

Farm name: OCC A OHI 3H Operator Well No.: 833675

LOCATION: Elevation: 1100' Quadrangle: Valley Grove 7.5

District: Triadelphia PO County: Ohio
Latitude: 4133' Feet South of 41 Deg. 05 Min. 00 Sec.
Longitude 1410' Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	20"	120'	120'	297 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	495'	495'	460 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1956'	1956'	921 Cu. Ft.
Date Permit Issued: 10-25-2011	5 1/2"	15848'	15848'	4182 Cu. Ft.
Date Well Work Commenced: 3-11-2012				
Date Well Work Completed: 5-8-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6266'				
Total Measured Depth (ft): 15849'				
Fresh Water Depth (ft.): 63', 300'				
Salt Water Depth (ft.): 1116'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 444				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6,450-15,693
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 3,453* MCF/d Final open flow 246 Bbl/d
Time of open flow between initial and final tests 48 Hours
Static rock Pressure 4,073* psig (surface pressure) after 48 Hours *Calculated

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

Mark Williams
Signature

2-26-15
Date

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Were core samples taken? Yes _____ No

Were cuttings caught during drilling? Yes _____ No

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list ^{GR, neutron, density, and resistivity open hole logs}
from 0'-6366' MD; LWD GR from 5317'-15798' MD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s): cement plug: 5365' - 6265'

<u>Formations Encountered:</u>	<u>Top Depth</u>	/	<u>Bottom Depth</u>
<u>Surface:</u>			

See attached

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

PERFORATION RECORD ATTACHMENT

Well Name and Number: OCC C OH1 3H 833675

Stage	PERFORATION RECORD				STIMULATION RECORD						
	Date	Interval Perforated		Total Number Of Shots	Date	Interval Treated		Fluid	Propping Agent	Average Injection Rate	
		From	To				Type	Amount	Type		Amount
1	4/1/2013	15303	15693	42	4/1/2013	15303	15693	SLK Wtr	Sand	600920	80
2	4/2/2013	14840	15228	42	4/2/2013	14840	15228	SLK Wtr	Sand	601520	80
3	4/2/2013	14374	14762	42	4/2/2013	14374	14762	SLK Wtr	Sand	604210	80
4	4/2/2013	13908	14296	42	4/2/2013	13908	14296	SLK Wtr	Sand	601830	80
5	4/2/2013	13437	13830	42	4/2/2013	13437	13830	SLK Wtr	Sand	601320	80
6	4/3/2013	12975	13364	42	4/3/2013	12975	13364	SLK Wtr	Sand	612060	80
7	4/3/2013	12509	12894	42	4/3/2013	12509	12894	SLK Wtr	Sand	601880	80
8	4/3/2013	12043	12432	42	4/3/2013	12043	12432	SLK Wtr	Sand	601720	80
9	4/4/2013	11580	11966	42	4/4/2013	11580	11966	SLK Wtr	Sand	601600	80
10	4/5/2013	11111	11500	42	4/5/2013	11111	11500	SLK Wtr	Sand	600200	80
11	4/5/2013	10645	11033	42	4/5/2013	10645	11033	SLK Wtr	Sand	600680	78
12	4/5/2013	10179	10567	42	4/5/2013	10179	10567	SLK Wtr	Sand	603580	80
13	4/6/2013	9716	10101	42	4/6/2013	9716	10101	SLK Wtr	Sand	602160	80
14	4/6/2013	9247	9635	42	4/6/2013	9247	9635	SLK Wtr	Sand	600860	76
15	4/6/2013	8780	9164	42	4/6/2013	8780	9164	SLK Wtr	Sand	681700	79
16	4/6/2013	8314	8703	42	4/6/2013	8314	8703	SLK Wtr	Sand	604540	80
17	4/7/2013	7851	8237	42	4/7/2013	7851	8237	SLK Wtr	Sand	601600	80
18	4/7/2013	7382	7771	42	4/7/2013	7382	7771	SLK Wtr	Sand	601160	76
19	4/7/2013	6916	7302	42	4/7/2013	6916	7302	SLK Wtr	Sand	602260	80
20	4/7/2013	6450	6838	42	4/7/2013	6450	6838	SLK Wtr	Sand	611078	80

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

VERTICAL PILOT HOLE

Formation/Lithology	Top Depth, TVD/MD (ft)	Bottom Depth, TVD/MD (ft)
SS/LS	0	444
PITTSBURG COAL	444	449
SS/SH	449	1485
SS	1485	1610
BIG INJUN (SS)	1610	1798
SHALE	1798	6019
GENESEO (SH)	6019	6042
TULLY (LS)	6042	6084
HAMILTON (SH)	6084	6181
MARCELLUS (SH)	6181	6247
ONONDAGA (LS)	6247	
TD OF PILOT HOLE		6266

LATERAL SIDETRACK WELLBORE

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS/LS	0	0	444	444
PITTSBURG COAL	444	444	449	449
SS/SH	449	449	1485	1485
SS	1485	1485	1610	1610
BIG INJUN (SS)	1610	1610	1798	1798
SHALE	1798	1798	6011	5995
GENESEO (SH)	6011	5995	6035	6014
TULLY (LS)	6035	6014	6078	6048
HAMILTON (SH)	6078	6048	6176	6115
MARCELLUS (SH)	6176	6115		
TD OF LATERAL			15849	6094

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Farm name: OCC A OHI 3H Operator Well No.: 833675

LOCATION: Elevation: 1100' Quadrangle: Valley Grove 7.5

District: Triadelphia PO County: Ohio
Latitude: 4133' Feet South of 41 Deg. 05 Min. 00 Sec.
Longitude 1410' Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	20"	120'	120'	297 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	495'	495'	460 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1956'	1956'	921 Cu. Ft.
Date Permit Issued: 10-25-2011	5 1/2"	15848'	15848'	4182 Cu. Ft.
Date Well Work Commenced: 3-11-2012				
Date Well Work Completed: 5-8-2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6266'				
Total Measured Depth (ft): 15849'				
Fresh Water Depth (ft.): 63', 300'				
Salt Water Depth (ft.): 1116'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 444				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6,450-15,693
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 3,453* MCF/d Final open flow 246 Bbl/d
Time of open flow between initial and final tests 48 Hours
Static rock Pressure 4,073* psig (surface pressure) after 48 Hours *Calculated

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Mark Williams
Signature

2-26-15
Date

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Were core samples taken? Yes _____ No

Were cuttings caught during drilling? Yes _____ No

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, neutron, density, and resistivity open hole logs
from 0'-6366' MD; LWD GR from 5317'-15798' MD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s): cement plug: 5365' - 6265'

Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			

See attached

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

PERFORATION RECORD ATTACHMENT

Well Name and Number: OCC C OHI 3H 833675

Stage	PERFORATION RECORD				STIMULATION RECORD							
	Date	Interval Perforated		Total Number Of Shots	Date	Interval Treated		Fluid		Propping Agent		Average Injection Rate
		From	To					Type	Amount	Type	Amount	
1	4/1/2013	15303	15693	42	4/1/2013	15303	15693	SLK Wtr	5439	Sand	600920	80
2	4/2/2013	14840	15228	42	4/2/2013	14840	15228	SLK Wtr	5707	Sand	601520	80
3	4/2/2013	14374	14762	42	4/2/2013	14374	14762	SLK Wtr	5738	Sand	604210	80
4	4/2/2013	13908	14296	42	4/2/2013	13908	14296	SLK Wtr	5710	Sand	601830	80
5	4/2/2013	13437	13830	42	4/2/2013	13437	13830	SLK Wtr	5635	Sand	601320	80
6	4/3/2013	12975	13364	42	4/3/2013	12975	13364	SLK Wtr	4928	Sand	612060	80
7	4/3/2013	12509	12894	42	4/3/2013	12509	12894	SLK Wtr	5788	Sand	601880	80
8	4/3/2013	12043	12432	42	4/3/2013	12043	12432	SLK Wtr	5642	Sand	601720	80
9	4/4/2013	11580	11966	42	4/4/2013	11580	11966	SLK Wtr	7432	Sand	601600	80
10	4/5/2013	11111	11500	42	4/5/2013	11111	11500	SLK Wtr	7625	Sand	600200	80
11	4/5/2013	10645	11033	42	4/5/2013	10645	11033	SLK Wtr	7594	Sand	600680	78
12	4/5/2013	10179	10567	42	4/5/2013	10179	10567	SLK Wtr	8283	Sand	603580	80
13	4/6/2013	9716	10101	42	4/6/2013	9716	10101	SLK Wtr	8769	Sand	602160	80
14	4/6/2013	9247	9635	42	4/6/2013	9247	9635	SLK Wtr	4401	Sand	600860	76
15	4/6/2013	8780	9164	42	4/6/2013	8780	9164	SLK Wtr	8157	Sand	604540	79
16	4/6/2013	8314	8703	42	4/6/2013	8314	8703	SLK Wtr	9962	Sand	601600	80
17	4/7/2013	7851	8237	42	4/7/2013	7851	8237	SLK Wtr	9856	Sand	601600	80
18	4/7/2013	7382	7771	42	4/7/2013	7382	7771	SLK Wtr	8273	Sand	601160	76
19	4/7/2013	6916	7302	42	4/7/2013	6916	7302	SLK Wtr	7816	Sand	602260	80
20	4/7/2013	6450	6838	42	4/7/2013	6450	6838	SLK Wtr	7940	Sand	611078	80

RECEIVED
 FEB 27 2015
 WV GEOLOGICAL SURVEY
 MORGANTOWN, WV

VERTICAL PILOT HOLE

Formation/Lithology	Top Depth, TVD/MD (ft)	Bottom Depth, TVD/MD (ft)
SS/LS	0	444
PITTSBURG COAL	444	449
SS/SH	449	1485
SS	1485	1610
BIG INJUN (SS)	1610	1798
SHALE	1798	6019
GENESEO (SH)	6019	6042
TULLY (LS)	6042	6084
HAMILTON (SH)	6084	6181
MARCELLUS (SH)	6181	6247
ONONDAGA (LS)	6247	
TD OF PILOT HOLE		6266

LATERAL SIDETRACK WELLBORE

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS/LS	0	0	444	444
PITTSBURG COAL	444	444	449	449
SS/SH	449	449	1485	1485
SS	1485	1485	1610	1610
BIG INJUN (SS)	1610	1610	1798	1798
SHALE	1798	1798	6011	5995
GENESEO (SH)	6011	5995	6035	6014
TULLY (LS)	6035	6014	6078	6048
HAMILTON (SH)	6078	6048	6176	6115
MARCELLUS (SH)	6176	6115		
TD OF LATERAL			15849	6094

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION			
Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot #03
Area	Ohio County, WV	Well	OCC-A OHI 3H
Field	Ohio	Wellbore	OCC-A OHI 3H AWB
Facility	OCC-A OHI Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect@ 3.0.0
North Reference	Grid	User	Frisjessl
Scale	0.999972	Report Generated	5/25/2012 at 10:09:45 AM
Convergence at slot	0.70° West	Database/Source file	WA_EasternUS/OCC-A_OHI_3H_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1692658.57	577140.55	40°04'45.800"N	80°35'53.921"W
Facility Reference Pt			1692658.57	577140.55	40°04'45.800"N	80°35'53.921"W
Field Reference Pt			0.00	0.00	38°17'12.460"N	86°28'23.077"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Nomac 243 (RT) to Facility Vertical Datum	16.00ft
Horizontal Reference Pt	Slot	Nomac 243 (RT) to Mean Sea Level	1116.00ft
Vertical Reference Pt	Nomac 243 (RT)	Nomac 243 (RT) to Mud Line at Slot (Slot #03)	16.00ft
MD Reference Pt	Nomac 243 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	335.98°

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	CHESAPEAKE APPALACHIA, LLC	Well	OCC-A OHI 3H
Area	Ohio County, WV	Wellbore	OCC-A OHI 3H AWP
Field	Ohio		
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations) † = interpolated/extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0.00†	0.000	314.970	0.00	0.00	0.00	0.00	1692658.57	577140.55	40°04'45.800"N	80°35'53.921"W	0.00	0.000	0.00
16.00	0.000	314.970	16.00	0.00	0.00	0.00	1692658.57	577140.55	40°04'45.800"N	80°35'53.921"W	0.00	0.000	0.00
100.00	0.530	314.970	100.00	0.36	0.27	-0.27	1692658.30	577140.82	40°04'45.803"N	80°35'53.925"W	0.39	314.970	0.63
200.00	0.880	311.450	199.99	1.49	1.11	-1.18	1692657.39	577141.66	40°04'45.811"N	80°35'53.937"W	1.62	313.300	0.35
300.00	0.800	289.810	299.98	2.68	1.85	-2.41	1692656.16	577142.40	40°04'45.818"N	80°35'53.953"W	3.04	307.581	0.33
400.00	0.360	260.500	399.98	3.24	2.04	-3.38	1692655.19	577142.59	40°04'45.820"N	80°35'53.965"W	3.94	301.131	0.52
500.00	0.750	267.160	499.97	3.55	1.96	-4.34	1692654.23	577142.51	40°04'45.819"N	80°35'53.977"W	4.76	294.250	0.39
600.00	0.840	272.200	599.96	4.11	1.95	-5.73	1692652.84	577142.50	40°04'45.819"N	80°35'53.995"W	6.05	288.813	0.11
700.00	0.810	269.920	699.95	4.72	1.98	-7.17	1692651.40	577142.53	40°04'45.819"N	80°35'54.014"W	7.43	285.432	0.04
800.00	1.000	272.840	799.94	5.40	2.02	-8.74	1692649.83	577142.57	40°04'45.819"N	80°35'54.034"W	8.97	283.010	0.20
900.00	1.100	273.620	899.92	6.24	2.12	-10.57	1692648.00	577142.67	40°04'45.820"N	80°35'54.058"W	10.78	281.359	0.10
1000.00	1.240	274.640	999.90	7.21	2.27	-12.61	1692645.96	577142.82	40°04'45.821"N	80°35'54.084"W	12.81	280.215	0.14
1100.00	1.010	276.520	1099.88	8.18	2.46	-14.56	1692644.01	577143.01	40°04'45.823"N	80°35'54.109"W	14.77	279.587	0.23
1200.00	1.370	275.410	1199.86	9.21	2.67	-16.63	1692641.94	577143.22	40°04'45.825"N	80°35'54.136"W	16.84	279.130	0.36
1300.00	1.120	278.800	1299.84	10.33	2.93	-18.79	1692639.78	577143.48	40°04'45.827"N	80°35'54.163"W	19.01	278.879	0.26
1400.00	0.660	280.810	1399.82	11.19	3.19	-20.32	1692638.25	577143.74	40°04'45.829"N	80°35'54.183"W	20.57	278.930	0.46
1500.00	0.660	285.140	1499.82	11.88	3.45	-21.44	1692637.13	577144.00	40°04'45.832"N	80°35'54.198"W	21.71	279.144	0.05
1600.00	0.570	286.700	1599.81	12.57	3.74	-22.47	1692636.10	577144.29	40°04'45.834"N	80°35'54.211"W	22.78	279.460	0.09
1700.00	0.630	283.090	1699.81	13.22	4.01	-23.48	1692635.09	577144.56	40°04'45.837"N	80°35'54.224"W	23.82	279.694	0.07
1800.00	0.410	277.850	1799.80	13.61	4.15	-24.11	1692634.46	577144.70	40°04'45.838"N	80°35'54.232"W	24.47	279.763	0.52
1900.00	0.450	285.440	1899.80	13.91	4.27	-24.59	1692633.98	577144.82	40°04'45.839"N	80°35'54.238"W	24.96	279.845	0.34
2000.00	0.410	281.360	1999.80	14.36	4.44	-25.32	1692633.25	577144.99	40°04'45.841"N	80°35'54.248"W	25.70	279.952	0.05
2100.00	0.480	295.120	2099.80	14.89	4.69	-26.05	1692632.52	577145.24	40°04'45.843"N	80°35'54.257"W	26.47	280.208	0.13
2200.00	0.690	273.680	2199.79	15.48	4.91	-27.03	1692631.54	577145.46	40°04'45.845"N	80°35'54.270"W	27.47	280.290	0.30
2300.00	0.660	274.640	2299.78	16.04	4.99	-28.20	1692630.37	577145.54	40°04'45.846"N	80°35'54.285"W	28.64	280.038	0.03
2400.00	0.790	271.490	2399.78	16.61	5.06	-29.47	1692629.11	577145.61	40°04'45.847"N	80°35'54.301"W	29.90	279.738	0.14
2500.00	0.600	270.490	2499.77	17.13	5.08	-30.68	1692627.89	577145.63	40°04'45.847"N	80°35'54.317"W	31.10	279.400	0.19
2600.00	0.360	275.140	2599.76	17.50	5.11	-31.51	1692627.06	577145.66	40°04'45.847"N	80°35'54.327"W	31.93	279.213	0.24
2700.00	0.570	278.600	2699.76	17.92	5.21	-32.32	1692626.25	577145.76	40°04'45.848"N	80°35'54.338"W	32.74	279.165	0.21
2800.00	0.700	278.600	2799.76	18.52	5.38	-33.41	1692625.16	577145.93	40°04'45.849"N	80°35'54.352"W	33.85	279.146	0.13

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot #03
Area	Ohio County, WV	Well	OCC-A OHI 3H
Field	Ohio	Wellbore	OCC-A OHI 3H AWB
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TYD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2900.00	0.740	279.530	2899.75	19.20	5.58	-34.66	1692623.92	577146.13	40°04'45.851"N	80°35'54.368"W	35.10	279.144	0.04
3000.00	0.540	295.730	2999.74	19.92	5.89	-35.72	1692622.85	577146.44	40°04'45.854"N	80°35'54.382"W	36.20	279.363	0.27
3100.00	0.680	298.340	3099.74	20.75	6.38	-36.66	1692621.91	577146.93	40°04'45.859"N	80°35'54.394"W	37.21	279.865	0.14
3200.00	0.260	292.140	3199.73	21.38	6.74	-37.40	1692621.17	577147.29	40°04'45.862"N	80°35'54.403"W	38.00	280.221	0.42
3300.00	0.680	281.720	3299.73	21.89	6.95	-38.19	1692620.58	577147.50	40°04'45.864"N	80°35'54.414"W	38.81	280.313	0.43
3400.00	0.350	279.970	3399.72	22.41	7.12	-39.07	1692619.50	577147.67	40°04'45.866"N	80°35'54.425"W	39.71	280.332	0.33
3500.00	0.900	279.300	3499.72	23.01	7.30	-40.15	1692618.43	577147.85	40°04'45.868"N	80°35'54.439"W	40.80	280.309	0.55
3600.00	0.560	276.710	3599.71	23.69	7.49	-41.41	1692617.17	577148.04	40°04'45.869"N	80°35'54.455"W	42.08	280.249	0.34
3700.00	0.350	272.430	3699.71	24.08	7.56	-42.20	1692616.38	577148.11	40°04'45.870"N	80°35'54.465"W	42.87	280.153	0.21
3800.00	0.800	271.730	3799.70	24.52	7.59	-43.20	1692615.37	577148.14	40°04'45.870"N	80°35'54.478"W	43.86	279.965	0.45
3900.00	0.620	273.500	3899.69	25.07	7.64	-44.44	1692614.13	577148.19	40°04'45.870"N	80°35'54.494"W	45.09	279.761	0.18
4000.00	0.710	274.190	3999.69	25.61	7.72	-45.59	1692612.98	577148.27	40°04'45.871"N	80°35'54.509"W	46.24	279.613	0.09
4100.00	0.890	281.990	4099.68	26.36	7.93	-46.97	1692611.60	577148.48	40°04'45.873"N	80°35'54.527"W	47.64	279.582	0.21
4200.00	0.480	290.250	4199.67	27.11	8.24	-48.13	1692610.45	577148.79	40°04'45.876"N	80°35'54.542"W	48.82	279.711	0.42
4300.00	0.760	295.230	4299.66	27.91	8.66	-49.12	1692609.45	577149.21	40°04'45.880"N	80°35'54.554"W	49.88	280.003	0.28
4400.00	0.310	300.580	4399.66	28.63	9.08	-49.95	1692608.62	577149.63	40°04'45.884"N	80°35'54.565"W	50.77	280.307	0.45
4500.00	0.930	308.590	4499.65	29.57	9.73	-50.82	1692607.75	577150.28	40°04'45.890"N	80°35'54.576"W	51.74	280.836	0.62
4600.00	0.280	312.390	4599.65	30.52	10.40	-51.63	1692606.94	577150.95	40°04'45.897"N	80°35'54.587"W	52.67	281.387	0.65
4700.00	0.980	319.010	4699.64	31.56	11.21	-52.37	1692606.20	577151.76	40°04'45.905"N	80°35'54.597"W	53.56	282.080	0.70
4800.00	0.820	322.360	4799.63	33.07	12.42	-53.37	1692605.20	577152.97	40°04'45.916"N	80°35'54.610"W	54.80	283.101	0.17
4900.00	0.800	325.100	4899.62	34.45	13.56	-54.21	1692604.36	577154.11	40°04'45.928"N	80°35'54.621"W	55.88	284.044	0.04
5000.00	0.890	319.140	4999.61	35.88	14.72	-55.12	1692603.46	577155.27	40°04'45.939"N	80°35'54.633"W	57.05	284.953	0.13
5100.00	0.760	316.870	5099.60	37.25	15.79	-56.08	1692602.49	577156.34	40°04'45.949"N	80°35'54.645"W	58.26	285.727	0.13
5200.00	0.620	312.380	5199.59	38.37	16.64	-56.93	1692601.64	577157.19	40°04'45.958"N	80°35'54.656"W	59.31	286.293	0.15
5300.00	0.560	317.100	5299.58	39.33	17.36	-57.66	1692600.91	577157.91	40°04'45.965"N	80°35'54.666"W	60.22	286.757	0.08
5317.00	1.300	308.000	5316.58	39.58	17.54	-57.87	1692600.70	577158.09	40°04'45.967"N	80°35'54.668"W	60.47	286.863	4.43
5360.00	2.200	310.000	5359.56	40.75	18.37	-58.89	1692599.68	577158.92	40°04'45.975"N	80°35'54.682"W	61.69	287.328	2.10
5403.00	2.300	317.900	5402.53	42.31	19.54	-60.10	1692598.47	577160.09	40°04'45.986"N	80°35'54.697"W	63.20	288.014	0.76
5446.00	2.400	331.500	5445.49	44.03	20.98	-61.11	1692597.46	577161.52	40°04'46.000"N	80°35'54.711"W	64.61	288.945	1.31
5490.00	2.400	339.700	5489.45	45.87	22.65	-61.87	1692596.71	577163.20	40°04'46.017"N	80°35'54.721"W	65.88	290.107	0.78

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	CHESAPEAKE APPALACHIA, LLC	Well	OCC-A OHI 3H
Area	Ohio County, WV	Wellbore	OCC-A OHI 3H AWP
Field	Ohio		
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
5533.00	2.100	337.800	5532.42	47.56	24.22	-62.48	1692596.10	577164.77	40°04'46.032"N	80°35'54.729"W	67.01	291.192	0.72
5577.00	5.100	331.300	5576.33	50.31	26.69	-63.72	1692594.85	577167.23	40°04'46.056"N	80°35'54.745"W	69.08	292.723	6.87
5620.00	5.900	336.300	5619.13	54.43	30.39	-65.53	1692593.05	577170.93	40°04'46.093"N	80°35'54.769"W	72.23	294.878	2.17
5664.00	7.500	337.200	5662.83	59.56	35.10	-67.55	1692591.02	577175.65	40°04'46.139"N	80°35'54.796"W	76.13	297.460	3.64
5708.00	10.500	336.700	5706.28	66.44	41.43	-70.25	1692588.32	577181.98	40°04'46.201"N	80°35'54.831"W	81.56	300.534	6.82
5751.00	12.700	337.900	5748.40	75.08	49.41	-73.58	1692585.00	577189.96	40°04'46.280"N	80°35'54.875"W	88.63	303.885	5.15
5794.00	14.000	333.700	5790.24	85.01	58.46	-77.66	1692580.91	577199.00	40°04'46.368"N	80°35'54.929"W	97.20	306.970	3.77
5838.00	15.700	324.700	5832.77	96.16	68.09	-83.46	1692575.11	577208.64	40°04'46.463"N	80°35'55.005"W	107.71	309.209	6.50
5881.00	16.200	329.200	5874.12	107.83	77.99	-89.89	1692568.68	577218.54	40°04'46.560"N	80°35'55.090"W	119.01	310.944	3.10
5924.00	19.100	334.600	5915.09	120.82	89.50	-95.98	1692562.59	577230.05	40°04'46.673"N	80°35'55.170"W	131.24	312.998	7.74
5968.00	24.500	332.600	5955.93	137.14	104.11	-103.27	1692555.30	577244.66	40°04'46.817"N	80°35'55.266"W	146.65	315.232	12.39
6012.00	30.700	330.400	5994.91	157.44	122.00	-113.03	1692545.54	577262.54	40°04'46.992"N	80°35'55.394"W	166.31	317.185	14.28
6055.00	37.000	329.200	6030.60	181.24	142.68	-125.09	1692533.48	577283.22	40°04'47.195"N	80°35'55.553"W	189.75	318.758	14.73
6098.00	43.000	328.500	6063.53	208.65	166.31	-139.39	1692519.18	577306.86	40°04'47.427"N	80°35'55.740"W	217.00	320.033	13.99
6141.00	48.700	329.700	6093.47	239.27	192.79	-155.21	1692503.36	577338.33	40°04'47.686"N	80°35'55.948"W	247.50	321.162	13.41
6185.00	54.800	331.200	6120.69	273.65	222.84	-172.23	1692486.34	577363.38	40°04'47.981"N	80°35'56.172"W	281.64	322.300	14.12
6227.00	61.200	332.800	6142.94	309.16	254.28	-188.93	1692469.65	577394.82	40°04'48.290"N	80°35'56.391"W	316.78	323.388	15.58
6270.00	65.800	334.700	6162.12	347.60	288.78	-205.93	1692452.65	577429.33	40°04'48.629"N	80°35'56.616"W	354.69	324.508	11.40
6314.00	70.100	336.500	6178.64	388.37	325.92	-222.76	1692435.81	577466.46	40°04'48.994"N	80°35'56.838"W	394.77	325.648	10.48
6358.00	74.700	337.600	6191.94	430.29	364.53	-239.11	1692419.47	577505.07	40°04'49.373"N	80°35'57.054"W	435.95	326.738	10.72
6401.00	77.600	338.400	6202.23	472.01	403.24	-254.74	1692403.83	577543.77	40°04'49.754"N	80°35'57.262"W	476.96	327.717	6.98
6445.00	80.700	339.000	6210.51	515.17	443.49	-270.44	1692388.14	577584.03	40°04'50.150"N	80°35'57.470"W	519.44	328.625	7.17
6488.00	83.400	339.500	6216.46	557.68	483.31	-285.52	1692373.05	577623.85	40°04'50.542"N	80°35'57.670"W	561.35	329.427	6.38
6532.00	85.300	339.400	6220.79	601.39	524.31	-300.89	1692357.69	577664.84	40°04'50.945"N	80°35'57.874"W	604.52	330.149	4.32
6575.00	86.800	339.000	6223.75	644.22	564.41	-316.13	1692342.45	577704.94	40°04'51.339"N	80°35'58.077"W	646.91	330.747	3.61
6618.00	89.000	338.600	6225.33	687.13	604.47	-331.67	1692326.91	577745.00	40°04'51.733"N	80°35'58.283"W	689.48	331.247	5.20
6662.00	90.600	339.400	6225.48	731.07	645.55	-347.43	1692311.15	577786.08	40°04'52.137"N	80°35'58.492"W	733.10	331.711	4.07
6705.00	90.700	340.200	6225.00	773.97	685.90	-362.28	1692296.30	577826.43	40°04'52.534"N	80°35'58.689"W	775.70	332.158	1.87
6751.00	91.100	340.100	6224.27	819.84	729.16	-377.90	1692280.68	577869.69	40°04'52.960"N	80°35'58.897"W	821.27	332.604	0.90
6792.00	91.000	339.600	6223.52	860.74	767.65	-392.02	1692265.56	577908.17	40°04'53.338"N	80°35'59.085"W	861.95	332.948	1.24

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	CHESAPEAKE APPALACHIA, LLC	Well	OCC-A OHI 3H
Area	Ohio County, WV	Wellbore	OCC-A OHI 3H AWP
Field	Ohio		
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
6835.00	90.700	337.500	6222.88	903.69	807.66	-407.74	1692250.84	577948.19	40°04'53.732"N	80°35'59.293"W	904.75	333.213	4.93
6878.00	91.200	333.700	6222.17	946.68	846.81	-425.50	1692233.08	577987.33	40°04'54.117"N	80°35'59.528"W	947.70	333.322	8.91
6922.00	91.500	334.700	6221.13	990.64	886.41	-444.64	1692213.94	578026.93	40°04'54.506"N	80°35'59.780"W	991.68	333.361	2.37
7009.00	91.500	335.600	6218.86	1077.60	965.33	-481.19	1692177.39	578105.85	40°04'55.281"N	80°36'00.263"W	1078.61	333.505	1.03
7095.00	90.500	335.900	6217.36	1163.59	1043.72	-516.51	1692142.08	578184.24	40°04'56.051"N	80°36'00.730"W	1164.53	333.671	1.21
7182.00	90.500	336.200	6216.60	1250.59	1123.23	-551.82	1692106.76	578263.75	40°04'56.833"N	80°36'01.196"W	1251.46	333.836	0.34
7269.00	90.500	337.700	6215.84	1337.57	1203.28	-585.88	1692072.70	578343.79	40°04'57.620"N	80°36'01.647"W	1338.34	334.038	1.72
7356.00	90.500	338.300	6215.08	1424.51	1283.94	-618.47	1692040.12	578424.45	40°04'58.413"N	80°36'02.079"W	1425.14	334.280	0.69
7443.00	90.500	339.800	6214.32	1511.38	1365.18	-649.58	1692009.01	578505.69	40°04'59.212"N	80°36'02.492"W	1511.85	334.554	1.72
7531.00	90.400	339.900	6213.63	1599.18	1447.80	-679.89	1691978.70	578588.30	40°05'00.025"N	80°36'02.895"W	1599.49	334.845	0.16
7617.00	90.600	339.500	6212.88	1684.99	1528.45	-709.73	1691948.86	578668.96	40°05'00.818"N	80°36'03.292"W	1685.19	335.093	0.52
7703.00	90.300	340.300	6212.20	1770.79	1609.21	-739.28	1691919.31	578749.71	40°05'01.612"N	80°36'03.684"W	1770.90	335.326	0.99
7790.00	90.500	339.200	6211.59	1857.59	1690.83	-769.39	1691889.20	578831.33	40°05'02.415"N	80°36'04.085"W	1857.65	335.533	1.29
7877.00	90.500	337.600	6210.84	1944.51	1771.71	-801.42	1691857.18	578912.21	40°05'03.211"N	80°36'04.509"W	1944.54	335.661	1.84
7964.00	90.600	336.200	6210.00	2031.49	1851.73	-835.55	1691823.05	578992.23	40°05'03.997"N	80°36'04.961"W	2031.52	335.714	1.61
8051.00	90.900	335.100	6208.86	2118.48	1930.99	-871.41	1691787.18	579071.48	40°05'04.776"N	80°36'05.435"W	2118.51	335.711	1.31
8138.00	90.800	335.100	6207.57	2205.46	2009.89	-908.04	1691750.56	579150.38	40°05'05.551"N	80°36'05.919"W	2205.49	335.687	0.11
8225.00	90.600	335.200	6206.51	2292.45	2088.83	-944.60	1691714.00	579229.32	40°05'06.327"N	80°36'06.401"W	2292.48	335.667	0.26
8312.00	90.800	335.200	6205.44	2379.43	2167.80	-981.09	1691677.51	579308.28	40°05'07.103"N	80°36'06.883"W	2379.47	335.650	0.23
8399.00	90.700	333.600	6204.31	2466.39	2246.25	-1018.67	1691639.93	579386.73	40°05'07.873"N	80°36'07.379"W	2466.44	335.606	1.84
8485.00	90.800	332.600	6203.18	2552.27	2322.94	-1057.35	1691601.02	579463.42	40°05'08.627"N	80°36'07.892"W	2552.35	335.521	1.17
8572.00	90.300	333.000	6202.34	2639.13	2400.31	-1097.35	1691561.26	579540.79	40°05'09.386"N	80°36'08.416"W	2639.25	335.432	0.74
8659.00	90.600	333.100	6201.66	2726.02	2477.86	-1136.77	1691521.83	579618.34	40°05'10.148"N	80°36'08.935"W	2726.18	335.356	0.36
8746.00	90.400	332.200	6200.90	2812.87	2555.13	-1176.74	1691481.86	579695.61	40°05'10.907"N	80°36'09.461"W	2813.08	335.272	1.06
8833.00	90.400	334.200	6200.29	2899.76	2632.78	-1215.97	1691442.64	579773.25	40°05'11.669"N	80°36'09.978"W	2900.02	335.210	2.30
8920.00	90.700	337.200	6199.46	2986.74	2712.06	-1251.76	1691406.85	579852.53	40°05'12.448"N	80°36'10.451"W	2987.00	335.224	3.47
9006.00	90.500	344.000	6198.56	3072.41	2793.13	-1280.31	1691378.30	579933.59	40°05'13.246"N	80°36'10.831"W	3072.58	335.374	7.91
9090.00	90.600	341.300	6197.75	3155.83	2873.29	-1305.35	1691353.25	580013.76	40°05'14.035"N	80°36'11.166"W	3155.91	335.567	3.22
9177.00	90.400	336.900	6196.99	3242.67	2954.55	-1336.38	1691322.23	580095.01	40°05'14.834"N	80°36'11.578"W	3242.72	335.662	5.06
9264.00	90.400	331.900	6196.38	3329.61	3032.98	-1373.96	1691284.65	580173.44	40°05'15.605"N	80°36'12.074"W	3329.67	335.629	5.75

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	CHESAPEAKE APPALACHIA, LLC	Well	OCC-A OHI 3H
Area	Ohio County, WV	Wellbore	OCC-A OHI 3H AWP
Field	Ohio		
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)													
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)
9352.00	90.400	330.000	6195.77	3417.27	3109.90	-1416.69	1691241.92	580250.36	40°05'16.359"N	80°36'12.636"W	3417.38	335.509	2.16
9438.00	90.400	329.600	6195.17	3502.76	3184.23	-1459.95	1691198.67	580324.68	40°05'17.089"N	80°36'13.204"W	3502.96	335.369	0.47
9524.00	90.500	330.100	6194.49	3588.27	3258.59	-1503.14	1691155.47	580399.04	40°05'17.818"N	80°36'13.772"W	3588.57	335.237	0.59
9612.00	90.400	330.400	6193.80	3675.83	3334.99	-1546.81	1691111.81	580475.44	40°05'18.568"N	80°36'14.345"W	3676.24	335.118	0.36
9698.00	90.400	333.600	6193.20	3761.61	3410.91	-1587.17	1691071.44	580551.36	40°05'19.313"N	80°36'14.877"W	3762.11	335.046	3.72
9785.00	90.400	339.400	6192.59	3848.56	3490.66	-1621.85	1691036.77	580631.10	40°05'20.097"N	80°36'15.335"W	3849.04	335.079	6.67
9871.00	91.500	344.200	6191.17	3934.08	3572.32	-1648.70	1691009.92	580712.76	40°05'20.901"N	80°36'15.694"W	3934.42	335.226	5.73
9959.00	91.500	344.800	6188.86	4021.08	3657.09	-1672.21	1690986.41	580797.53	40°05'21.736"N	80°36'16.010"W	4021.27	335.428	0.68
10046.00	91.400	341.600	6186.66	4107.35	3740.34	-1697.34	1690961.28	580880.78	40°05'22.555"N	80°36'16.346"W	4107.45	335.592	3.68
10134.00	91.500	340.000	6184.44	4195.01	3823.42	-1726.27	1690932.35	580963.85	40°05'23.378"N	80°36'16.731"W	4195.06	335.701	1.82
10222.00	91.500	338.900	6182.13	4282.82	3905.79	-1757.15	1690901.47	581046.22	40°05'24.183"N	80°36'17.142"W	4282.84	335.778	1.25
10307.00	91.300	335.700	6180.05	4367.76	3984.17	-1789.94	1690868.68	581124.60	40°05'24.953"N	80°36'17.576"W	4367.78	335.807	3.77
10394.00	91.500	334.700	6177.93	4454.72	4063.12	-1826.42	1690832.20	581203.55	40°05'25.729"N	80°36'18.058"W	4454.75	335.796	1.17
10481.00	91.400	334.500	6175.73	4541.67	4141.69	-1863.73	1690794.90	581282.11	40°05'26.501"N	80°36'18.550"W	4541.70	335.773	0.26
10568.00	91.500	335.700	6173.53	4628.63	4220.57	-1900.34	1690758.28	581361.00	40°05'27.276"N	80°36'19.034"W	4628.66	335.760	1.38
10655.00	91.200	335.000	6171.48	4715.60	4299.62	-1936.62	1690722.01	581440.04	40°05'28.053"N	80°36'19.513"W	4715.64	335.752	0.88
10742.00	91.000	335.100	6169.81	4802.57	4378.49	-1973.31	1690685.32	581518.91	40°05'28.827"N	80°36'19.998"W	4802.61	335.740	0.26
10828.00	90.900	335.800	6168.38	4888.56	4456.70	-2009.04	1690649.59	581597.12	40°05'29.596"N	80°36'20.470"W	4888.60	335.735	0.82
10915.00	91.000	335.300	6166.94	4975.54	4535.89	-2045.04	1690613.59	581676.30	40°05'30.374"N	80°36'20.945"W	4975.59	335.731	0.59
11002.00	90.800	332.800	6165.57	5062.47	4614.10	-2083.10	1690575.53	581754.51	40°05'31.142"N	80°36'21.447"W	5062.53	335.702	2.88
11089.00	90.600	335.800	6164.51	5149.42	4692.48	-2120.73	1690537.81	581832.89	40°05'31.912"N	80°36'21.945"W	5149.49	335.679	3.46
11174.00	90.800	337.200	6163.47	5234.41	4770.42	-2154.72	1690503.92	581910.83	40°05'32.678"N	80°36'22.393"W	5234.47	335.692	1.66
11261.00	90.100	336.300	6162.79	5321.40	4850.35	-2189.06	1690469.58	581990.76	40°05'33.464"N	80°36'22.848"W	5321.46	335.709	1.31
11348.00	89.900	334.300	6162.79	5408.39	4929.39	-2225.41	1690433.23	582069.79	40°05'34.241"N	80°36'23.328"W	5408.45	335.703	2.31
11434.00	90.400	335.400	6162.56	5494.37	5007.23	-2261.96	1690396.68	582147.63	40°05'35.005"N	80°36'23.811"W	5494.44	335.690	1.40
11522.00	91.900	334.600	6160.79	5582.33	5086.97	-2299.14	1690359.50	582227.37	40°05'35.789"N	80°36'24.302"W	5582.41	335.679	1.93
11609.00	92.600	335.400	6157.38	5669.25	5165.76	-2335.88	1690322.76	582306.15	40°05'36.563"N	80°36'24.787"W	5669.34	335.668	1.22
11696.00	91.600	336.400	6154.19	5756.19	5245.12	-2371.38	1690287.26	582385.51	40°05'37.343"N	80°36'25.256"W	5756.28	335.672	1.62
11783.00	89.900	338.100	6153.05	5843.16	5325.34	-2405.02	1690253.63	582465.73	40°05'38.131"N	80°36'25.702"W	5843.23	335.695	2.76
11869.00	89.900	339.500	6153.20	5929.05	5405.52	-2436.12	1690222.53	582545.90	40°05'38.920"N	80°36'26.115"W	5929.10	335.740	1.63

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot #03
Area	Ohio County, WV	Well	OCC-A OHI 3H
Field	Ohio	Wellbore	OCC-A OHI 3H AWB
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
11955.00	89.700	340.000	6153.50	6014.86	5486.20	-2465.88	1690192.76	582626.58	40°05'39.713"N	80°36'26.510"W	6014.89	335.798	0.63
12041.00	92.300	340.200	6152.00	6100.62	5567.04	-2495.15	1690163.50	582707.43	40°05'40.509"N	80°36'26.900"W	6100.63	335.858	3.03
12127.00	91.600	337.700	6149.07	6186.45	5647.25	-2526.02	1690132.63	582787.63	40°05'41.298"N	80°36'27.310"W	6186.45	335.901	3.02
12214.00	89.400	336.000	6148.32	6273.43	5727.24	-2560.21	1690098.43	582867.61	40°05'42.084"N	80°36'27.762"W	6273.43	335.914	3.20
12300.00	88.200	335.800	6150.12	6359.41	5805.72	-2595.32	1690063.32	582946.10	40°05'42.855"N	80°36'28.226"W	6359.41	335.914	1.41
12386.00	88.200	334.700	6152.82	6445.35	5883.78	-2631.31	1690027.34	583024.15	40°05'43.622"N	80°36'28.702"W	6445.36	335.905	1.28
12472.00	88.300	333.300	6155.44	6531.26	5961.04	-2668.99	1689989.66	583101.41	40°05'44.381"N	80°36'29.199"W	6531.27	335.880	1.63
12559.00	88.200	335.000	6158.10	6618.17	6039.29	-2706.91	1689951.75	583179.66	40°05'45.150"N	80°36'29.699"W	6618.19	335.857	1.96
12647.00	89.300	337.400	6160.02	6706.14	6119.79	-2742.41	1689916.25	583260.15	40°05'45.941"N	80°36'30.169"W	6706.16	335.862	3.00
12733.00	89.500	337.900	6160.92	6792.10	6199.32	-2775.11	1689883.55	583339.68	40°05'46.722"N	80°36'30.602"W	6792.11	335.884	0.63
12821.00	90.300	338.200	6161.08	6880.04	6280.94	-2808.00	1689850.65	583421.30	40°05'47.525"N	80°36'31.038"W	6880.05	335.912	0.97
12908.00	90.300	338.900	6160.62	6966.95	6361.91	-2839.81	1689818.84	583502.27	40°05'48.321"N	80°36'31.460"W	6966.96	335.945	0.80
12995.00	90.300	337.500	6160.16	7053.89	6442.69	-2872.12	1689786.53	583583.04	40°05'49.116"N	80°36'31.889"W	7053.89	335.973	1.61
13082.00	90.800	343.000	6159.33	7140.61	6524.53	-2901.51	1689757.15	583664.89	40°05'49.921"N	80°36'32.280"W	7140.61	336.025	6.35
13169.00	90.700	345.700	6158.19	7226.66	6608.29	-2924.97	1689733.68	583748.65	40°05'50.746"N	80°36'32.595"W	7226.69	336.125	3.11
13254.00	91.400	342.200	6156.63	7310.82	6689.95	-2948.47	1689710.19	583830.30	40°05'51.550"N	80°36'32.911"W	7310.88	336.215	4.20
13341.00	91.400	346.600	6154.50	7396.83	6773.70	-2971.85	1689686.81	583914.05	40°05'52.374"N	80°36'33.225"W	7396.96	336.311	5.06
13428.00	91.600	344.700	6152.23	7482.56	6857.96	-2993.40	1689665.26	583998.30	40°05'53.204"N	80°36'33.515"W	7482.78	336.419	2.20
13514.00	91.600	341.900	6149.83	7567.82	6940.29	-3018.10	1689640.56	584080.63	40°05'54.015"N	80°36'33.846"W	7568.13	336.497	3.25
13600.00	91.600	341.700	6147.42	7653.34	7021.95	-3044.95	1689613.71	584162.29	40°05'54.818"N	80°36'34.205"W	7653.73	336.557	0.23
13688.00	91.600	339.200	6144.97	7741.03	7104.84	-3074.39	1689584.27	584245.18	40°05'55.634"N	80°36'34.597"W	7741.49	336.601	2.84
13774.00	91.900	336.900	6142.34	7826.93	7184.57	-3106.52	1689552.15	584324.90	40°05'56.418"N	80°36'35.023"W	7827.42	336.617	2.70
13862.00	91.700	332.800	6139.57	7914.85	7264.17	-3143.89	1689514.77	584404.50	40°05'57.200"N	80°36'35.516"W	7915.31	336.597	4.66
13950.00	91.800	331.700	6136.89	8002.62	7342.01	-3184.84	1689473.82	584482.34	40°05'57.964"N	80°36'36.056"W	8003.02	336.550	1.25
14037.00	92.100	332.500	6133.93	8089.37	7418.85	-3225.53	1689433.14	584559.18	40°05'58.718"N	80°36'36.591"W	8089.71	336.502	0.98
14124.00	91.300	334.300	6131.35	8176.24	7496.60	-3264.47	1689394.20	584636.93	40°05'59.482"N	80°36'37.105"W	8176.54	336.469	2.26
14211.00	91.200	334.000	6129.45	8263.18	7574.88	-3302.39	1689356.28	584715.20	40°06'00.251"N	80°36'37.605"W	8263.45	336.444	0.36
14298.00	91.800	334.200	6127.17	8350.10	7653.11	-3340.38	1689318.29	584793.43	40°06'01.019"N	80°36'38.106"W	8350.35	336.420	0.73
14384.00	91.300	333.000	6124.84	8435.99	7730.12	-3378.60	1689280.07	584870.43	40°06'01.775"N	80°36'38.610"W	8436.21	336.391	1.51
14471.00	91.500	333.500	6122.87	8522.87	7807.78	-3417.75	1689240.92	584948.10	40°06'02.538"N	80°36'39.126"W	8523.06	336.359	0.57

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	CHESAPEAKE APPALACHIA, LLC	Well	OCC-A OHI 3H
Area	Ohio County, WV	Wellbore	OCC-A OHI 3H AWB
Field	Ohio		
Facility	OCC-A OHI Pad		

WELLPATH DATA (197 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
14558.00	91.200	334.500	6120.97	8609.80	7885.96	-3455.88	1689202.79	585026.27	40°06'03.306"N	80°36'39.630"W	8609.96	336.335	1.15
14645.00	91.300	333.700	6119.07	8696.73	7964.20	-3493.87	1689164.80	585104.51	40°06'04.075"N	80°36'40.131"W	8696.88	336.313	0.93
14731.00	91.300	332.600	6117.12	8782.60	8040.91	-3532.70	1689125.97	585181.22	40°06'04.828"N	80°36'40.643"W	8782.72	336.282	1.28
14818.00	91.300	332.000	6115.15	8869.40	8117.92	-3573.13	1689085.54	585258.23	40°06'05.584"N	80°36'41.175"W	8869.49	336.243	0.69
14905.00	91.300	333.100	6113.18	8956.22	8195.10	-3613.23	1689045.45	585335.41	40°06'06.342"N	80°36'41.703"W	8956.29	336.207	1.26
14991.00	91.400	333.700	6111.15	9042.11	8271.98	-3651.72	1689006.96	585412.28	40°06'07.097"N	80°36'42.211"W	9042.16	336.181	0.71
15078.00	90.400	334.400	6109.78	9129.05	8350.20	-3689.79	1688968.89	585490.50	40°06'07.865"N	80°36'42.713"W	9129.09	336.160	1.40
15164.00	90.300	334.900	6109.26	9215.02	8427.91	-3726.61	1688932.07	585568.21	40°06'08.628"N	80°36'43.199"W	9215.06	336.146	0.59
15251.00	90.400	335.100	6108.73	9302.01	8506.76	-3763.38	1688895.31	585647.05	40°06'09.403"N	80°36'43.685"W	9302.04	336.135	0.26
15339.00	91.400	333.500	6107.34	9389.95	8586.04	-3801.53	1688857.15	585726.33	40°06'10.182"N	80°36'44.189"W	9389.98	336.118	2.14
15425.00	91.400	330.200	6105.24	9475.69	8661.84	-3842.09	1688816.60	585802.13	40°06'10.926"N	80°36'44.723"W	9475.71	336.080	3.84
15513.00	91.200	328.700	6103.25	9563.10	8737.60	-3886.80	1688771.88	585877.89	40°06'11.669"N	80°36'45.310"W	9563.10	336.019	1.72
15599.00	91.700	327.800	6101.07	9648.29	8810.70	-3932.04	1688726.65	585950.99	40°06'12.386"N	80°36'45.904"W	9648.29	335.950	1.20
15686.00	91.700	328.800	6098.49	9734.47	8884.69	-3977.74	1688680.95	586024.98	40°06'13.111"N	80°36'46.504"W	9734.48	335.882	1.15
15773.00	91.700	330.100	6095.91	9820.86	8959.58	-4021.94	1688636.75	586099.86	40°06'13.846"N	80°36'47.084"W	9820.90	335.825	1.49
15825.00	91.700	330.400	6094.36	9872.58	9004.71	-4047.73	1688610.96	586144.99	40°06'14.289"N	80°36'47.423"W	9872.63	335.795	0.58
15853.00	91.700	330.400	6093.53	9900.44	9029.04	-4061.56	1688597.14	586169.32	40°06'14.527"N	80°36'47.605"W	9900.50	335.780	0.00

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE APPALACHIA, LLC	Slot	Slot #03
Area	Ohio County, WV	Well	OCC-A OHI 3H
Field	Ohio	Wellbore	OCC-A OHI 3H AWB
Facility	OCC-A OHI Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
OCC-A OHI 3H PBHL Rev-3		6082.13	9046.38	-4031.22	1688627.47	586186.66	40°06'14.702"N	80°36'47.218"W	point
OCC-A OHI 3H PBHL Rev-5		6088.54	9046.38	-4031.22	1688627.47	586186.66	40°06'14.702"N	80°36'47.218"W	point
OCC-A OHI 3H PBHL Rev-4		6134.86	9046.38	-4031.22	1688627.47	586186.66	40°06'14.702"N	80°36'47.218"W	point
OCC-A OHI 3H PBHL Rev-2		6138.57	9046.38	-4031.22	1688627.47	586186.66	40°06'14.702"N	80°36'47.218"W	point
OCC-A OHI 3H LP Rev-3		6219.45	559.10	-296.24	1692362.34	577699.63	40°04'51.289"N	80°35'57.820"W	point

WELLPATH COMPOSITION - Ref Wellbore: OCC-A OHI 3H A WB Ref Wellpath: OCC-A OHI 3H AWP Proj:15853 MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	5300.00	Generic gyro - northseeking (Standard)	VES Gyro (100'-6230')	OCC-A OHI 3H AWB
5300.00	15825.00	Navitrak (MagCorr)	BHI Navitrak (5300')(5317'-15825')	OCC-A OHI 3H AWB
15825.00	15853.00	Blind Drilling (std)	Projection to bit	OCC-A OHI 3H AWB

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/1/2013
State:	WEST VIRGINIA
County:	OHIO
API Number:	4706900096
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	OCC A OHI 3H
Longitude:	-80.598311
Latitude:	40.079389
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):*	6,225
Total Water Volume (gal):**	9,415,896

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	100.00000%	78.88118%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00000%	7.08729%	
EC6734A	NALCO	Anti-Bacterial Agent	Acetic acid	000064-19-7	60.00000%	0.01515%	
			Hydrogen Peroxide	007722-84-1	30.00000%	0.00758%	
			Peracetic Acid	000079-21-0	30.00000%	0.00758%	
			Ethylene Glycol	000107-21-1	30.00000%	0.00144%	
			Crystalline silica	14808-60-7	98.57878%	14.10526%	
			Hydrogen chloride	7647-01-0	0.78133%	0.11180%	
			Guar gum	9000-30-0	0.41526%	0.05942%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.06974%	0.00998%	
			Ammonium sulfate	7783-20-2	0.06592%	0.00943%	
			Sodium sulfate	7757-82-6	0.02849%	0.00408%	
			Diammonium peroxodisulphate	7727-54-0	0.02304%	0.00330%	
			Calcium chloride	10043-52-4	0.01117%	0.00160%	
EC6486A	NALCO	Scale Inhibitor					
Acid, Hydrochloric 15pct, A264, J218, J580, J609, L058, S001, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Acid, Breaker, Corrosion Inhibitor, Friction Reducer, Gelling Agent, Iron Control Agent, KCl Substitute, Proppant - Natural					

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00747%	0.00107%	
			Urea	57-13-6	0.00459%	0.00066%	
			Sodium erythorbate	6381-77-7	0.00305%	0.00044%	
			Methanol	67-56-1	0.00260%	0.00037%	
			Fatty acids, tall-oil	61790-12-3	0.00191%	0.00027%	
			Non-crystalline silica	7631-86-9	0.00180%	0.00026%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00157%	0.00022%	
			Alcohols, C14-15, ethoxylated (ZEO)	68951-67-7	0.00073%	0.00010%	
			Potassium chloride	7447-40-7	0.00066%	0.00009%	
			Prop-2-yn-1-ol	107-19-7	0.00049%	0.00007%	
			Alkenes, C>10 a-	64743-02-8	0.00033%	0.00005%	
			Sodium chloride	7647-14-5	0.00020%	0.00003%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00014%	0.00002%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00007%	0.00001%	
			Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	0.00001%	0.00001%	
			Octamethylcyclotrasiloxane	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%	

Additional Ingredients Not Listed on MSDS

EC6486A, EC6734A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Diethylene Glycol	000111-46-6		0.00006%	
			Proprietary Inorganic Phosphate	TRADE SECRET		0.00055%	
			Proprietary Organic Acid Derivatives	TRADE SECRET		0.00166%	
			Proprietary Phosphonic Acid Ester	TRADE SECRET		0.00029%	
			Water	007732-18-5		0.02078%	

* 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.

RECEIVED
FEB 27 2015
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

RECEIVED

FEB 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV