

4700900094



Chesapeake Appalachia, LLC

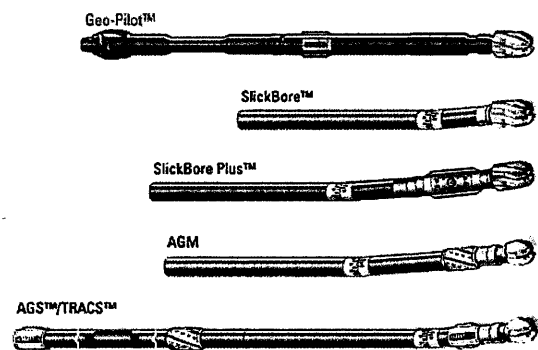
OV Royalty Trust LLC BRK 3H

Brooke County, West Virginia
Nomac #25

Sperry Drilling Services

End of Well Report

Prepared For: Chesapeake Appalachia, LLC



November 23, 2011

Submitted by:
Tim Aitken - Well Planner
Darin Brown - Directional Drilling Coordinator
Randy Guice - Sperry Account Rep.
1-800-332-3992
Houston, TX 77032

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Chesapeake Appalachia. LLC

OV Royalty Trust LLC BRK 3H
Brooke County, West Virginia

End of Well Report

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Sperry Drilling Services

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MORGANTOWN, WV

Final Surveys and Plot

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Chesapeake Appalachia, LLC

HALLIBURTON
Sperry Drilling Services

Project: Brooke County, WV
Site: Steubenville East
Well: OV Royalty Trust LLC BRK 3H
Wellbore: Wellbore #1
Design: Plan #4
Rig: Nomac 25

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
5458.00	32.56	338.74	5442.17	96.70	-38.54	0.00	0.00	104.05	Tie-On
5561.00	39.00	340.00	5525.69	153.05	-59.70	6.29	7.04	164.24	Hold Tangent
5625.70	39.00	340.00	5575.97	191.31	-73.63	0.00	0.00	204.95	Start Build
6056.71	90.70	340.90	5753.00	546.85	-199.16	12.00	1.15	581.98	Start Turn
6101.73	90.70	340.00	5752.45	589.27	-214.23	2.00	-89.90	627.00	End Turn
10521.02	90.70	340.00	5698.35	4741.71	-1725.63	0.00	0.00	5045.95	TD

Surface Location:

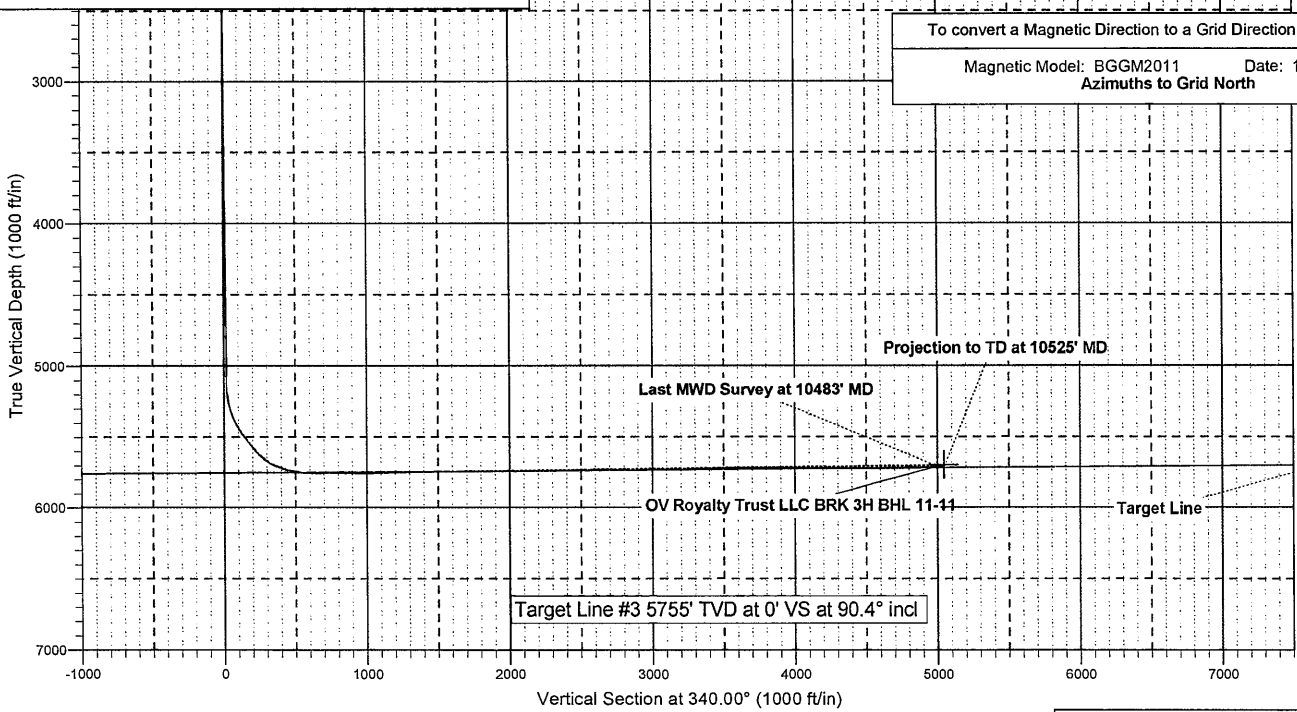
US State Plane 1927 (Exact solution)
West Virginia North 4701
Elevation: GL 1190 + KB 15' @ 1205.00ft (Nomac 25)
Northing: 652230.73 Easting: 1697399.93 Latitude: 40° 17' 8.380 N Longitude: 80° 35' 4.592 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
OV Royalty Trust LLC BRK 3H BHL 11-11	5698.35	4741.71	-1725.63	656972.44	1695674.30	

To convert a Magnetic Direction to a Grid Direction, Subtract 8.10°

Magnetic Model: BGGM2011 Date: 19-Oct-11
Azimuths to Grid North



Created By: Tim Aitken Date: 12:08, November 23 2011

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Chesapeake Appalachia, LLC

HALLIBURTON
Sperry Drilling Services

Project: Brooke County, WV
Site: Steubenville East
Well: OV Royalty Trust LLC BRK 3H
Wellbore: Wellbore #1
Design: Plan #4
Rig: Nomac 25



Surface Location:

US State Plane 1927 (Exact solution)
West Virginia North 4701

Elevation: GL 1190 + KB 15' @ 1205.00ft (Nomac 25)

Northing	Easting	Latitude	Longitude
652230.73	1697399.93	40° 17' 8.380 N	80° 35' 4.592 W

SECTION DETAILS

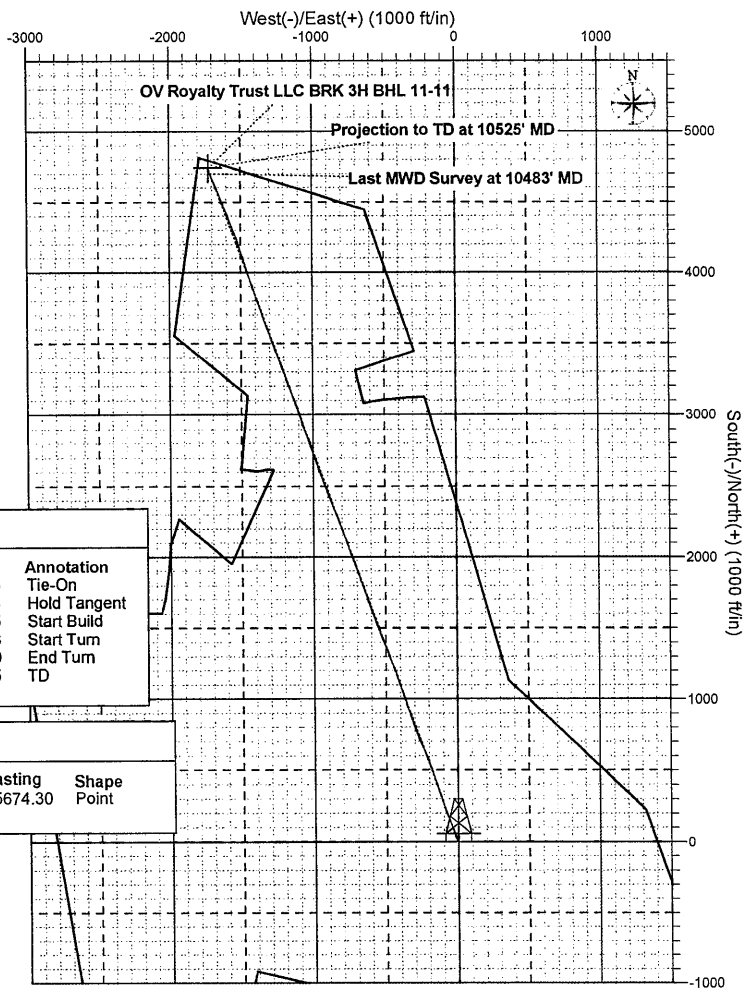
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
5458.00	32.56	338.74	5442.17	96.70	-38.54	0.00	0.00	104.05	Tie-On
5561.00	39.00	340.00	5525.69	153.05	-59.70	6.29	7.04	164.24	Hold Tangent
5625.70	39.00	340.00	5575.97	191.31	-73.63	0.00	0.00	204.95	Start Build
6056.71	90.70	340.90	5753.00	546.85	-199.16	12.00	1.15	581.98	Start Turn
6101.73	90.70	340.00	5752.45	589.27	-214.23	2.00	-89.90	627.00	End Turn
10521.02	90.70	340.00	5698.35	4741.71	-1725.63	0.00	0.00	5045.95	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
OV Royalty Trust LLC BRK 3H BHL 11-11	5698.35	4741.71	-1725.63	656972.44	1695674.30	

To convert a Magnetic Direction to a Grid Direction, Subtract 8.10°

Magnetic Model: BGGM2011 Date: 19-Oct-11
Azimuths to Grid North



Created By: Tim Aitken Date: 12:06, November 23 2011

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Chesapeake Appalachia, LLC

Brooke County, WV
Steubenville East
OV Royalty Trust LLC BRK 3H

Wellbore #1

Design: Surveys

Sperry Drilling Services Combo Report

23 November, 2011

Well Coordinates: 652,230.73 N, 1,697,399.93 E (40° 17' 08.38" N, 080° 35' 04.59" W)
Ground Level: 1,190.00 ft

Local Coordinate Origin:	Centered on Well OV Royalty Trust LLC BRK 3H
Viewing Datum:	GL 1190 + KB 15' @ 1205.00ft (Nomac 25)
TVDs to System:	N
North Reference:	Grid
Unit System:	API-US Survey Feet

Version: 2003.16 Build: 431

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MORGANTOWN, WV

Design Report for OV Royalty Trust LLC BRK 3H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
0.00	0.00	0.00	-1,205.00	0.00	0.00 N	0.00 E	652,230.73	1,697,399.93	0.00	0.00
100.00	0.33	335.60	-1,105.00	100.00	0.26 N	0.12 W	652,230.99	1,697,399.81	0.33	0.29
200.00	0.47	62.48	-1,005.00	200.00	0.71 N	0.13 E	652,231.44	1,697,400.05	0.56	0.63
300.00	0.45	77.61	-905.01	299.99	0.99 N	0.87 E	652,231.72	1,697,400.80	0.12	0.63
400.00	0.42	65.99	-805.01	399.99	1.22 N	1.59 E	652,231.95	1,697,401.52	0.09	0.60
500.00	0.28	13.45	-705.01	499.99	1.61 N	1.98 E	652,232.34	1,697,401.91	0.33	0.83
600.00	0.21	39.28	-605.01	599.99	1.99 N	2.16 E	652,232.72	1,697,402.08	0.13	1.13
700.00	0.06	76.23	-505.01	699.99	2.14 N	2.32 E	652,232.87	1,697,402.25	0.17	1.22
800.00	0.23	113.46	-405.01	799.99	2.07 N	2.56 E	652,232.80	1,697,402.48	0.19	1.07
900.00	0.28	232.44	-305.01	899.99	1.85 N	2.55 E	652,232.58	1,697,402.47	0.44	0.86
1,000.00	0.18	278.14	-205.01	999.99	1.72 N	2.20 E	652,232.45	1,697,402.12	0.20	0.86
1,100.00	0.22	253.09	-105.01	1,099.99	1.69 N	1.86 E	652,232.42	1,697,401.79	0.10	0.95
1,200.00	0.22	219.30	-5.01	1,199.99	1.48 N	1.55 E	652,232.21	1,697,401.48	0.13	0.86
1,300.00	0.20	161.33	94.99	1,299.99	1.17 N	1.49 E	652,231.90	1,697,401.41	0.20	0.59
1,400.00	0.16	124.80	194.98	1,399.98	0.92 N	1.66 E	652,231.65	1,697,401.59	0.12	0.30
1,500.00	0.25	134.57	294.98	1,499.98	0.69 N	1.93 E	652,231.42	1,697,401.86	0.10	-0.01
1,600.00	0.30	88.28	394.98	1,599.98	0.54 N	2.35 E	652,231.27	1,697,402.27	0.22	-0.29
1,700.00	0.48	327.91	494.98	1,699.98	0.91 N	2.39 E	652,231.64	1,697,402.31	0.68	0.04
1,800.00	0.73	314.01	594.98	1,799.98	1.70 N	1.70 E	652,232.43	1,697,401.63	0.29	1.02
1,900.00	0.72	301.61	694.97	1,899.97	2.48 N	0.71 E	652,233.21	1,697,400.64	0.16	2.08
2,000.00	0.57	272.85	794.96	1,999.96	2.83 N	0.32 W	652,233.56	1,697,399.61	0.35	2.77
2,100.00	0.88	256.07	894.95	2,099.95	2.67 N	1.56 W	652,233.40	1,697,398.36	0.37	3.04
2,200.00	0.63	287.95	994.95	2,199.95	2.65 N	2.83 W	652,233.38	1,697,397.10	0.48	3.46
2,300.00	0.73	254.03	1,094.94	2,299.94	2.65 N	3.97 W	652,233.38	1,697,395.96	0.41	3.85
2,400.00	0.58	313.07	1,194.93	2,399.93	2.82 N	4.95 W	652,233.55	1,697,394.98	0.66	4.34
2,500.00	0.46	261.04	1,294.93	2,499.93	3.10 N	5.71 W	652,233.83	1,697,394.21	0.47	4.87
2,600.00	0.55	324.20	1,394.93	2,599.93	3.43 N	6.39 W	652,234.16	1,697,393.53	0.53	5.41
2,700.00	0.57	259.77	1,494.92	2,699.92	3.73 N	7.16 W	652,234.46	1,697,392.76	0.60	5.95
2,800.00	0.29	317.96	1,594.92	2,799.92	3.83 N	7.82 W	652,234.56	1,697,392.10	0.48	6.27
2,900.00	0.58	251.12	1,694.92	2,899.92	3.85 N	8.47 W	652,234.58	1,697,391.46	0.54	6.52
3,000.00	0.27	305.11	1,794.92	2,999.92	3.83 N	9.14 W	652,234.56	1,697,390.78	0.47	6.72
3,100.00	0.55	333.99	1,894.91	3,099.91	4.39 N	9.54 W	652,235.12	1,697,390.38	0.34	7.39
3,200.00	0.46	299.38	1,994.91	3,199.91	5.02 N	10.10 W	652,235.75	1,697,389.82	0.31	8.17
3,300.00	0.34	4.27	2,094.91	3,299.91	5.51 N	10.43 W	652,236.24	1,697,389.49	0.44	8.75
3,400.00	0.56	21.56	2,194.90	3,399.90	6.26 N	10.23 W	652,236.99	1,697,389.70	0.26	9.38
3,500.00	0.56	334.05	2,294.90	3,499.90	7.16 N	10.26 W	652,237.89	1,697,389.66	0.45	10.24
3,600.00	0.23	2.53	2,394.90	3,599.90	7.80 N	10.47 W	652,238.53	1,697,389.46	0.37	10.91
3,700.00	0.52	21.28	2,494.90	3,699.90	8.42 N	10.30 W	652,239.15	1,697,389.63	0.31	11.43
3,800.00	0.34	345.61	2,594.89	3,799.89	9.13 N	10.21 W	652,239.86	1,697,389.72	0.31	12.07
3,900.00	0.27	72.33	2,694.89	3,899.89	9.49 N	10.05 W	652,240.22	1,697,389.87	0.42	12.36
4,000.00	0.34	293.05	2,794.89	3,999.89	9.68 N	10.10 W	652,240.41	1,697,389.82	0.57	12.55
4,100.00	0.28	353.22	2,894.89	4,099.89	10.04 N	10.40 W	652,240.77	1,697,389.52	0.32	12.99
4,200.00	0.57	19.52	2,994.89	4,199.89	10.75 N	10.27 W	652,241.48	1,697,389.66	0.34	13.61
4,300.00	0.48	350.86	3,094.88	4,299.88	11.63 N	10.17 W	652,242.36	1,697,389.76	0.27	14.41
4,400.00	0.41	61.71	3,194.88	4,399.88	12.21 N	9.92 W	652,242.94	1,697,390.01	0.52	14.87

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 MORRISTOWN WV

HALLIBURTON**Design Report for OV Royalty Trust LLC BRK 3H - Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
4,500.00	0.46	318.19	3,294.88	4,499.88	12.68 N	9.87 W	652,243.41	1,697,390.05	0.68	15.29
4,600.00	0.16	344.09	3,394.88	4,599.88	13.12 N	10.18 W	652,243.85	1,697,389.75	0.32	15.81
4,700.00	0.23	334.85	3,494.88	4,699.88	13.43 N	10.30 W	652,244.16	1,697,389.62	0.08	16.14
4,800.00	0.36	330.91	3,594.88	4,799.88	13.89 N	10.54 W	652,244.62	1,697,389.39	0.13	16.65
4,900.00	0.38	349.38	3,694.87	4,899.87	14.49 N	10.75 W	652,245.22	1,697,389.17	0.12	17.29
5,000.00	0.64	17.07	3,794.87	4,999.87	15.35 N	10.65 W	652,246.08	1,697,389.28	0.35	18.07
5,059.00	0.70	36.05	3,853.87	5,058.87	15.95 N	10.34 W	652,246.68	1,697,389.58	0.39	18.53
5,117.00	0.54	78.79	3,911.86	5,116.86	16.29 N	9.87 W	652,247.02	1,697,390.06	0.82	18.69
5,148.00	0.17	33.82	3,942.86	5,147.86	16.36 N	9.70 W	652,247.09	1,697,390.23	1.41	18.69
5,179.00	4.41	339.78	3,973.83	5,178.83	17.52 N	10.08 W	652,248.25	1,697,389.84	13.91	19.91
5,210.00	9.15	338.61	4,004.60	5,209.60	20.93 N	11.39 W	652,251.66	1,697,388.53	15.30	23.57
5,241.00	9.83	337.42	4,035.18	5,240.18	25.67 N	13.31 W	652,256.40	1,697,386.62	2.28	28.68
5,272.00	12.93	342.62	4,065.57	5,270.57	31.43 N	15.36 W	652,262.16	1,697,384.56	10.52	34.79
5,303.00	15.48	344.66	4,095.62	5,300.62	38.73 N	17.49 W	652,269.46	1,697,382.43	8.38	42.37
5,335.00	18.52	341.99	4,126.22	5,331.22	47.68 N	20.19 W	652,278.41	1,697,379.73	9.81	51.71
5,366.00	21.57	339.00	4,155.34	5,360.34	57.69 N	23.76 W	652,288.42	1,697,376.17	10.38	62.33
5,397.00	25.21	339.28	4,183.78	5,388.78	69.18 N	28.14 W	652,299.91	1,697,371.79	11.75	74.64
5,428.00	28.89	339.60	4,211.39	5,416.39	82.38 N	33.09 W	652,313.11	1,697,366.84	11.88	88.73
5,458.00	32.56	338.74	4,237.17	5,442.17	96.70 N	38.54 W	652,327.43	1,697,361.38	12.32	104.05
5,561.00	39.00	340.00	4,320.69	5,525.69	153.05 N	59.70 W	652,383.78	1,697,340.23	6.29	164.24
5,584.00	35.59	336.84	4,338.99	5,543.99	166.01 N	64.81 W	652,396.74	1,697,335.12	17.00	178.16
5,615.00	35.59	337.00	4,364.20	5,569.20	182.61 N	71.88 W	652,413.34	1,697,328.04	0.30	196.18
5,646.00	39.73	339.71	4,388.73	5,593.73	200.21 N	78.85 W	652,430.94	1,697,321.08	14.38	215.10
5,677.00	44.32	341.67	4,411.76	5,616.76	219.79 N	85.69 W	652,450.52	1,697,314.24	15.40	235.85
5,709.00	48.56	341.44	4,433.80	5,638.80	241.79 N	93.03 W	652,472.52	1,697,306.90	13.26	259.02
5,740.00	53.10	340.73	4,453.38	5,658.38	264.51 N	100.82 W	652,495.24	1,697,299.11	14.75	283.04
5,772.00	58.17	341.57	4,471.44	5,676.44	289.51 N	109.35 W	652,520.24	1,697,290.58	15.99	309.44
5,803.00	64.11	341.35	4,486.39	5,691.39	315.23 N	117.98 W	652,545.96	1,697,281.95	19.17	336.57
5,834.00	66.93	341.19	4,499.24	5,704.24	341.95 N	127.04 W	652,572.68	1,697,272.89	9.11	364.78
5,865.00	69.38	340.40	4,510.77	5,715.77	369.12 N	136.50 W	652,599.85	1,697,263.42	8.25	393.55
5,896.00	72.62	340.43	4,520.86	5,725.86	396.73 N	146.33 W	652,627.46	1,697,253.60	10.45	422.85
5,928.00	75.61	342.12	4,529.62	5,734.62	425.88 N	156.20 W	652,656.61	1,697,243.72	10.63	453.62
5,959.00	77.45	341.91	4,536.84	5,741.84	454.55 N	165.51 W	652,685.28	1,697,234.42	5.97	483.75
5,990.00	80.79	341.47	4,542.69	5,747.69	483.45 N	175.07 W	652,714.18	1,697,224.85	10.86	514.17
6,022.00	85.19	340.67	4,546.60	5,751.60	513.48 N	185.37 W	652,744.21	1,697,214.55	13.97	545.92
6,053.00	87.11	340.05	4,548.68	5,753.68	542.61 N	195.77 W	652,773.34	1,697,204.16	6.51	576.85
6,084.00	88.12	338.75	4,549.97	5,754.97	571.60 N	206.67 W	652,802.33	1,697,193.26	5.31	607.82
6,146.00	91.38	337.27	4,550.24	5,755.24	629.08 N	229.88 W	652,859.81	1,697,170.05	5.77	669.77
6,209.00	91.51	336.45	4,548.65	5,753.65	687.00 N	254.63 W	652,917.73	1,697,145.30	1.32	732.65
6,271.00	88.56	337.79	4,548.61	5,753.61	744.11 N	278.73 W	652,974.84	1,697,121.19	5.23	794.57
6,334.00	89.03	340.83	4,549.94	5,754.94	803.03 N	300.98 W	653,033.76	1,697,098.94	4.88	857.54
6,396.00	88.83	340.77	4,551.09	5,756.09	861.57 N	321.37 W	653,092.30	1,697,078.56	0.34	919.52
6,458.00	90.91	341.98	4,551.23	5,756.23	920.32 N	341.17 W	653,151.05	1,697,058.76	3.88	981.50
6,521.00	91.11	341.94	4,550.12	5,755.12	980.21 N	360.67 W	653,210.94	1,697,039.25	0.32	1,044.45
6,584.00	91.48	341.44	4,548.70	5,753.70	1,040.00 N	380.46 W	653,270.73	1,697,019.46	0.99	1,107.41

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MORGANTOWN, WV

Design Report for OV Royalty Trust LLC BRK 3H - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dcgleg Rate (°/100ft)	Vertical Section (ft)
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
6,647.00	91.98	341.64	4,546.80	5,751.80	1,099.74 N	400.40 W	653,330.47	1,696,999.52	0.85	1,170.36
6,710.00	92.25	341.62	4,544.47	5,749.47	1,159.48 N	420.24 W	653,390.21	1,696,979.68	0.43	1,233.29
6,772.00	91.51	339.56	4,542.44	5,747.44	1,217.93 N	440.83 W	653,448.66	1,696,959.09	3.53	1,295.25
6,836.00	90.87	338.77	4,541.11	5,746.11	1,277.73 N	463.59 W	653,508.46	1,696,936.33	1.59	1,359.23
6,898.00	90.94	338.29	4,540.13	5,745.13	1,335.42 N	486.28 W	653,566.15	1,696,913.64	0.78	1,421.20
6,961.00	90.57	338.00	4,539.30	5,744.30	1,393.88 N	509.73 W	653,624.61	1,696,890.19	0.75	1,484.16
7,024.00	90.54	338.00	4,538.69	5,743.69	1,452.29 N	533.33 W	653,683.02	1,696,866.59	0.05	1,547.12
7,086.00	90.13	340.15	4,538.33	5,743.33	1,510.20 N	555.47 W	653,740.93	1,696,844.45	3.53	1,609.11
7,149.00	90.20	340.21	4,538.15	5,743.15	1,569.47 N	576.83 W	653,800.20	1,696,823.09	0.15	1,672.11
7,213.00	90.30	340.24	4,537.87	5,742.87	1,629.69 N	598.49 W	653,860.42	1,696,801.44	0.16	1,736.11
7,275.00	90.44	340.27	4,537.47	5,742.47	1,688.05 N	619.43 W	653,918.78	1,696,780.49	0.23	1,798.10
7,338.00	90.54	340.28	4,536.93	5,741.93	1,747.35 N	640.69 W	653,978.08	1,696,759.23	0.16	1,861.10
7,401.00	90.67	340.51	4,536.26	5,741.26	1,806.69 N	661.83 W	654,037.42	1,696,738.09	0.42	1,924.10
7,464.00	90.30	340.59	4,535.73	5,740.73	1,866.09 N	682.81 W	654,096.82	1,696,717.12	0.60	1,987.09
7,527.00	90.60	340.12	4,535.23	5,740.23	1,925.43 N	703.99 W	654,156.16	1,696,695.94	0.89	2,050.09
7,591.00	90.77	339.33	4,534.47	5,739.47	1,985.46 N	726.16 W	654,216.19	1,696,673.76	1.26	2,114.08
7,654.00	90.94	340.56	4,533.53	5,738.53	2,044.63 N	747.77 W	654,275.36	1,696,652.16	1.97	2,177.07
7,716.00	90.97	340.86	4,532.50	5,737.50	2,103.14 N	768.24 W	654,333.87	1,696,631.68	0.49	2,239.06
7,779.00	91.21	340.56	4,531.30	5,736.30	2,162.59 N	789.05 W	654,393.32	1,696,610.87	0.61	2,302.04
7,842.00	90.94	339.48	4,530.12	5,735.12	2,221.79 N	810.57 W	654,452.52	1,696,589.35	1.77	2,365.03
7,905.00	89.97	338.07	4,529.62	5,734.62	2,280.51 N	833.38 W	654,511.24	1,696,566.54	2.72	2,428.01
7,967.00	90.07	338.29	4,529.59	5,734.59	2,338.07 N	856.43 W	654,568.80	1,696,543.50	0.39	2,489.98
8,029.00	90.34	338.17	4,529.37	5,734.37	2,395.65 N	879.42 W	654,626.38	1,696,520.51	0.48	2,551.95
8,092.00	91.04	340.92	4,528.61	5,733.61	2,454.66 N	901.43 W	654,685.39	1,696,498.49	4.50	2,614.94
8,155.00	90.97	340.80	4,527.51	5,732.51	2,514.17 N	922.09 W	654,744.90	1,696,477.84	0.22	2,677.92
8,217.00	89.66	338.15	4,527.17	5,732.17	2,572.23 N	943.82 W	654,802.96	1,696,456.10	4.77	2,739.91
8,280.00	89.46	340.75	4,527.65	5,732.65	2,631.21 N	965.93 W	654,861.94	1,696,433.99	4.14	2,802.90
8,343.00	89.56	340.93	4,528.19	5,733.19	2,690.72 N	986.61 W	654,921.45	1,696,413.32	0.33	2,865.89
8,406.00	89.76	341.21	4,528.56	5,733.56	2,750.31 N	1,007.05 W	654,981.04	1,696,392.88	0.55	2,928.88
8,468.00	89.97	340.97	4,528.71	5,733.71	2,808.97 N	1,027.14 W	655,039.70	1,696,372.78	0.51	2,990.87
8,532.00	90.17	340.94	4,528.63	5,733.63	2,869.46 N	1,048.03 W	655,100.19	1,696,351.90	0.32	3,054.86
8,595.00	90.30	341.10	4,528.37	5,733.37	2,929.04 N	1,068.51 W	655,159.77	1,696,331.41	0.33	3,117.85
8,656.00	92.45	340.46	4,526.91	5,731.91	2,986.62 N	1,088.59 W	655,217.35	1,696,311.34	3.68	3,178.82
8,719.00	92.18	339.92	4,524.36	5,729.36	3,045.84 N	1,109.92 W	655,276.57	1,696,290.00	0.96	3,241.77
8,782.00	92.18	340.06	4,521.97	5,726.97	3,104.99 N	1,131.46 W	655,335.72	1,696,268.46	0.22	3,304.72
8,845.00	92.15	339.73	4,519.59	5,724.59	3,164.11 N	1,153.10 W	655,394.84	1,696,246.82	0.53	3,367.68
8,909.00	91.51	339.27	4,517.54	5,722.54	3,224.03 N	1,175.51 W	655,454.76	1,696,224.42	1.23	3,431.64
8,972.00	91.55	339.59	4,515.86	5,720.86	3,282.99 N	1,197.63 W	655,513.72	1,696,202.29	0.51	3,494.62
9,036.00	89.83	339.28	4,515.09	5,720.09	3,342.91 N	1,220.11 W	655,573.64	1,696,179.81	2.73	3,558.61
9,099.00	89.77	339.43	4,515.31	5,720.31	3,401.86 N	1,242.32 W	655,632.59	1,696,157.60	0.26	3,621.60
9,163.00	89.77	339.51	4,515.57	5,720.57	3,461.79 N	1,264.77 W	655,692.52	1,696,135.16	0.12	3,685.60
9,226.00	89.90	339.32	4,515.75	5,720.75	3,520.77 N	1,286.92 W	655,751.50	1,696,113.01	0.37	3,748.59
9,289.00	90.20	339.41	4,515.69	5,720.69	3,579.73 N	1,309.12 W	655,810.46	1,696,090.80	0.50	3,811.59
9,352.00	90.77	339.64	4,515.16	5,720.16	3,638.75 N	1,331.16 W	655,869.48	1,696,068.77	0.98	3,874.59
9,415.00	89.23	340.84	4,515.16	5,720.16	3,698.03 N	1,352.46 W	655,928.76	1,696,047.47	3.10	3,937.58

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HALLIBURTON**Design Report for OV Royalty Trust LLC BRK 3H - Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)		
9,479.00	89.23	340.84	4,516.02	5,721.02	3,758.48 N	1,373.46 W	655,989.21	1,696,026.47	0.00	4,001.57
9,541.00	89.70	341.10	4,516.60	5,721.60	3,817.09 N	1,393.67 W	656,047.82	1,696,006.25	0.87	4,063.56
9,604.00	90.13	341.50	4,516.69	5,721.69	3,876.77 N	1,413.87 W	656,107.50	1,695,986.05	0.93	4,126.54
9,666.00	90.44	341.36	4,516.39	5,721.39	3,935.54 N	1,433.62 W	656,166.27	1,695,966.31	0.55	4,188.52
9,729.00	89.40	343.34	4,516.47	5,721.47	3,995.57 N	1,452.72 W	656,226.30	1,695,947.21	3.55	4,251.46
9,792.00	89.46	341.86	4,517.10	5,722.10	4,055.68 N	1,471.56 W	656,286.41	1,695,928.37	2.35	4,314.40
9,855.00	89.06	342.86	4,517.91	5,722.91	4,115.71 N	1,490.64 W	656,346.44	1,695,909.28	1.71	4,377.34
9,918.00	89.60	341.78	4,518.65	5,723.65	4,175.73 N	1,509.78 W	656,406.46	1,695,890.15	1.92	4,440.28
9,980.00	89.50	341.44	4,519.14	5,724.14	4,234.56 N	1,529.34 W	656,465.29	1,695,870.59	0.57	4,502.25
10,043.00	91.14	338.83	4,518.79	5,723.79	4,293.81 N	1,550.74 W	656,524.54	1,695,849.19	4.89	4,565.24
10,105.00	91.17	339.15	4,517.54	5,722.54	4,351.67 N	1,572.96 W	656,582.40	1,695,826.96	0.52	4,627.22
10,169.00	91.34	338.41	4,516.13	5,721.13	4,411.32 N	1,596.12 W	656,642.05	1,695,803.80	1.19	4,691.19
10,232.00	91.31	337.93	4,514.68	5,719.68	4,469.79 N	1,619.54 W	656,700.52	1,695,780.38	0.76	4,754.14
10,295.00	91.41	338.14	4,513.18	5,718.18	4,528.20 N	1,643.10 W	656,758.93	1,695,756.82	0.37	4,817.09
10,358.00	91.48	337.80	4,511.59	5,716.59	4,586.58 N	1,666.73 W	656,817.31	1,695,733.20	0.55	4,880.03
10,420.00	91.68	337.71	4,509.88	5,714.88	4,643.94 N	1,690.19 W	656,874.67	1,695,709.74	0.35	4,941.96
10,483.00	92.08	337.95	4,507.82	5,712.82	4,702.25 N	1,713.95 W	656,932.98	1,695,685.98	0.74	5,004.88
Last MWD Survey at 10483' MD										
10,525.00	92.08	337.95	4,506.29	5,711.29	4,741.15 N	1,729.71 W	656,971.88	1,695,670.22	0.00	5,046.82
Projection to TD at 10525' MD										

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/_S (ft)	+E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	340.00	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
100.00	5,059.00	MS Gyro	NS-GYRO-MS
5,117.00	10,525.00	Sperry MWD	MWD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
OV Royalty Trust LL	0.00	360.00	5,698.35	4,741.71	-1,725.63	656,972.44	1,695,674.30	40° 17' 55.027 N	80° 35' 27.600 W
- hit/miss target									
- Shape									
- actual wellpath misses target center by 13.57ft at 10524.46ft MD (5711.31 TVD, 4740.65 N, -1729.50 E)									
- Point									

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HALLIBURTON**North Reference Sheet for Steubenville East - OV Royalty Trust LLC BRK 3H - Wellbore #1**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GL 1190 + KB 15' @ 1205.00ft (Nomac 25). Northing and Easting are relative to OV Royalty Trust LLC BRK 3H

Coordinate System is US State Plane 1927 (Exact solution), West Virginia North 4701 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 79° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 15' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 1.00000698

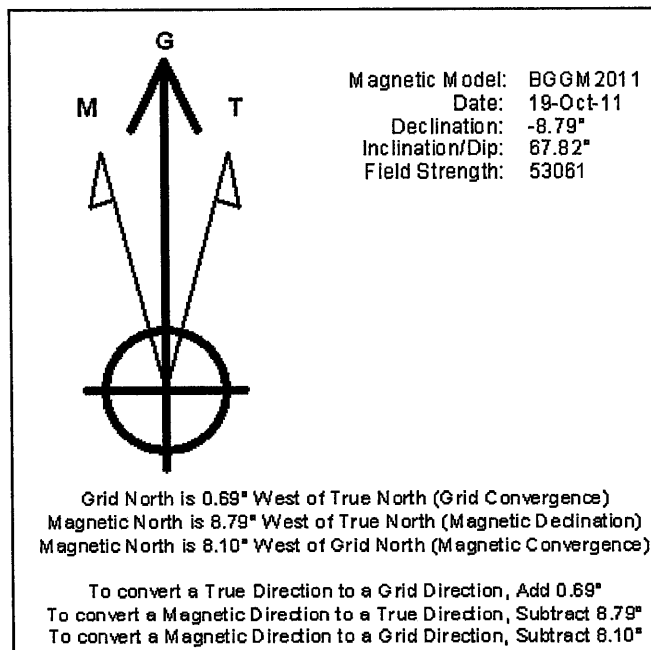
Grid Coordinates of Well: 652,230.73 ft N, 1,697,399.93 ft E

Geographical Coordinates of Well: 40° 17' 08.38" N, 080° 35' 04.59" W

Grid Convergence at Surface is: -0.69°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,525.00ft the Bottom Hole Displacement is 5,046.82ft in the Direction of 339.96° (Grid).

Magnetic Convergence at surface is: 8.10° (19 October 2011, , BGGM2011)



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 MORGANTOWN, WV

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	6/22/2013
Well Name	WEST VIRGINIA BROOKE
Well Number	4700900094
Operator	CHESAPEAKE APPALACHIA LLC
Well Name and Number	OV ROYALTY TRUST LLC BRK 3H
Well Depth (ft)	-80.584609
Well Completion	40.285661
Well Completion Type	NAD27
Well Completion Material	GAS
Well Completion Volume (gal)	5.757
Total Water Volume (gal)	5,563,278

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by Mass)	Maximum Ingredient Concentration in HF Fluid (% by Mass)	Comments
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	77.829899%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	7.35171%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol Glutaraldehyde (Pentanediol) Quaternary Ammonium Compounds	000064-17-5 000111-30-8 NA	5.00% 60.00% 10.00%	0.00137% 0.01644% 0.00274%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
Northern White Sand, 100 Mesh	SCHLUMBERGER	Proppant - Natural, Acid, Gelling Agent, Friction Reducer, Breaker, Cross Linker, Iron Control Agent, Corrosion Inhibitor	Crystalline silica Hydrogen chloride Guar gum Acrylamide sodium acrylate copolymer Distillates (petroleum), hydrotreated light	14808-60-7 7647-01-0 9000-30-0 25085-02-3 64742-47-8	98.43495% 0.80037% 0.36306% 0.15011% 0.13319%	14.59344% 0.11866% 0.05383% 0.02225% 0.01975%	
Sand, Acid - Hydrochloric, J580, J609, J218, J610, L058, A264, J475, B315							

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Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.02284%	0.00339%	
Ammonium sulfate	7783-20-2	0.02159%	0.00320%	
Diammonium peroxodisulphate	7727-54-0	0.02080%	0.00308%	
Sodium sulfate	7757-82-6	0.009333%	0.00138%	
Alkylalcohol, ethoxylate >C10	68002-97-1	0.00804%	0.00119%	
Sorbitan monooleate	1338-43-8	0.00665%	0.00099%	
Thioctic acid, ammonium salt	1762-95-4	0.00394%	0.00058%	
Poly(oxyethylene) sorbitol monostearate	9005-67-8	0.00373%	0.00055%	
Sodium erythorbate	6381-77-7	0.00357%	0.00053%	
Methanol	67-56-1	0.00263%	0.00039%	
Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00245%	0.00036%	
Acrylamide/ammonium acrylate copolymer	26100-47-0	0.00211%	0.00031%	
Fatty acids, tall-oil	61790-12-3	0.00193%	0.00029%	
Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00159%	0.00024%	
Urea	57-13-6	0.00150%	0.00022%	
Ammonium chloride	12125-02-9	0.00132%	0.00020%	
Non-crystalline silica	7631-86-9	0.00121%	0.00018%	
Alcohols, C14-15, ethoxylated (ZEO)	68951-67-7	0.00074%	0.00011%	
Prop-2-yn-1-ol	107-19-7	0.00049%	0.00007%	
Alkenes, C>10 a-	64743-02-8	0.00033%	0.00005%	
Ethoxylated oleic acid	9004-96-0	0.00026%	0.00004%	
Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00010%	0.00001%	
Sorbitol Tetraoleate	61723-83-9	0.00008%	0.00001%	
Sodium sulfocyanate	540-72-7	0.00007%	0.00001%	
2-Propanoic acid, ammonium salt	10604-69-0	0.00006%	0.00001%	
C14 alpha olefin ethoxylate	84133-50-6	0.00004%	0.00001%	
Alcohols, C12-C16, ethoxylated	68551-12-2	0.00004%	0.00001%	
Alcohols, C12-C14, ethoxylated	68439-50-9	0.00004%	0.00001%	
Dimethyl siloxanes and silicones	63148-62-9	0.00002%	< 0.00001%	
2-propanamid	79-06-1	0.00001%	< 0.00001%	
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	< 0.00001%	< 0.00001%	
Octamethylcyclotetrasiloxane	556-67-2	< 0.00001%	< 0.00001%	
Sodium hydroxide	1310-73-2	< 0.00001%	< 0.00001%	
Decamethyl cyclopentasiloxane	541-02-6	< 0.00001%	< 0.00001%	
Dodecamethylcyclohexasiloxane	540-97-6	< 0.00001%	< 0.00001%	

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Additional Ingredients Not Listed on MSDS

EC6110A, EC6629A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Methanol (Methyl Alcohol) Proprietary Acrylate Polymer Proprietary Quaternary Ammonium Salt Water	000067-56-1 TRADE SECRET TRADE SECRET 007732-18-5	0.00664% 0.00664% 0.00664% 0.02708%
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* 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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