

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-051-01690 County Marshall District Cameron
Quad Glen Easton Pad Name Van Aston MSH Field/Pool Name _____
Farm name Van Aston MSH 10H Well Number 838973
Operator (as registered with the OOG) Chesapeake Appalachia, L.L.C.
Address P.O. Box 18496 City Oklahoma City State OK Zip 73154-0496

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4410947.9 Easting 529913.2
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4409233.4 Easting 531341.1

Elevation (ft) 1,152 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s) SOBM

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Date permit issued 12/13/2013 Date drilling commenced 12/22/2013 Date drilling ceased 2/28/2014
Date completion activities began 11/3/2014 Date completion activities ceased 11/17/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 307' Open mine(s) (Y/N) depths Y
Salt water depth(s) ft 1,060' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 770' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

Reviewed by:

AXWS 06/24/14

API 47-051 - 01690 Farm name Van Aston MSH 10H Well number 838973

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/fl	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	122'	New	K-55 94#		Y
Surface	17 1/2"	13 3/8"	833'	New	J-55 54.5#		Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,239'	New	J-55 40#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" / 8 1/2"	5 1/2"	14,034'	New	P-110 20#		Y
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	200	15.60	1.18	236	Surface	8
Surface	Class A	749	15.60	1.21	906.29	Surface	8
Coal							
Intermediate 1	Class A	785	15.60	1.19	934.15	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class H	1,195 / 2,338	15.60	1.17 / 1.18	4,154.63	824'	8
Tubing							

Drillers TD (ft) 14037 Loggers TD (ft) 14037

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

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Kick off depth (ft) 5.850

Check all wireline logs run
 caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

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Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Surface / Coal - Run centralizers in the middle and top of the first joint, top of the third joint and every 4th joint to surface.
Production - Run 1st centralizer 3' from Shoe, 2nd at top of the first joint and then one every 3rd joint to TOC.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 051 - 01690 Farm name Van Aston MSH 10H Well number 838973

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>N/A</u>	<u>TVD</u>	<u>MD</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas Oil NGL Water GAS MEASURED BY
 _____ mcfpd _____ bpd _____ bpd _____ bpd Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	0		0		
Coal	724				
Big Injun	1824	2086			
Genesee	6430	6451	6605	6665	
Tully	6451	6478	6665	6770	
Hamilton	6578	6579	6770	7320	
Marcellus	6579		7320		

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Please insert additional pages as applicable.

Drilling Contractor Nomac Drilling
 Address 171 Locust Ave Extension City Mt. Morris State PA Zip 15349

Logging Company Nomac Drilling
 Address 171 Locust Ave Extension City Mt. Morris State PA Zip 15349

Cementing Company Schlumberger
 Address 1080 U.S. 33 City Weston State WV Zip 26452

Stimulating Company US Well Services, LLC
 Address 770 South Post Oak Lane, Suite 405 City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Jessica Greathouse Telephone 304-353-5240
 Signature JG Title Manager - Regulatory Operations Date 3/30/16

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

PERFORMANCE RECORD ATTACHMENT

Well Name and Number: Van Aston MSH 10H

API No. 47-051-01690

Stage	PERFORMANCE RECORD			STIMULATION RECORD				
	Date	Interval Perforated	Total Number Of Shots	Date	Interval Treated	Fluid	Propping Agent	
	From	To			Type	Type	Amount	
					Amount	Type	Injection Rate	
1	11/3/2014	13,751	13872	11/3/2014	13,751	SLK Wtr	9621	76
2	11/4/2014	13,604	13723	11/4/2014	13,604	SLK Wtr	7675	68
3	11/4/2014	13,456	13575	11/4/2014	13,456	SLK Wtr	7673	73
4	11/4/2014	13,309	13426	11/4/2014	13,309	SLK Wtr	8087	68
5	11/5/2014	13,161	13280	11/5/2014	13,161	SLK Wtr	7550	76
6	11/5/2014	13,014	13133	11/5/2014	13,014	SLK Wtr	7531	76
7	11/5/2014	12,866	12985	11/5/2014	12,866	SLK Wtr	7366	79
8	11/5/2014	12,719	12838	11/5/2014	12,719	SLK Wtr	7454	81
9	11/6/2014	12,571	12690	11/6/2014	12,571	SLK Wtr	7448	79
10	11/6/2014	12,424	12543	11/6/2014	12,424	SLK Wtr	7698	80
11	11/6/2014	12,276	12395	11/6/2014	12,276	SLK Wtr	7521	79
12	11/7/2014	12,129	12248	11/7/2014	12,129	SLK Wtr	7367	80
13	11/7/2014	11,981	12100	11/7/2014	11,981	SLK Wtr	7389	81
14	11/7/2014	11,834	11953	11/7/2014	11,834	SLK Wtr	6971	81
15	11/8/2014	11,686	11805	11/8/2014	11,686	SLK Wtr	7268	80
16	11/8/2014	11,538	11656	11/8/2014	11,538	SLK Wtr	7245	78
17	11/8/2014	11,391	11510	11/8/2014	11,391	SLK Wtr	7089	81
18	11/8/2014	11,244	11363	11/8/2014	11,244	SLK Wtr	7052	80
19	11/9/2014	11,096	11215	11/9/2014	11,096	SLK Wtr	9158	71
20	11/9/2014	10,949	11068	11/9/2014	10,949	SLK Wtr	7172	79
21	11/9/2014	10,801	10920	11/9/2014	10,801	SLK Wtr	6980	80
22	11/9/2014	10,654	10773	11/9/2014	10,654	SLK Wtr	7038	80
23	11/10/2014	10,506	10625	11/10/2014	10,506	SLK Wtr	7333	78
24	11/10/2014	10,359	10478	11/10/2014	10,359	SLK Wtr	7335	81
25	11/10/2014	10,211	10330	11/10/2014	10,211	SLK Wtr	7297	83
26	11/10/2014	10,064	10183	11/10/2014	10,064	SLK Wtr	7321	83
27	11/11/2014	9,916	10035	11/11/2014	9,916	SLK Wtr	7359	80
28	11/11/2014	9,769	9888	11/11/2014	9,769	SLK Wtr	7283	79
29	11/11/2014	9,621	9740	11/11/2014	9,621	SLK Wtr	7145	84

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API No. 47-051-01690

Stage	PERFORATION RECORD				STIMULATION RECORD							
	Date	Interval Perforated		Total Number Of Shots				Fluid		Propping Agent		Average Injection Rate
		From	To		Date	Interval Treated	Type	Amount	Type	Amount		
30	11/12/2014	9474	9593	30	11/12/2014	9474	9593	SLK Wtr	7179	Sand	403360	83
31	11/12/2014	9326	9445	30	11/12/2014	9326	9445	SLK Wtr	12859	Sand	407474	54
32	11/12/2014	9179	9298	30	11/12/2014	9179	9298	SLK Wtr	7072	Sand	401153	81
33	11/13/2014	9031	9150	30	11/13/2014	9031	9150	SLK Wtr	7212	Sand	403840	78
34	11/13/2014	8884	9003	30	11/13/2014	8884	9003	SLK Wtr	7324	Sand	402036	81
35	11/14/2014	8736	8855	30	11/14/2014	8736	8855	SLK Wtr	7333	Sand	401650	78
36	11/14/2014	8589	8708	30	11/14/2014	8589	8708	SLK Wtr	7397	Sand	404340	77
37	11/15/2014	8441	8560	30	11/15/2014	8441	8560	SLK Wtr	7217	Sand	401014	79
38	11/15/2014	8294	8413	30	11/15/2014	8294	8413	SLK Wtr	7303	Sand	394799	80
39	11/16/2014	8146	8265	30	11/16/2014	8146	8265	SLK Wtr	7328	Sand	407300	80
40	11/16/2014	7999	8118	30	11/16/2014	7999	8118	SLK Wtr	7139	Sand	401540	80
41	11/16/2014	7851	7970	30	11/16/2014	7851	7970	SLK Wtr	7247	Sand	408478	82
42	11/17/2014	7704	7823	30	11/17/2014	7704	7823	SLK Wtr	6667	Sand	399846	80
43	11/17/2014	7556	7672	30	11/17/2014	7556	7672	SLK Wtr	7244	Sand	400560	81
44	11/17/2014	7409	7528	30	11/17/2014	7409	7528	SLK Wtr	6432	Sand	400471	80

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Company: Chesapeake Operating, Inc Lease / Well: VANASTON MSH 10H County/Parish: Marshall County State: WV Date: 2/16/2014 API#: 47-5101-690 Dir. Company: WEATHERFORD Latitude: Longitude:	Operator: CURTIS LEPP Job Number: SVPA-140051 Gyro Serial #: 120 Proposed Direction: 149.92 Mag. Declination: 8.7 W GRID NORTH Rig/RKB: Nomac #337 22 ft. Tie-in Company: N.A X: Y:
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FIELD USE ONLY, DEFINITIVE SURVEY WILL COME FROM MS SURVEY OFFICES

TIE-IN Survey					
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S)	Coordinates (+E/-W)
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report									
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S)	Coordinates (+E/-W)	Dog-Leg / 100 ft.	Closure Distance	Closure Direction
100.00	0.27	6.67	100.00	-0.19	0.23	0.03	0.27	0.24	6.67
200.00	0.35	40.33	200.00	-0.48	0.70	0.25	0.20	0.74	19.81
300.00	0.31	133.69	300.00	-0.32	0.75	0.65	0.48	0.99	40.84
400.00	0.39	150.30	400.00	0.28	0.26	1.01	0.13	1.04	75.33
500.00	0.31	165.22	499.99	0.88	-0.29	1.25	0.12	1.28	103.21
600.00	0.38	212.16	599.99	1.29	-0.84	1.14	0.28	1.41	126.22
682.00	0.43	227.10	681.99	1.49	-1.27	0.77	0.14	1.49	148.87

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Company: Chesapeake Operating, Inc Lease / Well: VANASTON MSH 10H County/Parish: Marshall County State: WV Date: 2/16/2014 API#: 47-5101-690 Dir. Company: WEATHERFORD Latitude: Longitude:	Operator: CURTIS LEPP Job Number: SVPA-140051 Gyro Serial #: 120 Proposed Direction: 149.92 Mag. Declination: 8.7 W GRID NORTH Rig/RKB: Nomac #337 22 ft. Tie-in Company: N.A X: Y:
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TIE-IN Survey					
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S) (+E/-W)	
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report								
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S) (+E/-W)	Dog-Leg / 100 ft.	Closure Distance	Closure Direction

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TIE-IN Survey					
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S) (+E/-W)	
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report								
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S) (+E/-W)	Dog-Leg / 100 ft.	Closure Distance	Closure Direction

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TIE-IN Survey					
Measured	Inclination	Azimuth	Vertical	Coordinates	
Depth (ft.)		Bearing	Depth	(+N/-S)	(+E/-W)
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report									
Measured	Inclination	Azimuth	Vertical	Vertical	Coordinates		Dog-Leg	Closure	
Depth (ft.)		Bearing	Depth	Section	(+N/-S)	(+E/-W)	/ 100 ft.	Distance	Direction

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TIE-IN Survey					
Measured	Inclination	Azimuth	Vertical	Coordinates	
Depth (ft.)		Bearing	Depth	(+N/-S)	(+E/-W)
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report									
Measured	Inclination	Azimuth	Vertical	Vertical	Coordinates	Dog-Leg	Closure	Closure	
Depth (ft.)		Bearing	Depth	Section	(+N/-S)	(+E/-W)	/ 100 ft.	Distance	Direction

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Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S) (+E/-W)	
0.00	0.00	0.00	0.00	0.00	0.00

Digital Multi-Shot Survey Report								
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S) (+E/-W)	Dog-Leg / 100 ft.	Closure Distance	Closure Direction

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Weatherford®

Drilling Services

EOW Summary



CHESAPEAKE ENERGY

WELL: VAN ASTON MSH 10H

MARSHALL COUNTY, WV

Prepared by: DEV KUMAR

Submitted: MARCH 03, 2014

Weatherford International Ltd.

100 Vista Drive
Charlrooi, PA 15022 USA
+1.724.239.1400 Main
+1.724.239.1403 Fax
www.weatherford.com

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FINAL SURVEYS

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