New SHL)
<b>Project:</b>	Stafford Co., Kansas	<b>TVD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Site:</b>	Section 1-T22S-R14W	<b>MD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Well:</b>	Bordewick #10 (New SHL)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	CompassVM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,383.00	6.20	88.10	2,375.10	10.72	149.37	149.75	1.46	-1.33	5.33	
2,415.00	6.20	91.00	2,406.91	10.75	152.83	153.20	0.98	0.00	9.06	
2,446.00	6.10	87.10	2,437.73	10.80	156.15	156.52	1.39	-0.32	-12.58	
2,478.00	6.20	86.30	2,469.55	11.00	159.57	159.95	0.41	0.31	-2.50	
2,509.00	6.20	86.30	2,500.37	11.21	162.91	163.29	0.00	0.00	0.00	
<b>As of June 07</b>										
2,540.00	6.10	84.90	2,531.19	11.47	166.22	166.61	0.58	-0.32	-4.52	
2,572.00	6.20	86.40	2,563.01	11.73	169.64	170.04	0.59	0.31	4.69	
2,603.00	6.20	87.30	2,593.82	11.91	172.98	173.39	0.31	0.00	2.90	
2,635.00	5.90	84.10	2,625.65	12.16	176.35	176.76	1.41	-0.94	-10.00	
2,666.00	5.60	84.00	2,656.49	12.48	179.43	179.86	0.97	-0.97	-0.32	
2,698.00	5.60	82.20	2,688.34	12.86	182.53	182.98	0.55	0.00	-5.63	
2,729.00	6.20	81.60	2,719.17	13.31	185.69	186.16	1.95	1.94	-1.94	
2,760.00	6.90	82.30	2,749.97	13.80	189.19	189.68	2.27	2.26	2.26	
2,792.00	7.20	83.50	2,781.73	14.29	193.09	193.60	1.04	0.94	3.75	
2,823.00	6.90	86.00	2,812.49	14.64	196.88	197.41	1.38	-0.97	8.06	
2,854.00	6.90	87.00	2,843.27	14.86	200.59	201.13	0.39	0.00	3.23	
2,884.00	6.90	87.60	2,873.05	15.03	204.19	204.73	0.24	0.00	2.00	
2,915.00	6.90	87.40	2,903.83	15.20	207.91	208.46	0.08	0.00	-0.65	
2,946.00	6.90	87.40	2,934.60	15.37	211.63	212.18	0.00	0.00	0.00	
2,978.00	7.00	87.70	2,966.37	15.53	215.50	216.05	0.33	0.31	0.94	
3,009.00	6.90	89.70	2,997.14	15.62	219.25	219.80	0.84	-0.32	6.45	
3,041.00	6.60	91.60	3,028.92	15.58	223.01	223.55	1.17	-0.94	5.94	
3,072.00	6.40	93.10	3,059.72	15.43	226.52	227.04	0.85	-0.65	4.84	
3,103.00	6.30	91.40	3,090.53	15.30	229.94	230.45	0.69	-0.32	-5.48	
3,135.00	6.20	82.50	3,122.34	15.48	233.41	233.92	3.04	-0.31	-27.81	
3,166.00	6.30	77.80	3,153.16	16.06	236.73	237.28	1.68	0.32	-15.16	
3,197.00	6.30	77.80	3,183.97	16.78	240.06	240.64	0.00	0.00	0.00	
3,228.00	6.10	82.90	3,214.79	17.34	243.36	243.97	1.89	-0.65	16.45	
3,260.00	5.90	82.30	3,246.61	17.77	246.67	247.30	0.66	-0.63	-1.88	
3,291.00	5.90	83.50	3,277.45	18.16	249.84	250.48	0.40	0.00	3.87	
3,321.00	6.10	81.70	3,307.28	18.57	252.94	253.61	0.92	0.67	-6.00	
3,352.00	6.20	79.70	3,338.11	19.11	256.22	256.92	0.76	0.32	-6.45	
3,384.00	6.20	83.00	3,369.92	19.63	259.64	260.36	1.11	0.00	10.31	
3,415.00	6.00	84.90	3,400.74	19.97	262.91	263.65	0.92	-0.65	6.13	
3,446.00	6.20	86.70	3,431.57	20.21	266.20	266.94	0.89	0.65	5.81	
3,478.00	6.70	89.60	3,463.37	20.33	269.79	270.53	1.86	1.56	9.06	
3,508.00	6.90	90.50	3,493.15	20.32	273.34	274.08	0.76	0.67	3.00	
3,539.00	7.00	90.20	3,523.93	20.30	277.09	277.82	0.34	0.32	-0.97	
3,570.00	7.20	91.00	3,554.69	20.26	280.92	281.64	0.72	0.65	2.58	
3,601.00	7.20	92.10	3,585.44	20.15	284.81	285.51	0.44	0.00	3.55	
3,633.00	7.20	91.10	3,617.19	20.04	288.82	289.50	0.39	0.00	-3.13	
3,664.00	7.20	94.00	3,647.95	19.87	292.70	293.37	1.17	0.00	9.35	
3,696.00	7.00	93.60	3,679.70	19.61	296.64	297.29	0.64	-0.63	-1.25	

<b>Company:</b>	Citation Oil & Gas Corp	<b>Local Co-ordinate Reference:</b>	Well Bordewick #10 (New SHL)
<b>Project:</b>	Stafford Co., Kansas	<b>TVD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Site:</b>	Section 1-T22S-R14W	<b>MD Reference:</b>	Est 20' KB @ 1937.00ft (Duke #10)
<b>Well:</b>	Bordewick #10 (New SHL)	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	CompassVM

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,726.00	7.00	96.50	3,709.48	19.29	300.28	300.90	1.18	0.00	9.67
<b>Last Survey</b>									
3,777.00	7.00	96.50	3,760.10	18.58	306.46	307.02	0.00	0.00	0.00
<b>Projection To Bit</b>									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
808.00	808.00	0.00	0.00	First Survey	
1,570.00	1,567.08	2.98	60.05	As of June 06	
2,509.00	2,500.37	11.21	162.91	As of June 07	
3,726.00	3,709.48	19.29	300.28	Last Survey	
3,777.00	3,760.10	18.58	306.46	Projection To Bit	

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