

4700900118

Chesapeake Appalachia, LLC

Brooke County, WV
Tiltonsville
Edward Zatta BRK 10H

Wellbore #1

Plan: Plan #1

Sperry Drilling Services Proposal Report

06 April, 2012

Well Coordinates: 638,087.09 N, 1,683,803.90 E (40° 14' 46.96" N, 080° 37' 57.71" W)
Ground Level: 1,220.00 ft

Local Coordinate Origin:	Centered on Well Edward Zatta BRK 10H
Viewing Datum:	GL 1220' + KB 16' @ 1236.00ft (Nomac 25)
TVDs to System:	N
North Reference:	Grid
Unit System:	API-US Survey Feet

Version: 2003.16 Build: 431

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HALLIBURTON**Plan Report for Edward Zatta BRK 10H - Plan #1**

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)	Toolface Azimuth (°)
5,104.00	18.35	36.09	4,963.81	752.05	522.09	-501.71	0.00	0.00	0.00	0.00
Tie-On										
5,200.00	18.35	36.09	5,054.93	776.47	539.89	-517.68	0.00	0.00	0.00	0.00
5,251.00	18.35	36.09	5,103.34	789.45	549.35	-526.17	0.00	0.00	0.00	0.00
Start Build/Turn @ 5251.00' MD - Dogleg = 12.00°/100'										
5,300.00	15.99	54.44	5,150.19	799.61	559.39	-531.83	12.00	-4.82	37.46	122.15
5,400.00	17.30	97.01	5,246.34	805.83	585.45	-527.83	12.00	1.31	42.57	104.60
5,500.00	24.98	123.19	5,339.74	792.40	618.00	-503.19	12.00	7.68	26.18	63.66
5,551.40	30.00	130.99	5,385.34	778.01	636.80	-482.81	12.00	9.77	15.16	39.13
End Build/Turn @ 5551.40' MD - Hold Angle = 30.00°										
5,600.00	30.00	130.99	5,427.43	762.07	655.15	-461.16	0.00	0.00	0.00	32.21
5,682.15	30.00	130.99	5,498.57	735.13	686.15	-424.56	0.00	0.00	0.00	0.00
Start Build/Turn @ 5682.15' MD - Dogleg = 12.00°/100'										
5,700.00	31.86	133.06	5,513.88	728.99	692.97	-416.32	12.00	10.42	11.58	30.63
5,800.00	42.72	141.56	5,593.37	684.23	733.49	-359.64	12.00	10.86	8.50	28.85
5,900.00	54.00	147.10	5,659.73	623.48	776.71	-287.12	12.00	11.27	5.54	22.05
6,000.00	65.46	151.22	5,710.08	549.38	820.74	-201.92	12.00	11.46	4.13	18.35
6,100.00	77.01	154.65	5,742.20	465.18	863.65	-107.77	12.00	11.56	3.43	16.26
6,200.00	88.61	157.77	5,754.69	374.55	903.57	-8.79	12.00	11.60	3.12	15.15
6,207.66	89.50	158.00	5,754.81	367.45	906.46	-1.13	12.00	11.60	3.06	14.76
End Build/Turn @ 6207.66' MD - Hold Angle = 89.50°										
6,300.00	89.50	158.00	5,755.62	281.84	941.05	91.21	0.00	0.00	0.00	14.76
6,400.00	89.50	158.00	5,756.49	189.12	978.51	191.20	0.00	0.00	0.00	0.00
6,500.00	89.50	158.00	5,757.37	96.41	1,015.97	291.20	0.00	0.00	0.00	0.00
6,600.00	89.50	158.00	5,758.24	3.69	1,053.43	391.20	0.00	0.00	0.00	0.00
6,700.00	89.50	158.00	5,759.11	-89.02	1,090.88	491.19	0.00	0.00	0.00	0.00
6,800.00	89.50	158.00	5,759.98	-181.74	1,128.34	591.19	0.00	0.00	0.00	0.00
6,900.00	89.50	158.00	5,760.86	-274.45	1,165.80	691.18	0.00	0.00	0.00	0.00
7,000.00	89.50	158.00	5,761.73	-367.17	1,203.26	791.18	0.00	0.00	0.00	0.00
7,100.00	89.50	158.00	5,762.60	-459.88	1,240.72	891.18	0.00	0.00	0.00	0.00
7,200.00	89.50	158.00	5,763.47	-552.60	1,278.18	991.17	0.00	0.00	0.00	0.00
7,300.00	89.50	158.00	5,764.35	-645.31	1,315.64	1,091.17	0.00	0.00	0.00	0.00
7,400.00	89.50	158.00	5,765.22	-738.03	1,353.10	1,191.17	0.00	0.00	0.00	0.00
7,500.00	89.50	158.00	5,766.09	-830.74	1,390.56	1,291.16	0.00	0.00	0.00	0.00
7,600.00	89.50	158.00	5,766.96	-923.46	1,428.02	1,391.16	0.00	0.00	0.00	0.00
7,700.00	89.50	158.00	5,767.84	-1,016.17	1,465.48	1,491.15	0.00	0.00	0.00	0.00
7,800.00	89.50	158.00	5,768.71	-1,108.88	1,502.94	1,591.15	0.00	0.00	0.00	0.00
7,900.00	89.50	158.00	5,769.58	-1,201.60	1,540.40	1,691.15	0.00	0.00	0.00	0.00
8,000.00	89.50	158.00	5,770.46	-1,294.31	1,577.85	1,791.14	0.00	0.00	0.00	0.00
8,100.00	89.50	158.00	5,771.33	-1,387.03	1,615.31	1,891.14	0.00	0.00	0.00	0.00
8,200.00	89.50	158.00	5,772.20	-1,479.74	1,652.77	1,991.13	0.00	0.00	0.00	0.00
8,300.00	89.50	158.00	5,773.07	-1,572.46	1,690.23	2,091.13	0.00	0.00	0.00	0.00
8,400.00	89.50	158.00	5,773.95	-1,665.17	1,727.69	2,191.13	0.00	0.00	0.00	0.00
8,500.00	89.50	158.00	5,774.82	-1,757.89	1,765.15	2,291.12	0.00	0.00	0.00	0.00
8,600.00	89.50	158.00	5,775.69	-1,850.60	1,802.61	2,391.12	0.00	0.00	0.00	0.00
8,700.00	89.50	158.00	5,776.56	-1,943.32	1,840.07	2,491.12	0.00	0.00	0.00	0.00
8,800.00	89.50	158.00	5,777.44	-2,036.03	1,877.53	2,591.11	0.00	0.00	0.00	0.00
8,900.00	89.50	158.00	5,778.31	-2,128.75	1,914.99	2,691.11	0.00	0.00	0.00	0.00
9,000.00	89.50	158.00	5,779.18	-2,221.46	1,952.45	2,791.10	0.00	0.00	0.00	0.00
9,100.00	89.50	158.00	5,780.05	-2,314.18	1,989.91	2,891.10	0.00	0.00	0.00	0.00
9,200.00	89.50	158.00	5,780.93	-2,406.89	2,027.37	2,991.10	0.00	0.00	0.00	0.00
9,300.00	89.50	158.00	5,781.80	-2,499.61	2,064.82	3,091.09	0.00	0.00	0.00	0.00
9,400.00	89.50	158.00	5,782.67	-2,592.32	2,102.28	3,191.09	0.00	0.00	0.00	0.00
9,500.00	89.50	158.00	5,783.55	-2,685.04	2,139.74	3,291.09	0.00	0.00	0.00	0.00
9,600.00	89.50	158.00	5,784.42	-2,777.75	2,177.20	3,391.08	0.00	0.00	0.00	0.00
9,700.00	89.50	158.00	5,785.29	-2,870.47	2,214.66	3,491.08	0.00	0.00	0.00	0.00
9,800.00	89.50	158.00	5,786.16	-2,963.18	2,252.12	3,591.07	0.00	0.00	0.00	0.00
9,900.00	89.50	158.00	5,787.04	-3,055.90	2,289.58	3,691.07	0.00	0.00	0.00	0.00

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Plan Report for Edward Zatta BRK 10H - Plan #1

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)	Toolface Azimuth (°)
10,000.00	89.50	158.00	5,787.91	-3,148.61	2,327.04	3,791.07	0.00	0.00	0.00	0.00
10,100.00	89.50	158.00	5,788.78	-3,241.33	2,364.50	3,891.06	0.00	0.00	0.00	0.00
10,200.00	89.50	158.00	5,789.65	-3,334.04	2,401.96	3,991.06	0.00	0.00	0.00	0.00
10,300.00	89.50	158.00	5,790.53	-3,426.76	2,439.42	4,091.05	0.00	0.00	0.00	0.00
10,400.00	89.50	158.00	5,791.40	-3,519.47	2,476.88	4,191.05	0.00	0.00	0.00	0.00
10,500.00	89.50	158.00	5,792.27	-3,612.19	2,514.34	4,291.05	0.00	0.00	0.00	0.00
10,600.00	89.50	158.00	5,793.14	-3,704.90	2,551.79	4,391.04	0.00	0.00	0.00	0.00
10,700.00	89.50	158.00	5,794.02	-3,797.62	2,589.25	4,491.04	0.00	0.00	0.00	0.00
10,800.00	89.50	158.00	5,794.89	-3,890.33	2,626.71	4,591.04	0.00	0.00	0.00	0.00
10,829.81	89.50	158.00	5,795.15	-3,917.97	2,637.88	4,620.84	0.00	0.00	0.00	0.00

TD at 10829.81' MD

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,104.00	4,963.81	752.05	522.09	Tie-On
5,251.00	5,103.34	789.45	549.35	Start Build/Turn @ 5251.00' MD
5,251.00	5,103.34	789.45	549.35	Dogleg = 12.00°/100'
5,551.40	5,385.34	778.01	636.80	End Build/Turn @ 5551.40' MD
5,551.40	5,385.34	778.01	636.80	Hold Angle = 30.00°
5,682.15	5,498.57	735.13	686.15	Start Build/Turn @ 5682.15' MD
5,682.15	5,498.57	735.13	686.15	Dogleg = 12.00°/100'
6,207.66	5,754.81	367.45	906.46	End Build/Turn @ 6207.66' MD
6,207.66	5,754.81	367.45	906.46	Hold Angle = 89.50°
10,829.81	5,795.15	-3,917.97	2,637.88	TD at 10829.81' MD

Vertical Section Information

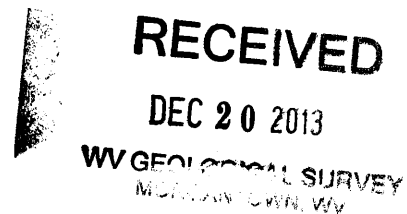
Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (ft)	+E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	158.00	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
5,104.00	10,829.81	Plan #1	MWD

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	5,755.00	Target Line		0.50	158.00



Plan Report for Edward Zatta BRK 10H - Plan #1

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Edward Zatta BRK 10H BHL #2	5,795.15	-3,917.97	2,637.88	Point

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	5/23/2012
State	WEST VIRGINIA
County	BROOKE
API Number	4700900118
Operator Name	CHESAPEAKE APPALACHIA LLC
Operator and Wellhead	EDWARD ZATTA BRK 10H
Leasehold	-801632697
Landlord	40-246379
Production Type	NAD27
Production Type	GAS
Flow Weight Factor (FWD)	5,759
Total Water Volume (gal)	3,288,558

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Concentration by Mass	Concentration in the Fluid % by Mass	Concentration in the Fluid % by Mass	Comments
Fresh Water		Carrier/Base Fluid				77.22903%		
Recycled Produced Water		Carrier/Base Fluid				7.80292%		
Ottawa Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	10.04822%		
100 Mesh Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	4.27236%		
Acid, Hydrochloric 15pct	SCHLUMBE RGER	Acid	Water	007732-18-5	85.00%	0.47149%		
A264	SCHLUMBE RGER	Corrosion Inhibitor	Hydrogen Chloride	007647-01-0	15.00%	0.08320%		
	RGER		Methanol (Methyl Alcohol)	000067-56-1	40.00%	0.00044%		
			Aliphatic acid	N/A	30.00%	0.00033%		
			Aliphatic alcohols, ethoxylated # 1	N/A	30.00%	0.00033%		
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00011%		
L058	SCHLUMBE RGER	Iron Control Agent	Sodium Erythorbate	006381-77-7	100.00%	0.00033%		
EC6110A	NALCO	Anti-Bacterial Agent	Glutaraldehyde	000111-30-8	60.00%	0.01616%		
			Quaternary Ammonium Compounds	N/A	10.00%	0.00269%		
			Ethanol	000064-17-5	5.00%	0.00135%		

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EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE				
J580	SCHLUMBE RGER	Gelling Agent	Carbohydrate polymer	N/A	100.00%	0.01551%		
B315	SCHLUMBE RGER	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8	30.00%	0.01296%		
J218	SCHLUMBE RGER	Breaker	Aliphatic alcohol polyglycol ether Ammonium Persulfate	N/A	1.50%	0.00065%		
				007727-54-0	100.00%	0.00057%		

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

"Additional Ingredients Not Listed on MSDS" component information were obtained directly from the supplier. As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of this information should be directed to the supplier who provided it.

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