

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

API 47-051-01692 County Marshall District Union
Quad Moundsville Pad Name Mark Edison MSH Field/Pool Name _____
Farm name Mark Edison MSH 8H Well Number 837626
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 4425173.6 Easting 529914.3
Landing Point of Curve Northing 4424989.7 Easting 529969.9
Bottom Hole Northing 4422567 Easting 530706

Elevation (ft) 1220' 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

Date permit issued 1-28-2014 Date drilling commenced 5-20-2014 Date drilling ceased 7-10-2014
Date completion activities began 9-15-2014 Date completion activities ceased 9-25-2014
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 580' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 912' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 734' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

Reviewed *Jim Nickolson 10/6/2017* **01/05/2018**
via email

OCT 13 2017

WR-35
Rev. 8/23/13

API 47-051 - 01692 Farm name Mark Edison MSH 8H Well number 837626

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	26"	20"	122'	New	K-55 94#		Y Surface
Surface	17 1/2"	13 3/8"	794'	New	J-55 54.50#		Y Surface
Coal							
Intermediate 1	12 1/4"	9 5/8"	2146'	New	J-55 40#		Y Surface
Intermediate 2							
Intermediate 3							
Production	8 3/4" / 8 1/2"	5 1/2"	15035'	New	P110 20#		Y 700'
Tubing		2 3/8"	6686.9	New	L-80 4.70		
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	A	175	15.60	1.22	206.5	Surface	8
Surface	A	720	15.60	1.22	878.4	Surface	8
Coal							
Intermediate 1	A	750	15.60	1.19	892.5	Surface	8
Intermediate 2							
Intermediate 3							
Production	A	2967	15.60	1.38 / 1.19	1236.48/ 2464.49	700'	8
Tubing							

Drillers TD (ft) 15035 Loggers TD (ft) 15035

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure N/A

Kick off depth (ft) 5721

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

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 _____

01/05/2018

000150017
01/05/2018

API 47- 051 - 01692 Farm name Mark Edison MSH 8H Well number 837626

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	See attached				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	attached							

Please insert additional pages as applicable.

01/05/2018

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 COT 18 007
 E:\Projects\2018\

API 47- 051 - 01692 Farm name Mark Edison MSH 8H Well number 837626

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

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

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Coal	740		740		
Big Injun	1771	1995	1771	1995	
Geneseo	6196	6224	6258	6298	
Tully	6224	6258	6298	6351	
Hamilton	6258	6353	6351	6557	
Marcellus	6353		6557		

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

Please insert additional pages as applicable.

Completed by Marlene Williams Telephone 405-935-4158
Signature Marlene Williams Title Regulatory Analyst II Date 10-9-2017

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

01/05/2018

RECEIVED
OCT 13 2017
Environmental Services

PERFORATION RECORD ATTACHMENT

Well Name and Number: Mark Edison MSH 8H

API No. 47-051-01692

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		
1	9/15/2014	14,474	14890	60	9/15/2014	14,474	14890	SLK Wtr	6903	Sand	398280	80.1
2	9/18/2014	14,224	14425	30	9/18/2014	14,224	14425	SLK Wtr	6890	Sand	400240	78.6
3	9/18/2014	13,973	14174	30	9/18/2014	13,973	14174	SLK Wtr	6624	Sand	398000	78.5
4	9/18/2014	13,723	13924	30	9/18/2014	13,723	13924	SLK Wtr	7002	Sand	400040	68.4
5	9/19/2014	13,472	13673	30	9/19/2014	13,472	13673	SLK Wtr	6281	Sand	400380	66.4
6	9/19/2014	13,222	13423	30	9/19/2014	13,222	13423	SLK Wtr	6318	Sand	402300	67
7	9/19/2014	12,971	13172	30	9/19/2014	12,971	13172	SLK Wtr	6224	Sand	400600	80.1
8	9/19/2014	12,721	12922	30	9/19/2014	12,721	12922	SLK Wtr	6176	Sand	399320	80.3
9	9/20/2014	12,470	12671	30	9/20/2014	12,470	12671	SLK Wtr	6334	Sand	402000	75.8
10	9/20/2014	12,220	12421	30	9/20/2014	12,220	12421	SLK Wtr	6307	Sand	400660	70.1
11	9/20/2014	11,969	12170	30	9/20/2014	11,969	12170	SLK Wtr	6152	Sand	400720	79.4
12	9/20/2014	11,719	11920	30	9/20/2014	11,719	11920	SLK Wtr	6228	Sand	399020	75.2
13	9/21/2014	11,468	11669	30	9/21/2014	11,468	11669	SLK Wtr	6196	Sand	398320	80
14	9/21/2014	11,218	11419	30	9/21/2014	11,218	11419	SLK Wtr	6103	Sand	401860	78.2
15	9/21/2014	10,967	11168	30	9/21/2014	10,967	11168	SLK Wtr	6026	Sand	398740	79.7
16	9/21/2014	10,717	10918	30	9/21/2014	10,717	10918	SLK Wtr	5966	Sand	402620	79.7
17	9/22/2014	10,466	10667	30	9/22/2014	10,466	10667	SLK Wtr	6100	Sand	396200	76.6
18	9/22/2014	10,216	10417	30	9/22/2014	10,216	10417	SLK Wtr	6118	Sand	401880	79.2
19	9/22/2014	9,965	10166	30	9/22/2014	9,965	10166	SLK Wtr	6104	Sand	400880	80.1
20	9/22/2014	9,714	9916	30	9/22/2014	9,714	9916	SLK Wtr	6048	Sand	402100	80
21	9/23/2014	9,464	9665	30	9/23/2014	9,464	9665	SLK Wtr	6042	Sand	402440	77.3
22	9/23/2014	9,213	9415	30	9/23/2014	9,213	9415	SLK Wtr	6110	Sand	398660	77
23	9/23/2014	8,963	9164	30	9/23/2014	8,963	9164	SLK Wtr	6626	Sand	396840	79.2
24	9/23/2014	8,712	8914	30	9/23/2014	8,712	8914	SLK Wtr	5864	Sand	404300	80
25	9/24/2014	8,462	8663	30	9/24/2014	8,462	8663	SLK Wtr	6016	Sand	401580	77.5
26	9/24/2014	8,211	8413	30	9/24/2014	8,211	8413	SLK Wtr	6031	Sand	403462	77.8
27	9/24/2014	7,961	8162	30	9/24/2014	7,961	8162	SLK Wtr	5871	Sand	399480	79.4
28	9/24/2014	7,710	7912	30	9/24/2014	7,710	7912	SLK Wtr	8966	Sand	402020	65.7
29	9/25/2014	7,460	7661	30	9/25/2014	7,460	7661	SLK Wtr	7105	Sand	401580	77
30	9/25/2014	7,209	7411	30	9/25/2014	7,209	7411	SLK Wtr	6692	Sand	400720	75.7
31	9/25/2014	6,959	7160	30	9/25/2014	6,959	7160	SLK Wtr	5766	Sand	394740	77.2
32	9/25/2014	6,708	6910	30	9/25/2014	6,708	6910	SLK Wtr	6247	Sand	415140	80

01/05/2018

Mark Edison MSH 8H
 47-051-01692
 9/25/2014
 10:00 AM
 10/1/2014

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
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Is coal being mined in area (Y/N) N

Reviewed by:

01/05/2018

01/05/2018
01/05/2018
01/05/2018

API 47-051 - 01692 Farm name Mark Edison MSH 8H Well number 837626

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
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Intermediate 3							
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Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure N/A

Kick off depth (ft) 5721

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

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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 _____

01/05/2018

[Handwritten signatures and stamps]

API 47-051-01692 Farm name Mark Edison MSH 8H Well number 837626

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	See attached				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	attached							

Please insert additional pages as applicable.

01/05/2018

01/05/2018
08:18:17
01/05/2018

API 47- 051 - 01692 Farm name Mark Edison MSH 8H Well number 837626

<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 _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	0		0		
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Hamilton	6258	6353	6351	6557	
Marcellus	6353		6557		

Please insert additional pages as applicable.

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Please insert additional pages as applicable.

Completed by Marlene Williams Telephone 405-935-4158
Signature Marlene Williams Title Regulatory Analyst II Date 10-9-2017

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

01/05/2018

RECEIVED
OCT 16 2017
OCT 16 2017
EPA REGION 4

PERFORATION RECORD ATTACHMENT

Well Name and Number: Mark Edison MSH 8H

API No. 47-051-01692

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
1	9/15/2014	14,474	14890	60	9/15/2014	14,474	14890	SLK Wtr	6803	Sand	398280	80.1
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3	9/18/2014	13,973	14174	30	9/18/2014	13,973	14174	SLK Wtr	6624	Sand	398000	78.5
4	9/18/2014	13,723	13924	30	9/18/2014	13,723	13924	SLK Wtr	7002	Sand	400040	68.4
5	9/19/2014	13,472	13673	30	9/19/2014	13,472	13673	SLK Wtr	6281	Sand	400380	66.4
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7	9/19/2014	12,971	13172	30	9/19/2014	12,971	13172	SLK Wtr	6224	Sand	400600	80.1
8	9/19/2014	12,721	12922	30	9/19/2014	12,721	12922	SLK Wtr	6176	Sand	399320	80.3
9	9/20/2014	12,470	12671	30	9/20/2014	12,470	12671	SLK Wtr	6334	Sand	402000	75.8
10	9/20/2014	12,220	12421	30	9/20/2014	12,220	12421	SLK Wtr	6307	Sand	400660	70.1
11	9/20/2014	11,969	12170	30	9/20/2014	11,969	12170	SLK Wtr	6152	Sand	400720	79.4
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21	9/23/2014	9,464	9665	30	9/23/2014	9,464	9665	SLK Wtr	6042	Sand	402440	77.3
22	9/23/2014	9,213	9415	30	9/23/2014	9,213	9415	SLK Wtr	6110	Sand	398660	77
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29	9/25/2014	7,460	7661	30	9/25/2014	7,460	7661	SLK Wtr	7105	Sand	401560	77
30	9/25/2014	7,209	7411	30	9/25/2014	7,209	7411	SLK Wtr	6692	Sand	400720	75.7
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32	9/25/2014	6,708	6910	30	9/25/2014	6,708	6910	SLK Wtr	6247	Sand	415140	80

RECEIVED
 OCT 16 2017
 00116 2017

01/05/2018

Regulatory Current Wellbore Schematic



MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:38 PM		Vertical schematic (actual)		Cement																																																																									
MD (ftKB)	Zones			Description: Production Casing Cement																																																																									
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		700.0-15,035.0																																																																									
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		Top of Cement (ftKB): 700.0 Top Measurement Method: Returns to Surface																																																																									
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Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:39 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB				
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB				
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB				
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7,661.1						
7,861.9						
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8,462.9						
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9,113.8						
9,315.0						
9,515.1						
9,714.9						
9,941.9						
10,166.0						
10,367.1						
10,566.9						
10,768.0						
10,967.8						
11,194.9						
11,419.0						
11,619.1						
11,819.9						
12,020.0						
12,221.1						
12,446.9						
12,670.9						
12,872.0						
13,071.9		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production				
13,273.0		Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1				
13,473.1		Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.				
13,700.1						
13,923.9						
14,124.0						
14,325.1						
14,524.9						
14,669.9						
14,889.1		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB				

Stim/Treat Additives					
		Add	Type	Amount	Sand Size
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,665.0	6	Pad	<fluidname>, Slickwater	14,474.0	650.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,665.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	14,474.0	2119.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
		Proppant - Natural	Northern White Sand	79,020.0	100 Mesh
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,665.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	14,474.0	1737.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
		Proppant - Natural	Northern White Sand	130,893.0	40/70
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,665.0	8	Proppant Laden Fluid	15#, Linear Gel	14,474.0	1814.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
		Proppant - Natural	Northern White Sand	188,367.0	40/70
9, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,665.0	9	Flush	<fluidname>, Slickwater	14,474.0	325.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
		Proppant - Natural	Northern White Sand	188,367.0	40/70
Slickwater Frac on 9/18/2014 12:00 AM					
Date	Type	Wellbore	Zone		
9/18/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,425.0	1	Chemical Additives		14,224.0	
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
		Corrosion Inhibitor	A264	6.0	
		Acid	Acid, Hydrochloric 15pct	3,012.0	
		Anti-Bacterial Agent	EC6111A	87.0	
		Scale Inhibitor	EC6486A	14.0	
		Breaker	J218	88.0	
		Gelling Agent	J580	1,830.0	
		Friction Reducer	J609	275.0	
		Iron Control Agent	L058	18.0	
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,425.0	2	Break Down	<fluidname>, Slickwater	14,224.0	15.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,425.0	3	Acid Stage	15%, HCl Acid	14,224.0	36.00
Stim/Treat Additives					
		Add	Type	Amount	Sand Size
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,425.0	4	Spacer	<fluidname>, Slickwater	14,224.0	15.00

RECEIVED
 OCT 16 2017
 11:20 AM
 ELEVATION: 1,242.0

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:39 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB				
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB				
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB				
7,210.0						
7,437.0						
7,661.1						
7,861.9						
8,062.0						
8,263.1						
8,462.9						
8,690.0						
8,914.0						
9,113.8						
9,315.0						
9,515.1						
9,714.9						
9,941.9						
10,166.0						
10,367.1						
10,566.9						
10,768.0						
10,967.8						
11,194.9						
11,419.0						
11,619.1						
11,819.9						
12,020.0						
12,221.1						
12,446.9						
12,670.9						
12,872.0						
13,071.9		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production				
13,273.0		Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production				
13,473.1		Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1				
13,700.1		Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.				
13,923.9						
14,124.0						
14,325.1						
14,524.9						
14,669.9		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB				
14,889.1						
			5, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	5	Acid Stage	15%, HCl Acid
			Top (ftKB)			Clean V...
						14,224.0
						35.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			6, Pad			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	6	Pad	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						14,224.0
						864.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			7, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	7	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						14,224.0
						2192.0
						0
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	78,080.0	100 Mesh
			8, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	8	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						14,224.0
						1499.0
						0
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	110,922.0	40/70
			8, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	8	Proppant Laden Fluid	15#, Linear Gel
			Top (ftKB)			Clean V...
						14,224.0
						1914.0
						0
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	211,238.0	40/70
			9, Flush			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,425.0	9	Flush	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						14,224.0
						320.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Slickwater Frac on 9/18/2014 12:00 AM			
			Date	Type	Wellbore	Zone
			9/18/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole
			Stim/Treat Stages			
			1, Chemical Additives			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,174.0	1	Chemical Additives	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						13,973.0
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Corrosion Inhibitor	A264	6.0	
			Acid	Acid, Hydrochloric 15pct	2,992.0	
			Anti-Bacterial Agent	EC6111A	84.0	
			Scale Inhibitor	EC6486A	14.0	
			Breaker	J218	121.0	
			Gelling Agent	J580	2,289.0	
			Friction Reducer	J609	182.0	
			Iron Control Agent	L058	18.0	
			2, Break Down			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,174.0	2	Break Down	<fluidname>, Slickwater
			Top (ftKB)			Clean V...
						13,973.0
						14.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			3, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			14,174.0	3	Acid Stage	15%, HCl Acid
			Top (ftKB)			Clean V...
						13,973.0
						36.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size

OCT 18 2017
 Original Hole

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:40 PM																																							
MD (ftKB)	Zones	Vertical schematic (actual)																																					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Stim/Treat Stages 4, Spacer Btm (ftKB) 14,174.0 Stg # 4 Stage Type Spacer Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,973.0 Clean V... 50.00																																				
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																																
Add	Type	Amount	Sand Size																																				
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	5, Acid Stage Btm (ftKB) 14,174.0 Stg # 5 Stage Type Acid Stage Stim/Treat Fluid 15%, HCl Acid Top (ftKB) 13,973.0 Clean V... 35.00																																				
7,210.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																																
Add	Type	Amount	Sand Size																																				
7,437.0			6, Pad Btm (ftKB) 14,174.0 Stg # 6 Stage Type Pad Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,973.0 Clean V... 580.00																																				
7,661.1			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																																
Add	Type	Amount	Sand Size																																				
7,861.9			7, Proppant Laden Fluid Btm (ftKB) 14,174.0 Stg # 7 Stage Type Proppant Laden Fluid Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,973.0 Clean V... 2099.00																																				
8,062.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>75,680.0</td> <td>100 Mesh</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	75,680.0	100 Mesh																												
Add	Type	Amount	Sand Size																																				
Proppant - Natural	Northern White Sand	75,680.0	100 Mesh																																				
8,263.1			8, Proppant Laden Fluid Btm (ftKB) 14,174.0 Stg # 8 Stage Type Proppant Laden Fluid Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,973.0 Clean V... 737.00																																				
8,462.9			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>46,431.0</td> <td>40/70</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	46,431.0	40/70																												
Add	Type	Amount	Sand Size																																				
Proppant - Natural	Northern White Sand	46,431.0	40/70																																				
8,690.0			8, Proppant Laden Fluid Btm (ftKB) 14,174.0 Stg # 8 Stage Type Proppant Laden Fluid Stim/Treat Fluid 15#, Linear Gel Top (ftKB) 13,973.0 Clean V... 2759.00																																				
8,914.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>275,889.0</td> <td>40/70</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	275,889.0	40/70																												
Add	Type	Amount	Sand Size																																				
Proppant - Natural	Northern White Sand	275,889.0	40/70																																				
9,113.8			9, Flush Btm (ftKB) 14,174.0 Stg # 9 Stage Type Flush Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,973.0 Clean V... 314.00																																				
9,315.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																																
Add	Type	Amount	Sand Size																																				
9,515.1			Slickwater Frac on 9/18/2014 12:00 AM Date 9/18/2014 Type Slickwater Frac Wellbore Original Hole Zone PROPOSED, Original Hole																																				
9,714.9			Stim/Treat Stages 1, Chemical Additives Btm (ftKB) 13,924.0 Stg # 1 Stage Type Chemical Additives Stim/Treat Fluid Top (ftKB) 13,723.0 Clean V...																																				
9,941.9			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td> </td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 15pct</td> <td>2,972.0</td> <td> </td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>88.0</td> <td> </td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>14.0</td> <td> </td> </tr> <tr> <td>Breaker</td> <td>J218</td> <td>198.0</td> <td> </td> </tr> <tr> <td>Gelling Agent</td> <td>J580</td> <td>4,358.0</td> <td> </td> </tr> <tr> <td>Friction Reducer</td> <td>J609</td> <td>110.0</td> <td> </td> </tr> <tr> <td>Iron Control Agent</td> <td>L058</td> <td>18.0</td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 15pct	2,972.0		Anti-Bacterial Agent	EC6111A	88.0		Scale Inhibitor	EC6486A	14.0		Breaker	J218	198.0		Gelling Agent	J580	4,358.0		Friction Reducer	J609	110.0		Iron Control Agent	L058	18.0	
Add	Type	Amount	Sand Size																																				
Corrosion Inhibitor	A264	6.0																																					
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Friction Reducer	J609	110.0																																					
Iron Control Agent	L058	18.0																																					
10,166.0			2, Break Down Btm (ftKB) 13,924.0 Stg # 2 Stage Type Break Down Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,723.0 Clean V... 21.00																																				
10,367.1			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																																
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10,566.9																																							
10,768.0																																							
10,967.8																																							
11,194.9																																							
11,419.0																																							
11,619.1																																							
11,819.9																																							
12,020.0																																							
12,221.1																																							
12,446.9																																							
12,670.9																																							
12,872.0																																							
13,071.9																																							
13,273.0																																							
13,473.1																																							
13,700.1																																							
13,923.9																																							
14,124.0																																							
14,325.1																																							
14,524.9																																							
14,669.9																																							
14,889.1																																							

PROPOSED
 Cased to Original Cas
 OCT 18 2017
 Bit Sub: 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
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 1st Gas Sales Date:
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 PBDT:
 TD: 15,035.0

Field:
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 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:40 PM		Vertical schematic (actual)		Stim/Treat Stages					
MD (ftKB)	Zones			3, Acid Stage					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		13,924.0	3	Acid Stage	15%, HCl Acid	13,723.0	40.00
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		Stim/Treat Additives					
7,210.0				Add	Type	Amount	Sand Size		
7,437.0				4, Spacer					
7,661.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,861.9				13,924.0	4	Spacer	<fluidname>, Slickwater	13,723.0	36.00
8,062.0				Stim/Treat Additives					
8,263.1				Add	Type	Amount	Sand Size		
8,462.9				5, Acid Stage					
8,690.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0				13,924.0	5	Acid Stage	15%, HCl Acid	13,723.0	35.00
9,113.8				Stim/Treat Additives					
9,315.0				Add	Type	Amount	Sand Size		
9,515.1				6, Pad					
9,714.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,941.9				13,924.0	6	Pad	<fluidname>, Slickwater	13,723.0	950.00
10,166.0				Stim/Treat Additives					
10,367.1				Add	Type	Amount	Sand Size		
10,566.9				7, Proppant Laden Fluid					
10,768.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,967.8				13,924.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	13,723.0	546.00
11,194.9				Stim/Treat Additives					
11,419.0				Add	Type	Amount	Sand Size		
11,619.1				Proppant - Natural	Northern White Sand	4,500.0	100 Mesh		
11,819.9				7, Proppant Laden Fluid					
12,020.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
12,221.1				13,924.0	7	Proppant Laden Fluid	15#, Linear Gel	13,723.0	1639.00
12,446.9				Stim/Treat Additives					
12,670.9				Add	Type	Amount	Sand Size		
12,872.0				Proppant - Natural	Northern White Sand	74,920.0	100 Mesh		
13,071.9				8, Proppant Laden Fluid					
13,273.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,473.1				13,924.0	8	Proppant Laden Fluid	15#, Linear Gel	13,723.0	3425.00
13,700.1				Stim/Treat Additives					
13,923.9				Add	Type	Amount	Sand Size		
14,124.0				Proppant - Natural	Northern White Sand	320,620.0	40/70		
14,325.1				9, Flush					
14,524.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,669.9				13,924.0	9	Flush	<fluidname>, Slickwater	13,723.0	310.00
14,889.1				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Slickwater Frac on 9/19/2014 12:00 AM					
				Date	Type	Wellbore	Zone		
				9/19/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
				Stim/Treat Stages					
				1, Chemical Additives					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				13,673.0	1	Chemical Additives		13,472.0	
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Corrosion Inhibitor	A264	6.0			
				Acid	Acid, Hydrochloric 15pct	79.0			
				Anti-Bacterial Agent	EC6111A	14.0			
				Scale Inhibitor	EC6486A	88.0			
				Breaker	J218	1,630.0			
				Gelling Agent	J580	155.0			
				Friction Reducer	J609	18.0			
				Iron Control Agent	L058				

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production
 Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production
 Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1
 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set
 CIBP above Toe Sleeve.
 5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB

RECORDED
 OCT 13 2017

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:41 PM																							
MD (ftKB)	Zones	Vertical schematic (actual)	Stim/Treat Stages																				
6,650.9			2, Break Down Btm (ftKB) 13,673.0 Stg # 2 Stage Type Break Down Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 19.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																
Add	Type		Amount	Sand Size																			
6,810.0			20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	3, Acid Stage Btm (ftKB) 13,673.0 Stg # 3 Stage Type Acid Stage Stim/Treat Fluid 15%, HCl Acid Top (ftKB) 13,472.0 Clean V... 36.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size															
Add	Type		Amount	Sand Size																			
7,009.8			13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	4, Spacer Btm (ftKB) 13,673.0 Stg # 4 Stage Type Spacer Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 50.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size															
Add	Type		Amount	Sand Size																			
7,210.0			9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	5, Acid Stage Btm (ftKB) 13,673.0 Stg # 5 Stage Type Acid Stage Stim/Treat Fluid 15%, HCl Acid Top (ftKB) 13,472.0 Clean V... 35.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size															
Add	Type		Amount	Sand Size																			
7,437.0				6, Pad Btm (ftKB) 13,673.0 Stg # 6 Stage Type Pad Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 350.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size															
Add	Type		Amount	Sand Size																			
7,661.1				7, Proppant Laden Fluid Btm (ftKB) 13,673.0 Stg # 7 Stage Type Proppant Laden Fluid Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 2088.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>78,920.0</td> <td>100 Mesh</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	78,920.0	100 Mesh											
Add	Type		Amount	Sand Size																			
Proppant - Natural	Northern White Sand		78,920.0	100 Mesh																			
7,861.9				8, Proppant Laden Fluid Btm (ftKB) 13,673.0 Stg # 8 Stage Type Proppant Laden Fluid Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 1498.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>110,838.0</td> <td>40/70</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	110,838.0	40/70											
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	110,838.0	40/70																				
8,062.0			8, Proppant Laden Fluid Btm (ftKB) 13,673.0 Stg # 8 Stage Type Proppant Laden Fluid Stim/Treat Fluid 15#, Linear Gel Top (ftKB) 13,472.0 Clean V... 1902.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>210,622.0</td> <td>40/70</td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	210,622.0	40/70												
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	210,622.0	40/70																				
8,263.1			9, Flush Btm (ftKB) 13,673.0 Stg # 9 Stage Type Flush Stim/Treat Fluid <fluidname>, Slickwater Top (ftKB) 13,472.0 Clean V... 303.00 Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size																
Add	Type	Amount	Sand Size																				
8,462.9			Slickwater Frac on 9/19/2014 12:00 AM Date 9/19/2014 Type Slickwater Frac Wellbore Original Hole Zone PROPOSED, Original Hole Stim/Treat Stages 1, Chemical Additives Btm (ftKB) 13,423.0 Stg # 1 Stage Type Chemical Additives Stim/Treat Fluid Top (ftKB) 13,222.0 Clean V... Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td> </td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 15pct</td> <td>3,031.0</td> <td> </td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>79.0</td> <td> </td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>14.0</td> <td> </td> </tr> </tbody> </table>	Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 15pct	3,031.0		Anti-Bacterial Agent	EC6111A	79.0		Scale Inhibitor	EC6486A	14.0	
Add	Type	Amount	Sand Size																				
Corrosion Inhibitor	A264	6.0																					
Acid	Acid, Hydrochloric 15pct	3,031.0																					
Anti-Bacterial Agent	EC6111A	79.0																					
Scale Inhibitor	EC6486A	14.0																					
8,690.0																							
8,914.0																							
9,113.8																							
9,315.0																							
9,515.1																							
9,714.9																							
9,941.9																							
10,166.0																							
10,367.1																							
10,566.9																							
10,768.0																							
10,967.8																							
11,194.9																							
11,419.0																							
11,619.1																							
11,819.9																							
12,020.0																							
12,221.1																							
12,446.9																							
12,670.9																							
12,872.0																							
13,071.9																							
13,273.0																							
13,473.1																							
13,700.1																							
13,923.9																							
14,124.0																							
14,325.1																							
14,524.9																							
14,669.9																							
14,889.1																							

PROPOSED
 Original Hole and Zone
 OCT 13 2017
 157
 E...

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:44 PM		Stimulations & Treatments				
MD (ftKB)	Zones	Vertical schematic (actual)	Slickwater Frac on 9/20/2014 12:00 AM			
			Date	Type	Wellbore	Zone
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	9/20/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB				
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB				
7,210.0						
7,437.0						
7,661.1						
7,861.9						
8,062.0						
8,263.1						
8,462.9						
8,690.0						
8,914.0						
9,113.8						
9,315.0						
9,515.1						
9,714.9						
9,941.9						
10,166.0						
10,367.1						
10,566.9						
10,768.0						
10,967.8						
11,194.9						
11,419.0						
11,619.1						
11,819.9						
12,020.0						
12,221.1						
12,446.9						
12,670.9						
12,872.0						
13,071.9						
13,273.0						
13,473.1						
13,700.1						
13,923.9						
14,124.0						
14,325.1						
14,524.9						
14,669.9						
14,889.1						

OCT 10 2017
 01/05/2018

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
12,671.0	1	Chemical Additives		12,470.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	6.0			
Acid	Acid, Hydrochloric 15pct	3,012.0			
Anti-Bacterial Agent	EC6111A	81.0			
Scale Inhibitor	EC6486A	14.0			
Breaker	J218	88.0			
Gelling Agent	J580	1,820.0			
Friction Reducer	J609	155.0			
Iron Control Agent	L058	18.0			
2, Break Down					
12,671.0	2	Break Down	<fluidname>, Slickwater	12,470.0	14.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
3, Acid Stage					
12,671.0	3	Acid Stage	15%, HCl Acid	12,470.0	36.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
12,671.0	4	Spacer	<fluidname>, Slickwater	12,470.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
5, Acid Stage					
12,671.0	5	Acid Stage	15%, HCl Acid	12,470.0	36.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
12,671.0	6	Pad	<fluidname>, Slickwater	12,470.0	322.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
12,671.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	12,470.0	2106.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	80,700.0	100 Mesh		
8, Proppant Laden Fluid					
12,671.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	12,470.0	1499.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	110,922.0	40/70		
8, Proppant Laden Fluid					
12,671.0	8	Proppant Laden Fluid	15#, Linear Gel	12,470.0	1984.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	210,378.0	40/70		



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:45 PM		Vertical schematic (actual)		Stim/Treat Stages						
MD (ftKB)	Zones			9, Flush						
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		12,671.0	9	Flush	<fluidname>, Slickwater	12,470.0	302.00	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		Stim/Treat Additives						
7,210.0				Add	Type	Amount	Sand Size			
7,437.0				Slickwater Frac on 9/20/2014 12:00 AM						
7,661.1				Date	Type	Wellbore	Zone			
7,861.9				9/20/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole			
8,062.0				Stim/Treat Stages						
8,263.1				1, Chemical Additives						
8,462.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
8,690.0			12,421.0	1	Chemical Additives		12,220.0			
8,914.0			Stim/Treat Additives							
9,113.8			Add	Type	Amount	Sand Size				
9,315.0			Corrosion Inhibitor	A264	36.0					
9,515.1			Acid	Acid, Hydrochloric 15pct	3,012.0					
9,714.9			Anti-Bacterial Agent	EC6111A	79.0					
9,941.9			Scale Inhibitor	EC6486A	13.0					
10,166.0			Breaker	J218	88.0					
10,367.1			Gelling Agent	J580	1,620.0					
10,566.9			Friction Reducer	J609	160.0					
10,768.0			Iron Control Agent	L058	18.0					
10,967.8			2, Break Down							
11,194.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
11,419.0			12,421.0	2	Break Down	<fluidname>, Slickwater	12,220.0	16.00		
11,619.1			Stim/Treat Additives							
11,819.9			Add	Type	Amount	Sand Size				
12,020.0			3, Acid Stage							
12,221.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
12,446.9			12,421.0	3	Acid Stage	15%, HCl Acid	12,220.0	36.00		
12,670.9			Stim/Treat Additives							
12,872.0			Add	Type	Amount	Sand Size				
13,071.9			4, Spacer							
13,273.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
13,473.1			12,421.0	4	Spacer	<fluidname>, Slickwater	12,220.0	35.00		
13,700.1			Stim/Treat Additives							
13,923.9			Add	Type	Amount	Sand Size				
14,124.0			5, Acid Stage							
14,325.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
14,524.9			12,421.0	5	Acid Stage	15%, HCl Acid	12,220.0	35.00		
14,669.9			Stim/Treat Additives							
14,889.1			Add	Type	Amount	Sand Size				
			6, Pad							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
			12,421.0	6	Pad	<fluidname>, Slickwater	12,220.0	312.00		
			Stim/Treat Additives							
			Add	Type	Amount	Sand Size				
			7, Proppant Laden Fluid							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
			12,421.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	12,220.0	2170.00		
			Stim/Treat Additives							
			Add	Type	Amount	Sand Size				
			Proppant - Natural	Northern White Sand	79,000.0	100 Mesh				
			8, Proppant Laden Fluid							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
			12,421.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	12,220.0	1500.00		
			Stim/Treat Additives							
			Add	Type	Amount	Sand Size				
			Proppant - Natural	Northern White Sand	111,006.0	40/70				

REPORT
 OCT 13 2017

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date: API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
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 PBTD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:45 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)	8, Proppant Laden Fluid					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	12,421.0	8	Proppant Laden Fluid	15#, Linear Gel	12,220.0	1919.0
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Stim/Treat Additives					
7,210.0			Add	Type	Amount	Sand Size		
7,437.0			Proppant - Natural	Northern White Sand	210,654.0	40/70		
7,661.1			9, Flush					
7,861.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,062.0			12,421.0	9	Flush	<fluidname>, Slickwater	12,220.0	284.00
8,263.1			Stim/Treat Additives					
8,462.9			Add	Type	Amount	Sand Size		
8,690.0			Slickwater Frac on 9/20/2014 12:00 AM					
8,914.0			Date	Type	Wellbore	Zone		
9,113.8			9/20/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
9,315.0			Stim/Treat Stages					
9,515.1			1, Chemical Additives					
9,714.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,941.9			12,170.0	1	Chemical Additives		11,969.0	
10,166.0			Stim/Treat Additives					
10,367.1			Add	Type	Amount	Sand Size		
10,566.9			Corrosion Inhibitor	A264	6.0			
10,768.0			Acid	Acid, Hydrochloric 15pct	3,012.0			
10,967.8			Anti-Bacterial Agent	EC6111A	78.0			
11,194.9			Scale Inhibitor	EC6486A	13.0			
11,419.0			Breaker	J218	88.0			
11,619.1			Gelling Agent	J580	1,820.0			
11,819.9			Friction Reducer	J609	121.0			
12,020.0			Iron Control Agent	L058	18.0			
12,221.1			2, Break Down					
12,446.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
12,670.9			12,170.0	2	Break Down	<fluidname>, Slickwater	11,969.0	22.00
12,872.0			Stim/Treat Additives					
13,071.9			Add	Type	Amount	Sand Size		
13,273.0			3, Acid Stage					
13,473.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,700.1			12,170.0	3	Acid Stage	15%, HCl Acid	11,969.0	36.00
13,923.9			Stim/Treat Additives					
14,124.0			Add	Type	Amount	Sand Size		
14,325.1			4, Spacer					
14,524.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,669.9			12,170.0	4	Spacer	<fluidname>, Slickwater	11,969.0	36.00
14,889.1			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			5, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			12,170.0	5	Acid Stage	15%, HCl Acid	11,969.0	35.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			12,170.0	6	Pad	<fluidname>, Slickwater	11,969.0	364.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			12,170.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,969.0	2853.0
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	80,520.0	100 Mesh		

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:46 PM																																							
MD (ftKB)	Zones	Vertical schematic (actual)																																					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Stim/Treat Stages 8, Proppant Laden Fluid <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Btm (ftKB)</th> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>12,170.0</td> <td>8</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>11,969.0</td> <td>1458.0</td> </tr> </table>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	12,170.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	11,969.0	1458.0																								
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																		
12,170.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	11,969.0	1458.0																																		
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>107,499.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	107,499.0	40/70																												
Add	Type	Amount	Sand Size																																				
Proppant - Natural	Northern White Sand	107,499.0	40/70																																				
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	8, Proppant Laden Fluid <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Btm (ftKB)</th> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>12,170.0</td> <td>8</td> <td>Proppant Laden Fluid</td> <td>15#, Linear Gel</td> <td>11,969.0</td> <td>1872.0</td> </tr> </table>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	12,170.0	8	Proppant Laden Fluid	15#, Linear Gel	11,969.0	1872.0																								
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																		
12,170.0	8	Proppant Laden Fluid	15#, Linear Gel	11,969.0	1872.0																																		
7,210.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>212,701.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	212,701.0	40/70																												
Add	Type	Amount	Sand Size																																				
Proppant - Natural	Northern White Sand	212,701.0	40/70																																				
7,437.0			9, Flush <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Btm (ftKB)</th> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>12,170.0</td> <td>9</td> <td>Flush</td> <td><fluidname>, Slickwater</td> <td>11,969.0</td> <td>276.0</td> </tr> </table>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	12,170.0	9	Flush	<fluidname>, Slickwater	11,969.0	276.0																								
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																		
12,170.0	9	Flush	<fluidname>, Slickwater	11,969.0	276.0																																		
7,661.1			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>212,701.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	212,701.0	40/70																												
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7,861.9																																							
8,062.0																																							
8,263.1																																							
8,462.9																																							
8,690.0																																							
8,914.0			Slickwater Frac on 9/20/2014 12:00 AM <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Type</th> <th>Wellbore</th> <th>Zone</th> </tr> <tr> <td>9/20/2014</td> <td>Slickwater Frac</td> <td>Original Hole</td> <td>PROPOSED, Original Hole</td> </tr> </table>	Date	Type	Wellbore	Zone	9/20/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole																												
Date	Type	Wellbore	Zone																																				
9/20/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole																																				
9,113.8			Stim/Treat Stages 1, Chemical Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Btm (ftKB)</th> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>11,920.0</td> <td>1</td> <td>Chemical Additives</td> <td></td> <td>11,719.0</td> <td></td> </tr> </table>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	11,920.0	1	Chemical Additives		11,719.0																									
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																		
11,920.0	1	Chemical Additives		11,719.0																																			
9,315.0			Stim/Treat Additives <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td></td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 15pct</td> <td>3,012.0</td> <td></td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>79.0</td> <td></td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>13.0</td> <td></td> </tr> <tr> <td>Breaker</td> <td>J218</td> <td>121.0</td> <td></td> </tr> <tr> <td>Gelling Agent</td> <td>J580</td> <td>1,950.0</td> <td></td> </tr> <tr> <td>Friction Reducer</td> <td>J609</td> <td>116.0</td> <td></td> </tr> <tr> <td>Iron Control Agent</td> <td>L058</td> <td>18.0</td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 15pct	3,012.0		Anti-Bacterial Agent	EC6111A	79.0		Scale Inhibitor	EC6486A	13.0		Breaker	J218	121.0		Gelling Agent	J580	1,950.0		Friction Reducer	J609	116.0		Iron Control Agent	L058	18.0	
Add	Type	Amount	Sand Size																																				
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9,515.1																																							
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10,166.0																																							
10,367.1																																							
10,566.9																																							
10,768.0																																							
10,967.8																																							
11,194.9																																							
11,419.0																																							
11,619.1																																							
11,819.9																																							
12,020.0																																							
12,221.1																																							
12,446.9																																							
12,670.9																																							
12,872.0																																							
13,071.9																																							
13,273.0																																							
13,473.1																																							
13,700.1																																							
13,923.9																																							
14,124.0																																							
14,325.1																																							
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Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB

01/05/2019



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:47 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Proppant - Natural	Northern White Sand	77,560.0	100 Mesh
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	8, Proppant Laden Fluid			
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
7,210.0			11,920.0	8	Proppant Laden Fluid	<fluidname>, Slickwater
7,437.0			Top (ftKB)		11,719.0	Clean V... 714.00
7,661.1			Stim/Treat Additives			
7,861.9			Add	Type	Amount	Sand Size
8,062.0			Proppant - Natural	Northern White Sand	44,982.0	40/70
8,263.1			8, Proppant Laden Fluid			
8,462.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
8,690.0			11,920.0	8	Proppant Laden Fluid	15#, Linear Gel
8,914.0			Top (ftKB)		11,719.0	Clean V... 2728.00
9,113.8			Stim/Treat Additives			
9,315.0			Add	Type	Amount	Sand Size
9,515.1			Proppant - Natural	Northern White Sand	276,478.0	40/70
9,714.9			9, Flush			
9,941.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
10,166.0			11,920.0	9	Flush	<fluidname>, Slickwater
10,367.1			Top (ftKB)		11,719.0	Clean V... 266.00
10,566.9			Stim/Treat Additives			
10,768.0			Add	Type	Amount	Sand Size
10,967.8						
11,194.9			Slickwater Frac on 9/21/2014 12:00 AM			
11,419.0			Date	Type	Wellbore	Zone
11,619.1			9/21/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole
11,819.9			Stim/Treat Stages			
12,020.0			1, Chemical Additives			
12,221.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
12,446.9			11,669.0	1	Chemical Additives	<fluidname>, Slickwater
12,670.9			Top (ftKB)		11,468.0	Clean V... 17.00
12,872.0			Stim/Treat Additives			
13,071.9			Add	Type	Amount	Sand Size
13,273.0			Corrosion Inhibitor	A264	6.0	
13,473.1			Acid	Acid, Hydrochloric 15pct	2,992.0	
13,700.1			Anti-Bacterial Agent	EC6111A	78.0	
13,923.9			Scale Inhibitor	EC6486A	13.0	
14,124.0			Breaker	J218	99.0	
14,325.1			Gelling Agent	J580	1,760.0	
14,524.9			Friction Reducer	J609	160.0	
14,669.9			Iron Control Agent	L058	18.0	
14,889.1			2, Break Down			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			11,669.0	2	Break Down	<fluidname>, Slickwater
			Top (ftKB)		11,468.0	Clean V... 17.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			3, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			11,669.0	3	Acid Stage	15%, HCl Acid
			Top (ftKB)		11,468.0	Clean V... 36.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			4, Spacer			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			11,669.0	4	Spacer	<fluidname>, Slickwater
			Top (ftKB)		11,468.0	Clean V... 50.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			5, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			11,669.0	5	Acid Stage	15%, HCl Acid
			Top (ftKB)		11,468.0	Clean V... 35.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			6, Pad			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			11,669.0	6	Pad	<fluidname>, Slickwater
			Top (ftKB)		11,468.0	Clean V... 313.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size

REVISION
 001 13 2017

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:47 PM			
MD (ftKB)	Zones	Vertical schematic (actual)	
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	
7,210.0			
7,437.0			
7,661.1			
7,861.9			
8,062.0			
8,263.1			
8,462.9			
8,690.0			
8,914.0			
9,113.8			
9,315.0			
9,515.1			
9,714.9			
9,941.9			
10,166.0			
10,367.1			
10,566.9			
10,768.0			
10,967.8			
11,194.9			
11,419.0			
11,619.1			
11,819.9			
12,020.0			
12,221.1			
12,446.9			
12,670.9			
12,872.0			
13,071.9			
13,273.0			
13,473.1			
13,700.1			
13,923.9			
14,124.0			
14,325.1			
14,524.9			
14,669.9			
14,889.1			
		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB	

Stim/Treat Stages					
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,669.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,468.0	2098.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
Proppant - Natural		Northern White Sand	78,480.0	100 Mesh	
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,669.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	11,468.0	1498.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
Proppant - Natural		Northern White Sand	110,859.0	40/70	
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,669.0	8	Proppant Laden Fluid	15#, Linear Gel	11,468.0	1891.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
Proppant - Natural		Northern White Sand	208,981.0	40/70	
9, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,669.0	9	Flush	<fluidname>, Slickwater	11,468.0	258.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
Slickwater Frac on 9/21/2014 12:00 AM					
Date	Type	Wellbore	Zone		
9/21/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0	1	Chemical Additives		11,218.0	
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
Corrosion Inhibitor		A264	6.0		
Acid		Acid, Hydrochloric 15pct	3,012.0		
Anti-Bacterial Agent		EC6111A	78.0		
Scale Inhibitor		EC6486A	13.0		
Breaker		J218	88.0		
Gelling Agent		J580	1,650.0		
Friction Reducer		J609	170.0		
Iron Control Agent		L058	18.0		
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0	2	Break Down	<fluidname>, Slickwater	11,218.0	24.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0	3	Acid Stage	15%, HCl Acid	11,218.0	36.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0	4	Spacer	<fluidname>, Slickwater	11,218.0	50.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	
5, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0	5	Acid Stage	15%, HCl Acid	11,218.0	35.00
Stim/Treat Additives					
Add		Type	Amount	Sand Size	

OCT 16 2017
 10:00 AM

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
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Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:48 PM		Vertical schematic (actual)		Stim/Treat Stages					
MD (ftKB)	Zones								
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		6, Pad					
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		11,419.0	6	Pad	<fluidname>, Slickwater	11,218.0	254.00
7,210.0				Stim/Treat Additives					
7,437.0				Add	Type	Amount	Sand Size		
7,661.1				7, Proppant Laden Fluid					
7,861.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,062.0				11,419.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,218.0	2047.00
8,263.1				Stim/Treat Additives					
8,462.9				Add	Type	Amount	Sand Size		
8,690.0				Proppant - Natural	Northern White Sand	80,360.0	100 Mesh		
8,914.0				8, Proppant Laden Fluid					
9,113.8				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,315.0				11,419.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	11,218.0	1498.00
9,515.1				Stim/Treat Additives					
9,714.9				Add	Type	Amount	Sand Size		
9,941.9				Proppant - Natural	Northern White Sand	110,838.0	40/70		
10,166.0				8, Proppant Laden Fluid					
10,367.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,566.9				11,419.0	8	Proppant Laden Fluid	15#, Linear Gel	11,218.0	1907.00
10,768.0				Stim/Treat Additives					
10,967.8				Add	Type	Amount	Sand Size		
11,194.9				Proppant - Natural	Northern White Sand	210,662.0	40/70		
11,419.0				9, Flush					
11,619.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,819.9				11,419.0	9	Flush	<fluidname>, Slickwater	11,218.0	252.00
12,020.0				Stim/Treat Additives					
12,221.1				Add	Type	Amount	Sand Size		
12,446.9				Slickwater Frac on 9/21/2014 12:00 AM					
12,670.9				Date	Type	Wellbore	Zone		
12,872.0				9/21/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
13,071.9				Stim/Treat Stages					
13,273.0				1, Chemical Additives					
13,473.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,700.1				11,168.0	1	Chemical Additives	<fluidname>	10,967.0	
13,923.9				Stim/Treat Additives					
14,124.0				Add	Type	Amount	Sand Size		
14,325.1				Corrosion Inhibitor	A264	6.0			
14,524.9				Acid	Acid, Hydrochloric 15pct	3,021.0			
14,669.9				Anti-Bacterial Agent	EC6111A	77.0			
14,889.1				Scale Inhibitor	EC6486A	13.0			
				Breaker	J218	88.0			
				Gelling Agent	J580	1,705.0			
				Friction Reducer	J609	114.0			
				Iron Control Agent	L058	18.0			
				2, Break Down					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,168.0	2	Break Down	<fluidname>, Slickwater	10,967.0	26.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				3, Acid Stage					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,168.0	3	Acid Stage	15%, HCl Acid	10,967.0	35.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				4, Spacer					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,168.0	4	Spacer	<fluidname>, Slickwater	10,967.0	36.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		

OCT 13 2017
 11:13 AM
 B...

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:49 PM			Stim/Treat Stages																																									
MD (ftKB)	Zones	Vertical schematic (actual)	5, Acid Stage																																									
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7,009.8			13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Stim/Treat Additives																																								
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01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
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 PBTD:
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6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">Stim/Treat Stages</th> </tr> <tr> <th colspan="6">4, Spacer</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,918.0</td> <td>4</td> <td>Spacer</td> <td><fluidname>, Slickwater</td> <td>10,717.0</td> <td>36.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <th colspan="6">5, Acid Stage</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,918.0</td> <td>5</td> <td>Acid Stage</td> <td>15%, HCl Acid</td> <td>10,717.0</td> <td>36.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <th colspan="6">6, Pad</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,918.0</td> <td>6</td> <td>Pad</td> <td><fluidname>, Slickwater</td> <td>10,717.0</td> <td>263.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <th colspan="6">7, Proppant Laden Fluid</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,918.0</td> <td>7</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>10,717.0</td> <td>2048.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td>Proppant - 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Natural</td> <td>Northern White Sand</td> <td>211,081.0</td> <td>40/70</td> <td colspan="2"></td> </tr> <tr> <th colspan="6">9, Flush</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,918.0</td> <td>9</td> <td>Flush</td> <td><fluidname>, Slickwater</td> <td>10,717.0</td> <td>252.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <th colspan="6">Slickwater Frac on 9/22/2014 12:00 AM</th> </tr> <tr> <td>Date</td> <td>Type</td> <td>Wellbore</td> <td>Zone</td> <td colspan="2"></td> </tr> <tr> <td>9/22/2014</td> <td>Slickwater Frac</td> <td>Original Hole</td> <td>PROPOSED, Original Hole</td> <td colspan="2"></td> </tr> <tr> <th colspan="6">Stim/Treat Stages</th> </tr> <tr> <th colspan="6">1, Chemical Additives</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,667.0</td> <td>1</td> <td>Chemical Additives</td> <td><fluidname></td> <td>10,466.0</td> <td></td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 15pct</td> <td>2,962.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>77.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>13.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Friction Reducer</td> <td>J609</td> <td>230.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Iron Control Agent</td> <td>L058</td> <td>18.0</td> <td></td> <td colspan="2"></td> </tr> <tr> <th colspan="6">2, Break Down</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,667.0</td> <td>2</td> <td>Break Down</td> <td><fluidname>, Slickwater</td> <td>10,466.0</td> <td>23.00</td> </tr> <tr> <th colspan="6">Stim/Treat Additives</th> </tr> <tr> <td>Add</td> <td>Type</td> <td>Amount</td> <td>Sand Size</td> <td colspan="2"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <th colspan="6">3, Acid Stage</th> </tr> <tr> <td>Btm (ftKB)</td> <td>Stg #</td> <td>Stage Type</td> <td>Stim/Treat Fluid</td> <td>Top (ftKB)</td> <td>Clean V...</td> </tr> <tr> <td>10,667.0</td> <td>3</td> <td>Acid Stage</td> <td>15%, HCl Acid</td> <td>10,466.0</td> <td>36.00</td> </tr> </table>	Stim/Treat Stages						4, Spacer						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,918.0	4	Spacer	<fluidname>, Slickwater	10,717.0	36.00	Stim/Treat Additives						Add	Type	Amount	Sand Size									5, Acid Stage						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,918.0	5	Acid Stage	15%, HCl Acid	10,717.0	36.00	Stim/Treat Additives						Add	Type	Amount	Sand Size									6, Pad						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,918.0	6	Pad	<fluidname>, Slickwater	10,717.0	263.00	Stim/Treat Additives						Add	Type	Amount	Sand Size									7, Proppant Laden Fluid						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,918.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,717.0	2048.00	Stim/Treat Additives						Add	Type	Amount	Sand Size			Proppant - 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Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:50 PM			Stim/Treat Additives					
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size		
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB						
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB						
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB						
7,210.0								
7,437.0								
7,661.1								
7,861.9								
8,062.0								
8,263.1								
8,462.9								
8,690.0								
8,914.0								
9,113.8								
9,315.0								
9,515.1								
9,714.9								
9,941.9								
10,166.0								
10,367.1								
10,566.9								
10,768.0								
10,967.8								
11,194.9								
11,419.0								
11,619.1								
11,819.9								
12,020.0								
12,221.1								
12,446.9								
12,670.9								
12,872.0								
13,071.9								
13,273.0								
13,473.1								
13,700.1								
13,923.9								
14,124.0								
14,325.1								
14,524.9								
14,669.9								
14,889.1								
		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.						
		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB						
			4, Spacer					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	4	Spacer	<fluidname>, Slickwater	10,466.0	50.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			5, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	5	Acid Stage	15%, HCl Acid	10,466.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	6	Pad	<fluidname>, Slickwater	10,466.0	278.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,466.0	2110.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	79,100.0	100 Mesh		
			8, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	10,466.0	3310.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	317,100.0	40/70		
			9, Flush					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,667.0	9	Flush	<fluidname>, Slickwater	10,466.0	257.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Slickwater Frac on 9/22/2014 12:00 AM					
			Date	Type	Wellbore	Zone		
			9/22/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
			Stim/Treat Stages					
			1, Chemical Additives					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,417.0	1	Chemical Additives		10,216.0	
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Corrosion Inhibitor	A264	6.0			
			Acid	Acid, Hydrochloric 15pct	3,012.0			
			Anti-Bacterial Agent	EC6111A	78.0			
			Scale Inhibitor	EC6486A	13.0			
			Breaker	J218	66.0			
			Gelling Agent	J580	1,620.0			
			Friction Reducer	J609	142.0			
			Iron Control Agent	L058	18.0			
			2, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,417.0	2	Break Down	<fluidname>, Slickwater	10,216.0	32.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			3, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			10,417.0	3	Acid Stage	15%, HCl Acid	10,216.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		

RECEIVED
 OCT 13 2017
 ENERGY SERVICES

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

HORIZONTAL - Original Hole, 10/12/2017 3:48:51 PM			Stim/Treat Stages							
MD (ftKB)	Zones	Vertical schematic (actual)	4, Spacer							
6,650.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
6,810.0			20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	10,417.0	4	Spacer	<fluidname>, Slickwater	10,216.0	50.00	
7,009.8			13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB							
7,210.0			9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB							
7,437.0			5, Acid Stage							
7,661.1			Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,861.9			10,417.0			5	Acid Stage	15%, HCl Acid	10,216.0	35.00
8,062.0			6, Pad							
8,263.1			Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,462.9			10,417.0			6	Pad	<fluidname>, Slickwater	10,216.0	260.00
8,690.0			7, Proppant Laden Fluid							
8,914.0			Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,113.8			10,417.0			7	Proppant Laden Fluid	<fluidname>, Slickwater	10,216.0	2108.00
9,315.0			8, Proppant Laden Fluid							
9,515.1			Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,714.9		10,417.0			8	Proppant Laden Fluid	15#, Linear Gel	10,216.0	1856.00	
9,941.9		8, Proppant Laden Fluid								
10,166.0		Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
10,367.1		10,417.0			8	Proppant Laden Fluid	<fluidname>, Slickwater	10,216.0	1499.00	
10,566.9		8, Proppant Laden Fluid								
10,768.0		Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
10,967.8		10,417.0			8	Proppant Laden Fluid	<fluidname>, Slickwater	10,216.0	1499.00	
11,194.9		9, Flush								
11,419.0		Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
11,619.1		10,417.0			9	Flush	<fluidname>, Slickwater	10,216.0	242.00	
11,819.9		Slickwater Frac on 9/22/2014 12:00 AM								
12,020.0		Date		Type	Wellbore	Zone				
12,221.1		9/22/2014		Slickwater Frac	Original Hole	PROPOSED, Original Hole				
12,446.9		1, Chemical Additives								
12,670.9		Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
12,872.0		10,166.0			1	Chemical Additives	<fluidname>, Slickwater	9,965.0		
13,071.9		2, Break Down								
13,273.0		Btm (ftKB)			Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,473.1		10,166.0			2	Break Down	<fluidname>, Slickwater	9,965.0	27.00	
13,700.1		Stim/Treat Additives								
13,923.9		Add		Type	Amount	Sand Size				
14,124.0		Corrosion Inhibitor		A264	6.0					
14,325.1		Acid		Acid, Hydrochloric 15pct	2,962.0					
14,524.9		Anti-Bacterial Agent		EC6111A	77.0					
14,669.9		Scale Inhibitor		EC6486A	13.0					
14,889.1		Breaker		J218	77.0					
		Gelling Agent		J580	1,776.0					
		Friction Reducer		J609	133.0					
		Iron Control Agent		L058	18.0					

OCT 15 2017
 EMISSIONS

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:51 PM		Vertical schematic (actual)		Stim/Treat Stages					
MD (ftKB)	Zones								
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		3, Acid Stage					
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		10,166.0	3	Acid Stage	15%, HCl Acid	9,965.0	35.00
7,210.0				Stim/Treat Additives					
7,437.0				Add	Type	Amount	Sand Size		
7,661.1				4, Spacer					
7,861.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,062.0				10,166.0	4	Spacer	<fluidname>, Slickwater	9,965.0	36.00
8,263.1				Stim/Treat Additives					
8,462.9				Add	Type	Amount	Sand Size		
8,690.0				5, Acid Stage					
8,914.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,113.8				10,166.0	5	Acid Stage	15%, HCl Acid	9,965.0	36.00
9,315.0				Stim/Treat Additives					
9,515.1				Add	Type	Amount	Sand Size		
9,714.9				6, Pad					
9,941.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,166.0			10,166.0	6	Pad	<fluidname>, Slickwater	9,965.0	279.00	
10,367.1			Stim/Treat Additives						
10,566.9			Add	Type	Amount	Sand Size			
10,768.0			7, Proppant Laden Fluid						
10,967.8			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
11,194.9			10,166.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	9,965.0	2078.00	
11,419.0			Stim/Treat Additives						
11,619.1			Add	Type	Amount	Sand Size			
11,819.9			Proppant - Natural	Northern White Sand	80,200.0	100 Mesh			
12,020.0			8, Proppant Laden Fluid						
12,221.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
12,446.9			10,166.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	9,965.0	1498.00	
12,670.9			Stim/Treat Additives						
12,872.0			Add	Type	Amount	Sand Size			
13,071.9			Proppant - Natural	Northern White Sand	105,638.0	40/70			
13,273.0			8, Proppant Laden Fluid						
13,473.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,700.1			10,166.0	8	Proppant Laden Fluid	15#, Linear Gel	9,965.0	1883.00	
13,923.9			Stim/Treat Additives						
14,124.0			Add	Type	Amount	Sand Size			
14,325.1			Proppant - Natural	Northern White Sand	215,042.0	40/70			
14,524.9			9, Flush						
14,669.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
14,889.1			10,166.0	9	Flush	<fluidname>, Slickwater	9,965.0	232.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Slickwater Frac on 9/22/2014 12:00 AM						
			Date	Type	Wellbore	Zone			
			9/22/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole			
			Stim/Treat Stages						
			1, Chemical Additives						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			9,916.0	1	Chemical Additives		9,714.0		
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Corrosion Inhibitor	A264	6.0				
			Acid	Acid, Hydrochloric 15pct	2,960.0				
			Anti-Bacterial Agent	EC6111A					
			Scale Inhibitor	EC6486A	12.0				
			Breaker	J218	77.0				
			Gelling Agent	J580	1,703.0				
			Friction Reducer	J609	132.0				
			Iron Control Agent	L058	18.0				

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBTD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:52 PM		Vertical schematic (actual)		Stim/Treat Stages					
MD (ftKB)	Zones			2, Break Down					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		9,916.0	2	Break Down	<fluidname>, Slickwater	9,714.0	19.00
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		Stim/Treat Additives					
7,210.0				Add	Type	Amount	Sand Size		
7,437.0				3, Acid Stage					
7,661.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,861.9				9,916.0	3	Acid Stage	15%, HCl Acid	9,714.0	35.00
8,062.0				Stim/Treat Additives					
8,263.1				Add	Type	Amount	Sand Size		
8,462.9				4, Spacer					
8,690.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0				9,916.0	4	Spacer	<fluidname>, Slickwater	9,714.0	36.00
9,113.8				Stim/Treat Additives					
9,315.0				Add	Type	Amount	Sand Size		
9,515.1				5, Acid Stage					
9,714.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,941.9				9,916.0	5	Acid Stage	15%, HCl Acid	9,714.0	35.00
10,166.0				Stim/Treat Additives					
10,367.1				Add	Type	Amount	Sand Size		
10,566.9				6, Pad					
10,768.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,967.8				9,916.0	6	Pad	<fluidname>, Slickwater	9,714.0	278.00
11,194.9				Stim/Treat Additives					
11,419.0				Add	Type	Amount	Sand Size		
11,619.1				7, Proppant Laden Fluid					
11,819.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
12,020.0				9,916.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	9,714.0	2033.00
12,221.1				Stim/Treat Additives					
12,446.9				Add	Type	Amount	Sand Size		
12,670.9				Proppant - Natural	Northern White Sand	81,100.0	100 Mesh		
12,872.0				8, Proppant Laden Fluid					
13,071.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,273.0				9,916.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	9,714.0	1497.00
13,473.1				Stim/Treat Additives					
13,700.1				Add	Type	Amount	Sand Size		
13,923.9				Proppant - Natural	Northern White Sand	112,420.0	40/70		
14,124.0				8, Proppant Laden Fluid					
14,325.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,524.9				9,916.0	8	Proppant Laden Fluid	15#, Linear Gel	9,714.0	1882.00
14,669.9				Stim/Treat Additives					
14,889.1				Add	Type	Amount	Sand Size		
				Proppant - Natural	Northern White Sand	208,580.0	40/70		
				9, Flush					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				9,916.0	9	Flush	<fluidname>, Slickwater	9,714.0	233.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Slickwater Frac on 9/23/2014 12:00 AM					
				Date	Type	Wellbore	Zone		
				9/23/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
				Stim/Treat Stages					
				1, Chemical Additives					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				9,665.0	1	Chemical Additives		9,464.0	
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Corrosion Inhibitor	A264	6.0			
				Acid	Acid, Hydrochloric 15pct	3,012.0			
				Anti-Bacterial Agent	EC6111A	76.0			
				Scale Inhibitor	EC6486A	12.0			

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 PBTB:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:52 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Friction Reducer	J609	180.0	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Iron Control Agent	L058	18.0	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	2, Break Down			
7,210.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
7,437.0			9,665.0	2	Break Down	<fluidname>, Slickwater
7,661.1			Top (ftKB)	Clean V...	9,464.0	13.00
7,861.9			Stim/Treat Additives			
8,062.0			Add	Type	Amount	Sand Size
8,263.1			3, Acid Stage			
8,462.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
8,690.0			9,665.0	3	Acid Stage	15%, HCl Acid
8,914.0			Top (ftKB)	Clean V...	9,464.0	36.00
9,113.8			Stim/Treat Additives			
9,315.0			Add	Type	Amount	Sand Size
9,515.1			4, Spacer			
9,714.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
9,941.9			9,665.0	4	Spacer	<fluidname>, Slickwater
10,166.0			Top (ftKB)	Clean V...	9,464.0	50.00
10,367.1			Stim/Treat Additives			
10,566.9			Add	Type	Amount	Sand Size
10,768.0			5, Acid Stage			
10,967.8			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
11,194.9			9,665.0	5	Acid Stage	15%, HCl Acid
11,419.0			Top (ftKB)	Clean V...	9,464.0	36.00
11,619.1			Stim/Treat Additives			
11,819.9			Add	Type	Amount	Sand Size
12,020.0			6, Pad			
12,221.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
12,446.9			9,665.0	6	Pad	<fluidname>, Slickwater
12,670.9			Top (ftKB)	Clean V...	9,464.0	230.00
12,872.0			Stim/Treat Additives			
13,071.9			Add	Type	Amount	Sand Size
13,273.0			7, Proppant Laden Fluid			
13,473.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
13,700.1			9,665.0	7	Proppant Laden Fluid	<fluidname>, Slickwater
13,923.9			Top (ftKB)	Clean V...	9,464.0	1997.00
14,124.0			Stim/Treat Additives			
14,325.1			Add	Type	Amount	Sand Size
14,524.9			Proppant - Natural	Northern White Sand	81,140.0	100 Mesh
14,669.9			8, Proppant Laden Fluid			
14,889.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			9,665.0	8	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)	Clean V...	9,464.0	3463.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	321,300.0	40/70
			9, Flush			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			9,665.0	9	Flush	<fluidname>, Slickwater
			Top (ftKB)	Clean V...	9,464.0	217.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Slickwater Frac on 9/23/2014 12:00 AM			
			Date	Type	Wellbore	Zone
			9/23/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole
			Stim/Treat Stages			
			1, Chemical Additives			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			9,415.0	1	Chemical Additives	
			Top (ftKB)	Clean V...	9,213.0	
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Corrosion Inhibitor	A264	6.0	
			Acid	Acid, Hydrochloric 15pct	2,972.0	
			Anti-Bacterial Agent	EC6111A	77.0	
			Scale Inhibitor	EC6486A	13.0	
			Friction Reducer	J609	175.0	
			Iron Control Agent	L058	18.0	

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:53 PM			Stim/Treat Stages																																									
MD (ftKB)	Zones	Vertical schematic (actual)					Top (ftKB)	Clean V...																																				
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	2, Break Down				9,213.0	15.00																																				
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Stim/Treat Additives																																									
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
7,210.0			3, Acid Stage				9,213.0	36.00																																				
7,437.0			Stim/Treat Additives																																									
7,661.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
7,861.9			4, Spacer				9,213.0	50.00																																				
8,062.0			Stim/Treat Additives																																									
8,263.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
8,462.9			5, Acid Stage				9,213.0	35.00																																				
8,690.0			Stim/Treat Additives																																									
8,914.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
9,113.8			6, Pad				9,213.0	250.00																																				
9,315.0			Stim/Treat Additives																																									
9,515.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
9,714.9			7, Proppant Laden Fluid				9,213.0	2045.00																																				
9,941.9			Stim/Treat Additives																																									
10,166.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>77,940.0</td> <td>100 Mesh</td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	77,940.0	100 Mesh																														
Add	Type	Amount	Sand Size																																									
Proppant - Natural	Northern White Sand	77,940.0	100 Mesh																																									
10,367.1			8, Proppant Laden Fluid				9,213.0	3440.00																																				
10,566.9			Stim/Treat Additives																																									
10,768.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>320,720.0</td> <td>40/70</td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	320,720.0	40/70																														
Add	Type	Amount	Sand Size																																									
Proppant - Natural	Northern White Sand	320,720.0	40/70																																									
10,967.8			9, Flush				9,213.0	239.00																																				
11,194.9			Stim/Treat Additives																																									
11,419.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size																																		
Add	Type	Amount	Sand Size																																									
11,619.1			Slickwater Frac on 9/23/2014 12:00 AM																																									
11,819.9			Date	Type	Wellbore	Zone																																						
12,020.0			9/23/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole																																						
12,221.1			Stim/Treat Stages																																									
12,446.9			1, Chemical Additives				8,963.0																																					
12,670.9			Stim/Treat Additives																																									
12,872.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> </thead> <tbody> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td></td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 15pct</td> <td>2,948.0</td> <td></td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>28.0</td> <td></td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>13.0</td> <td></td> </tr> <tr> <td>Breaker</td> <td>J218</td> <td>22.0</td> <td></td> </tr> <tr> <td>Gelling Agent</td> <td>J580</td> <td>310.0</td> <td></td> </tr> <tr> <td>Friction Reducer</td> <td>J609</td> <td>242.0</td> <td></td> </tr> <tr> <td>Iron Control Agent</td> <td>L058</td> <td>18.0</td> <td></td> </tr> </tbody> </table>				Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 15pct	2,948.0		Anti-Bacterial Agent	EC6111A	28.0		Scale Inhibitor	EC6486A	13.0		Breaker	J218	22.0		Gelling Agent	J580	310.0		Friction Reducer	J609	242.0		Iron Control Agent	L058	18.0			
Add	Type	Amount	Sand Size																																									
Corrosion Inhibitor	A264	6.0																																										
Acid	Acid, Hydrochloric 15pct	2,948.0																																										
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13,071.9		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production																																										
13,273.0		Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production																																										
13,473.1		Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1																																										
13,700.1		Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set																																										
13,923.9		CIBP above Toe Sleeve.																																										
14,124.0																																												
14,325.1																																												
14,524.9																																												
14,669.9		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB																																										
14,889.1																																												

OCT 13 2017

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBTD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:54 PM		Vertical schematic (actual)	
MD (ftKB)	Zones		
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	
7,210.0			
7,437.0			
7,661.1			
7,861.9			
8,062.0			
8,263.1			
8,462.9			
8,690.0			
8,914.0			
9,113.8			
9,315.0			
9,515.1			
9,714.9			
9,941.9			
10,166.0			
10,367.1			
10,566.9			
10,768.0			
10,967.8			
11,194.9			
11,419.0			
11,619.1			
11,819.9			
12,020.0			
12,221.1			
12,446.9			
12,670.9			
12,872.0			
13,071.9		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.	
13,273.0			
13,473.1			
13,700.1			
13,923.9			
14,124.0			
14,325.1			
14,524.9			
14,669.9		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB	
14,889.1			

Stim/Treat Stages					
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	2	Break Down	<fluidname>, Slickwater	8,963.0	15.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	3	Acid Stage	15%, HCl Acid	8,963.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	4	Spacer	<fluidname>, Slickwater	8,963.0	50.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
5, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	5	Acid Stage	15%, HCl Acid	8,963.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	6	Pad	<fluidname>, Slickwater	8,963.0	235.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	8,963.0	2088.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	79,060.0	100 Mesh		
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	8,963.0	3958.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	317,780.0	40/70		
9, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
9,164.0	9	Flush	<fluidname>, Slickwater	8,963.0	210.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Slickwater Frac on 9/23/2014 12:00 AM					
Date	Type	Wellbore	Zone		
9/23/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	1	Chemical Additives		8,712.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	3.0			
Acid	Acid, Hydrochloric 7.5pct	3,081.0			
Anti-Bacterial Agent	EC6111A	12.0			
Scale Inhibitor	EC6486A	44.0			
Breaker	J218	1,018.0			
Gelling Agent	J580	125.0			
Friction Reducer	J609	10.0			
Iron Control Agent	L058				

OCT 13 2017

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
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 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:54 PM		Vertical schematic (actual)	
MD (ftKB)	Zones		
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	
7,210.0			
7,437.0			
7,661.1			
7,861.9			
8,062.0			
8,263.1			
8,462.9			
8,690.0			
8,914.0			
9,113.8			
9,315.0			
9,515.1			
9,714.9			
9,941.9			
10,166.0			
10,367.1			
10,566.9			
10,768.0			
10,967.8			
11,194.9			
11,419.0			
11,619.1			
11,819.9			
12,020.0			
12,221.1			
12,446.9			
12,670.9			
12,872.0			
13,071.9		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production	
13,273.0		Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production	
13,473.1		Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1	
13,700.1		Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.	
13,923.9			
14,124.0			
14,325.1			
14,524.9			
14,669.9		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB	
14,889.1			

Stim/Treat Stages					
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	2	Break Down	<fluidname>, Slickwater	8,712.0	15.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	3	Acid Stage	7.5%, HCl Acid	8,712.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	4	Spacer	<fluidname>, Slickwater	8,712.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
5, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	5	Acid Stage	7.5%, HCl Acid	8,712.0	35.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	6	Pad	<fluidname>, Slickwater	8,712.0	235.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	8,712.0	2008.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	81,560.0	100 Mesh		
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	8,712.0	2329.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	189,020.0	40/70		
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	8	Proppant Laden Fluid	15#, Linear Gel	8,712.0	975.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	133,720.0	40/70		
9, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,914.0	9	Flush	<fluidname>, Slickwater	8,712.0	197.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Slickwater Frac on 9/24/2014 12:00 AM					
Date	Type	Wellbore	Zone		
9/24/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,663.0	1	Chemical Additives		8,462.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	3.0			
Acid	Acid, Hydrochloric 7.5pct	3,040.0			
Anti-Bacterial Agent	EC6111A	75.0			
Scale Inhibitor	EC6486A	13.0			

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:55 PM			Stim/Treat Additives				
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size	
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Friction Reducer	J609	207.0		
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Iron Control Agent	L058	9.0		
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	2, Break Down				
7,210.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
7,437.0			8,663.0	2	Break Down	<fluidname>, Slickwater	
7,661.1			Top (ftKB)	Clean V...	8,462.0	18.00	
7,861.9			Stim/Treat Additives				
8,062.0			Add	Type	Amount	Sand Size	
8,263.1			3, Acid Stage				
8,462.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
8,690.0			8,663.0	3	Acid Stage	7.5%, HCl Acid	
8,914.0			Top (ftKB)	Clean V...	8,462.0	36.00	
9,113.8			Stim/Treat Additives				
9,315.0			Add	Type	Amount	Sand Size	
9,515.1			4, Spacer				
9,714.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
9,941.9			8,663.0	4	Spacer	<fluidname>, Slickwater	
10,166.0			Top (ftKB)	Clean V...	8,462.0	50.00	
10,367.1			Stim/Treat Additives				
10,566.9			Add	Type	Amount	Sand Size	
10,768.0			5, Acid Stage				
10,967.8			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
11,194.9			8,663.0	5	Acid Stage	7.5%, HCl Acid	
11,419.0			Top (ftKB)	Clean V...	8,462.0	35.00	
11,619.1			Stim/Treat Additives				
11,819.9			Add	Type	Amount	Sand Size	
12,020.0			6, Pad				
12,221.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
12,446.9			8,663.0	6	Pad	<fluidname>, Slickwater	
12,670.9			Top (ftKB)	Clean V...	8,462.0	225.00	
12,872.0			Stim/Treat Additives				
13,071.9			Add	Type	Amount	Sand Size	
13,273.0			7, Proppant Laden Fluid				
13,473.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
13,700.1			8,663.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	
13,923.9			Top (ftKB)	Clean V...	8,462.0	2010.00	
14,124.0			Stim/Treat Additives				
14,325.1			Add	Type	Amount	Sand Size	
14,524.9			Proppant - Natural	Northern White Sand	79,580.0	100 Mesh	
14,669.9			8, Proppant Laden Fluid				
14,889.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
			8,663.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	
			Top (ftKB)	Clean V...	8,462.0	3449.00	
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Proppant - Natural	Northern White Sand	322,000.0	40/70	
			9, Flush				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
			8,663.0	9	Flush	<fluidname>, Slickwater	
			Top (ftKB)	Clean V...	8,462.0	193.00	
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Slickwater Frac on 9/24/2014 12:00 AM				
			Date	Type	Wellbore	Zone	
			9/24/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole	
			Stim/Treat Stages				
			1, Chemical Additives				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	
			8,413.0	1	Chemical Additives	<fluidname>, Slickwater	
			Top (ftKB)	Clean V...	8,211.0		
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Corrosion Inhibitor	A264	3.0		
			Acid	Acid, Hydrochloric 7.5pct	3,040.0		
			Anti-Bacterial Agent	EC6111A	76.0		
			Scale Inhibitor	EC6486A	13.0		
			Friction Reducer	J609	175.0		
			Iron Control Agent	L058	9.0		

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
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01/05/2018



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MARK EDISON MSH 8H

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10,166.0				8,161.0	5	Acid Stage	7.5%, HCl Acid	7,961.0	36.00
10,367.1				Stim/Treat Additives					
10,566.9				Add	Type	Amount	Sand Size		
10,768.0			6, Pad						
10,967.8			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
11,194.9			8,161.0	6	Pad	<fluidname>, Slickwater	7,961.0	210.00	
11,419.0			Stim/Treat Additives						
11,619.1			Add	Type	Amount	Sand Size			
11,819.9			7, Proppant Laden Fluid						
12,020.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
12,221.1			8,161.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	7,961.0	2035.00	
12,446.9			Stim/Treat Additives						
12,670.9			Add	Type	Amount	Sand Size			
12,872.0			Proppant - Natural	Northern White Sand	77,860.0	100 Mesh			
13,071.9			8, Proppant Laden Fluid						
13,273.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,473.1			8,161.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	7,961.0	2326.00	
13,700.1			Stim/Treat Additives						
13,923.9			Add	Type	Amount	Sand Size			
14,124.0			Proppant - Natural	Northern White Sand	215,115.0	40/70			
14,325.1			8, Proppant Laden Fluid						
14,524.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
14,669.9			8,161.0	8	Proppant Laden Fluid	15#, Linear Gel	7,961.0	996.00	
14,889.1			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	106,505.0	40/70			
			9, Flush						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			8,161.0	9	Flush	<fluidname>, Slickwater	7,961.0	184.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Slickwater Frac on 9/24/2014 12:00 AM						
			Date	Type	Wellbore	Zone			
			9/24/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole			
			Stim/Treat Stages						
			1, Chemical Additives						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,912.0	1	Chemical Additives		7,710.0		
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Corrosion Inhibitor	A264	6.0				
			Acid	Acid, Hydrochloric 7.5pct	6,170.0				
			Anti-Bacterial Agent	EC6111A	112.0				
			Scale Inhibitor	EC6486A	18.0				

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:57 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Breaker	J218	176.0	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Breaker	J475	55.0	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Gelling Agent	J580	5,190.0	
7,210.0			Friction Reducer	J609	101.0	
7,437.0			Cross Linker	J610	25.0	
7,661.1			Iron Control Agent	L058	18.0	
7,861.9			2, Break Down			
8,062.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
8,263.1			7,912.0	2	Break Down	<fluidname>, Slickwater
8,462.9			Top (ftKB)	Clean V...	7,710.0 15.00	
8,690.0			Stim/Treat Additives			
8,914.0			Add	Type	Amount	Sand Size
9,113.8			3, Acid Stage			
9,315.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
9,515.1			7,912.0	3	Acid Stage	7.5%, HCl Acid
9,714.9			Top (ftKB)	Clean V...	7,710.0 35.00	
9,941.9			Stim/Treat Additives			
10,166.0			Add	Type	Amount	Sand Size
10,367.1			4, Spacer			
10,566.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
10,768.0			7,912.0	4	Spacer	<fluidname>, Slickwater
10,967.8			Top (ftKB)	Clean V...	7,710.0 36.00	
11,194.9			Stim/Treat Additives			
11,419.0			Add	Type	Amount	Sand Size
11,619.1			5, Acid Stage			
11,819.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
12,020.0			7,912.0	5	Acid Stage	7.5%, HCl Acid
12,221.1			Top (ftKB)	Clean V...	7,710.0 35.00	
12,446.9			Stim/Treat Additives			
12,670.9			Add	Type	Amount	Sand Size
12,872.0			6, Pad			
13,071.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
13,273.0			7,912.0	6	Pad	<fluidname>, Slickwater
13,473.1			Top (ftKB)	Clean V...	7,710.0 876.00	
13,700.1			Stim/Treat Additives			
13,923.9			Add	Type	Amount	Sand Size
14,124.0			7, Proppant Laden Fluid			
14,325.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
14,524.9			7,912.0	7	Proppant Laden Fluid	<fluidname>, Slickwater
14,669.9			Top (ftKB)	Clean V...	7,710.0 283.00	
14,889.1			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	2,970.0	100 Mesh
			7, Sweep			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,912.0	7	Sweep	<fluidname>, Slickwater
			Top (ftKB)	Clean V...	7,710.0 191.00	
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			7, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,912.0	7	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)	Clean V...	7,710.0 261.00	
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	2,740.0	100 Mesh
			7, Sweep			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,912.0	7	Sweep	<fluidname>, Slickwater
			Top (ftKB)	Clean V...	7,710.0 295.00	
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			7, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,912.0	7	Acid Stage	7.5%, HCl Acid
			Top (ftKB)	Clean V...	7,710.0 62.00	
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			7, Acid Stage			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,912.0	7	Acid Stage	7.5%, HCl Acid
			Top (ftKB)	Clean V...	7,710.0 62.00	

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:58 PM		Stim/Treat Additives				
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB				
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	7, Pad			
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Btm (ftKB)	Stg #	Stage Type	Clean V...
7,210.0			7,912.0	7	Pad	612.00
7,437.0			Stim/Treat Additives			
7,661.1			Add	Type	Amount	Sand Size
7,861.9			7, Proppant Laden Fluid			
8,062.0			Btm (ftKB)	Stg #	Stage Type	Clean V...
8,263.1			7,912.0	7	Proppant Laden Fluid	701.00
8,462.9			Stim/Treat Additives			
8,690.0			Add	Type	Amount	Sand Size
8,914.0			Proppant - Natural	Northern White Sand	7,360.0	100 Mesh
9,113.8			7, Proppant Laden Fluid			
9,315.0			Btm (ftKB)	Stg #	Stage Type	Clean V...
9,515.1			7,912.0	7	Proppant Laden Fluid	1185.00
9,714.9			Stim/Treat Additives			
9,941.9			Add	Type	Amount	Sand Size
10,166.0			Proppant - Natural	Northern White Sand	45,014.0	100 Mesh
10,367.1			7, Sweep			
10,566.9			Btm (ftKB)	Stg #	Stage Type	Clean V...
10,768.0			7,912.0	7	Sweep	260.00
10,967.8			Stim/Treat Additives			
11,194.9			Add	Type	Amount	Sand Size
11,419.0			Proppant - Natural	Northern White Sand	23,756.0	100 Mesh
11,619.1			8, Proppant Laden Fluid			
11,819.9			Btm (ftKB)	Stg #	Stage Type	Clean V...
12,020.0			7,912.0	8	Proppant Laden Fluid	3357.00
12,221.1			Stim/Treat Additives			
12,446.9			Add	Type	Amount	Sand Size
12,670.9			Proppant - Natural	Northern White Sand	320,180.0	40/70
12,872.0			9, Flush			
13,071.9			Btm (ftKB)	Stg #	Stage Type	Clean V...
13,273.0			7,912.0	9	Flush	175.00
13,473.1			Stim/Treat Additives			
13,700.1			Add	Type	Amount	Sand Size
13,923.9			Slickwater Frac on 9/25/2014 12:00 AM			
14,124.0			Date	Type	Wellbore	Zone
14,325.1			9/25/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole
14,524.9			Stim/Treat Stages			
14,669.9			1, Chemical Additives			
14,889.1			Btm (ftKB)	Stg #	Stage Type	Clean V...
			7,661.0	1	Chemical Additives	7,460.0
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Corrosion Inhibitor	A264	6.0	
			Acid	Acid, Hydrochloric 7.5pct	3,081.0	
			Anti-Bacterial Agent	EC6111A	90.0	
			Scale Inhibitor	EC6486A	15.0	
			Friction Reducer	J609	266.0	
			Iron Control Agent	L058	18.0	
			2, Break Down			
			Btm (ftKB)	Stg #	Stage Type	Clean V...
			7,661.0	2	Break Down	11.00
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBTD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:58 PM		Vertical schematic (actual)		Stim/Treat Stages																			
MD (ftKB)	Zones																						
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		3, Acid Stage																			
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>3</td> <td>Acid Stage</td> <td>7.5%, HCl Acid</td> <td>7,460.0</td> <td>36.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	3	Acid Stage	7.5%, HCl Acid	7,460.0	36.00									
Stg #	Stage Type	Stim/Treat Fluid		Top (ftKB)	Clean V...																		
3	Acid Stage	7.5%, HCl Acid		7,460.0	36.00																		
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		Stim/Treat Additives																			
7,210.0				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size															
Add	Type	Amount		Sand Size																			
7,437.0				4, Spacer																			
7,661.1				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>4</td> <td>Spacer</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>33.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	4	Spacer	<fluidname>, Slickwater	7,460.0	33.00									
Stg #	Stage Type	Stim/Treat Fluid		Top (ftKB)	Clean V...																		
4	Spacer	<fluidname>, Slickwater		7,460.0	33.00																		
7,861.9				Stim/Treat Additives																			
8,062.0				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size															
Add	Type	Amount		Sand Size																			
8,263.1				5, Acid Stage																			
8,462.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>5</td> <td>Acid Stage</td> <td>7.5%, HCl Acid</td> <td>7,460.0</td> <td>36.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	5	Acid Stage	7.5%, HCl Acid	7,460.0	36.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
5	Acid Stage	7.5%, HCl Acid	7,460.0	36.00																			
8,690.0			Stim/Treat Additives																				
8,914.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size																
Add	Type	Amount	Sand Size																				
9,113.8			6, Pad																				
9,315.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>6</td> <td>Pad</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>220.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	6	Pad	<fluidname>, Slickwater	7,460.0	220.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
6	Pad	<fluidname>, Slickwater	7,460.0	220.00																			
9,515.1			Stim/Treat Additives																				
9,714.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size																
Add	Type	Amount	Sand Size																				
9,941.9			7, Proppant Laden Fluid																				
10,166.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>7</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>2039.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	7	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	2039.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
7	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	2039.00																			
10,367.1			Stim/Treat Additives																				
10,566.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>78,200.0</td> <td>100 Mesh</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	78,200.0	100 Mesh												
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	78,200.0	100 Mesh																				
10,768.0			8, Proppant Laden Fluid																				
10,967.8			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>8</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>2730.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	8	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	2730.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
8	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	2730.00																			
11,194.9			Stim/Treat Additives																				
11,419.0			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>248,976.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	248,976.0	40/70												
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	248,976.0	40/70																				
11,619.1			8, Sweep																				
11,819.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>8</td> <td>Sweep</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>367.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	8	Sweep	<fluidname>, Slickwater	7,460.0	367.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
8	Sweep	<fluidname>, Slickwater	7,460.0	367.00																			
12,020.0			Stim/Treat Additives																				
12,221.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>74,384.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	74,384.0	40/70												
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	74,384.0	40/70																				
12,446.9			9, Proppant Laden Fluid																				
12,670.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>9</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>1430.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	9	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	1430.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
9	Proppant Laden Fluid	<fluidname>, Slickwater	7,460.0	1430.00																			
12,872.0			Stim/Treat Additives																				
13,071.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>74,384.0</td> <td>40/70</td> </tr> </table>	Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	74,384.0	40/70												
Add	Type	Amount	Sand Size																				
Proppant - Natural	Northern White Sand	74,384.0	40/70																				
13,273.0			10, Flush																				
13,473.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>10</td> <td>Flush</td> <td><fluidname>, Slickwater</td> <td>7,460.0</td> <td>203.00</td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10	Flush	<fluidname>, Slickwater	7,460.0	203.00										
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
10	Flush	<fluidname>, Slickwater	7,460.0	203.00																			
13,700.1			Stim/Treat Additives																				
13,923.9			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size																
Add	Type	Amount	Sand Size																				
14,124.0			Slickwater Frac on 9/25/2014 12:00 AM																				
14,325.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Type</th> <th>Wellbore</th> <th>Zone</th> </tr> <tr> <td>9/25/2014</td> <td>Slickwater Frac</td> <td>Original Hole</td> <td>PROPOSED, Original Hole</td> </tr> </table>	Date	Type	Wellbore	Zone	9/25/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole												
Date	Type	Wellbore	Zone																				
9/25/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole																				
14,524.9			Stim/Treat Stages																				
14,669.9			1, Chemical Additives																				
14,889.1			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Stg #</th> <th>Stage Type</th> <th>Stim/Treat Fluid</th> <th>Top (ftKB)</th> <th>Clean V...</th> </tr> <tr> <td>1</td> <td>Chemical Additives</td> <td></td> <td>7,209.0</td> <td></td> </tr> </table>	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	1	Chemical Additives		7,209.0											
Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																			
1	Chemical Additives		7,209.0																				
			Stim/Treat Additives																				
			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Add</th> <th>Type</th> <th>Amount</th> <th>Sand Size</th> </tr> <tr> <td>Corrosion Inhibitor</td> <td>A264</td> <td>6.0</td> <td></td> </tr> <tr> <td>Acid</td> <td>Acid, Hydrochloric 7.5pct</td> <td>3,287.0</td> <td></td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6111A</td> <td>85.0</td> <td></td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6486A</td> <td>14.0</td> <td></td> </tr> </table>	Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 7.5pct	3,287.0		Anti-Bacterial Agent	EC6111A	85.0		Scale Inhibitor	EC6486A	14.0	
Add	Type	Amount	Sand Size																				
Corrosion Inhibitor	A264	6.0																					
Acid	Acid, Hydrochloric 7.5pct	3,287.0																					
Anti-Bacterial Agent	EC6111A	85.0																					
Scale Inhibitor	EC6486A	14.0																					

DOT 19207

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:48:59 PM			Stim/Treat Additives			
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Breaker	J218	88.0	
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	Gelling Agent	J580	1,290.0	
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Friction Reducer	J609	190.0	
7,210.0			Iron Control Agent	L058	18.0	
7,437.0			2, Break Down			
7,661.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
7,861.9			7,411.0	2	Break Down	<fluidname>, Slickwater
8,062.0			Top (ftKB)	Clean V...		
8,263.1			7,209.0	15.00		
8,462.9			Stim/Treat Additives			
8,690.0			Add	Type	Amount	Sand Size
8,914.0						
9,113.8			3, Acid Stage			
9,315.0			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
9,515.1			7,411.0	3	Acid Stage	7.5%, HCl Acid
9,714.9			Top (ftKB)	Clean V...		
9,941.9			7,209.0	36.00		
10,166.0			Stim/Treat Additives			
10,367.1			Add	Type	Amount	Sand Size
10,566.9						
10,768.0			4, Spacer			
10,967.8			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
11,194.9			7,411.0	4	Spacer	<fluidname>, Slickwater
11,419.0			Top (ftKB)	Clean V...		
11,619.1			7,209.0	36.00		
11,819.9			Stim/Treat Additives			
12,020.0			Add	Type	Amount	Sand Size
12,221.1						
12,446.9			5, Acid Stage			
12,670.9			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
12,872.0			7,411.0	5	Acid Stage	7.5%, HCl Acid
13,071.9			Top (ftKB)	Clean V...		
13,273.0			7,209.0	36.00		
13,473.1			Stim/Treat Additives			
13,700.1			Add	Type	Amount	Sand Size
13,923.9						
14,124.0			6, Pad			
14,325.1			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
14,524.9			7,411.0	6	Pad	<fluidname>, Slickwater
14,669.9			Top (ftKB)	Clean V...		
14,889.1			7,209.0	229.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			7, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,411.0	7	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)	Clean V...		
			7,209.0	2034.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	78,360.0	100 Mesh
			8, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,411.0	8	Proppant Laden Fluid	<fluidname>, Slickwater
			Top (ftKB)	Clean V...		
			7,209.0	2757.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	253,525.0	40/70
			8, Sweep			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,411.0	8	Sweep	15#, Linear Gel
			Top (ftKB)	Clean V...		
			7,209.0	258.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			9, Proppant Laden Fluid			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,411.0	9	Proppant Laden Fluid	15#, Linear Gel
			Top (ftKB)	Clean V...		
			7,209.0	1131.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size
			Proppant - Natural	Northern White Sand	68,835.0	40/70
			10, Flush			
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid
			7,411.0	10	Flush	<fluidname>, Slickwater
			Top (ftKB)	Clean V...		
			7,209.0	160.00		
			Stim/Treat Additives			
			Add	Type	Amount	Sand Size

OCT 16 2017

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:49:00 PM		Stimulations & Treatments			
MD (ftKB)	Zones	Vertical schematic (actual)	Slickwater Frac on 9/25/2014 12:00 AM		
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	Date	Type	Wellbore
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB	9/25/2014	Slickwater Frac	Original Hole
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB	Zone	PROPOSED, Original Hole	
7,210.0			Stim/Treat Stages		
7,437.0			1, Chemical Additives		
7,661.1			Btm (ftKB)	Stg #	Stage Type
7,861.9			7,160.0	1	Chemical Additives
8,062.0			Stim/Treat Fluid	Top (ftKB)	Clean V...
8,263.1				6,959.0	
8,462.9			Stim/Treat Additives		
8,690.0			Add	Type	Amount
8,914.0			Corrosion Inhibitor	A264	3.0
9,113.8			Acid	Acid, Hydrochloric 7.5pct	3,180.0
9,315.0			Anti-Bacterial Agent	EC6111A	73.0
9,515.1			Scale Inhibitor	EC6486A	12.0
9,714.9			Breaker	J218	55.0
9,941.9			Gelling Agent	J580	998.0
10,166.0			Friction Reducer	J609	180.0
10,367.1			Iron Control Agent	L058	9.0
10,566.9			2, Break Down		
10,768.0			Btm (ftKB)	Stg #	Stage Type
10,967.8			7,160.0	2	Break Down
11,194.9			Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0			<fluidname>, Slickwater	6,959.0	14.00
11,619.1			Stim/Treat Additives		
11,819.9			Add	Type	Amount
12,020.0					
12,221.1			3, Acid Stage		
12,446.9			Btm (ftKB)	Stg #	Stage Type
12,670.9			7,160.0	3	Acid Stage
12,872.0			Stim/Treat Fluid	Top (ftKB)	Clean V...
13,071.9			7.5%, HCl Acid	6,959.0	36.00
13,273.0			Stim/Treat Additives		
13,473.1			Add	Type	Amount
13,700.1					
13,923.9			4, Spacer		
14,124.0			Btm (ftKB)	Stg #	Stage Type
14,325.1			7,160.0	4	Spacer
14,524.9			Stim/Treat Fluid	Top (ftKB)	Clean V...
14,669.9			<fluidname>, Slickwater	6,959.0	34.00
14,889.1			Stim/Treat Additives		
			Add	Type	Amount
			5, Acid Stage		
			Btm (ftKB)	Stg #	Stage Type
			7,160.0	5	Acid Stage
			Stim/Treat Fluid	Top (ftKB)	Clean V...
			7.5%, HCl Acid	6,959.0	36.00
			Stim/Treat Additives		
			Add	Type	Amount
			6, Pad		
			Btm (ftKB)	Stg #	Stage Type
			7,160.0	6	Pad
			Stim/Treat Fluid	Top (ftKB)	Clean V...
			<fluidname>, Slickwater	6,959.0	251.00
			Stim/Treat Additives		
			Add	Type	Amount
			7, Proppant Laden Fluid		
			Btm (ftKB)	Stg #	Stage Type
			7,160.0	7	Proppant Laden Fluid
			Stim/Treat Fluid	Top (ftKB)	Clean V...
			<fluidname>, Slickwater	6,959.0	2033.00
			Stim/Treat Additives		
			Add	Type	Amount
			Proppant - Natural	Northern White Sand	80,040.0
					100 Mesh
			8, Proppant Laden Fluid		
			Btm (ftKB)	Stg #	Stage Type
			7,160.0	8	Proppant Laden Fluid
			Stim/Treat Fluid	Top (ftKB)	Clean V...
			<fluidname>, Slickwater	6,959.0	1490.00
			Stim/Treat Additives		
			Add	Type	Amount
			Proppant - Natural	Northern White Sand	150,870.0
					40/70
			8, Proppant Laden Fluid		
			Btm (ftKB)	Stg #	Stage Type
			7,160.0	8	Proppant Laden Fluid
			Stim/Treat Fluid	Top (ftKB)	Clean V...
			15#, Linear Gel	6,959.0	1712.00
			Stim/Treat Additives		
			Add	Type	Amount
			Proppant - Natural	Northern White Sand	163,830.0
					40/70

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field: County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:49:00 PM		Vertical schematic (actual)		Stim/Treat Stages					
MD (ftKB)	Zones			9, Flush					
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB		7,160.0	9	Flush	<fluidname>, Slickwater	6,959.0	160.00
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB		Stim/Treat Additives					
7,210.0				Add	Type	Amount	Sand Size		
7,437.0				Slickwater Frac on 9/25/2014 12:00 AM					
7,661.1				Date	Type	Wellbore	Zone		
7,861.9				9/25/2014	Slickwater Frac	Original Hole	PROPOSED, Original Hole		
8,062.0				Stim/Treat Stages					
8,263.1				1, Chemical Additives					
8,462.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,690.0				6,910.0	1	Chemical Additives		6,708.0	
8,914.0				Stim/Treat Additives					
9,113.8				Add	Type	Amount	Sand Size		
9,315.0				Corrosion Inhibitor	A264	3.0			
9,515.1				Acid	Acid, Hydrochloric 7.5pct	3,237.0			
9,714.9				Anti-Bacterial Agent	EC6111A	78.0			
9,941.9				Scale Inhibitor	EC6486A	13.0			
10,166.0				Breaker	J218	66.0			
10,367.1				Gelling Agent	J580	1,190.0			
10,566.9				Friction Reducer	J609	138.0			
10,768.0				Iron Control Agent	L058	9.0			
10,967.8				2, Break Down					
11,194.9				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,419.0				6,910.0	2	Break Down	<fluidname>, Slickwater	6,708.0	16.00
11,619.1				Stim/Treat Additives					
11,819.9				Add	Type	Amount	Sand Size		
12,020.0				3, Acid Stage					
12,221.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
12,446.9				6,910.0	3	Acid Stage	15%, HCl Acid	6,708.0	35.00
12,670.9				Stim/Treat Additives					
12,872.0				Add	Type	Amount	Sand Size		
13,071.9				4, Spacer					
13,273.0				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,473.1				6,910.0	4	Spacer	<fluidname>, Slickwater	6,708.0	36.00
13,700.1				Stim/Treat Additives					
13,923.9				Add	Type	Amount	Sand Size		
14,124.0				5, Acid Stage					
14,325.1				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
14,524.9				6,910.0	5	Acid Stage	15%, HCl Acid	6,708.0	35.00
14,669.9				Stim/Treat Additives					
14,889.1				Add	Type	Amount	Sand Size		
				6, Pad					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				6,910.0	6	Pad	<fluidname>, Slickwater	6,708.0	282.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				7, Proppant Laden Fluid					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				6,910.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	6,708.0	2220.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Proppant - Natural	Northern White Sand	77,460.0	100 Mesh		
				8, Proppant Laden Fluid					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				6,910.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	6,708.0	1494.00
				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Proppant - Natural	Northern White Sand	128,310.0	40/70		

Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1 Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.

5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB

01/05/2018



Regulatory Current Wellbore Schematic

MARK EDISON MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,220.0 KB 1,242.0 KB Height: 22.0
 Location: T/D UNION, Q-MOUNDSVILLE

Spud Date: 6/25/2014
 Rig Release Date: 7/10/2014
 Initial Compl. Date:
 API #: 4705101692
 CHK Property #: 837626
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 15,035.0

HORIZONTAL - Original Hole, 10/12/2017 3:49:01 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)	8, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,650.9		20 in; 94.00 lb/ft; K-55; 30.0-122.0 ftKB	6,910.0	8	Proppant Laden Fluid	15#, Linear Gel	6,708.0	1970.0
6,810.0		13 3/8 in; 54.50 lb/ft; J-55; 25.6-794.0 ftKB						
7,009.8		9 5/8 in; 40.00 lb/ft; J-55; 25.3-2,146.0 ftKB						
7,210.0								
7,437.0								
7,661.1								
7,861.9								
8,062.0								
8,263.1								
8,462.9								
8,690.0								
8,914.0								
9,113.8								
9,315.0								
9,515.1								
9,714.9								
9,941.9								
10,166.0								
10,367.1								
10,566.9								
10,768.0								
10,967.8								
11,194.9								
11,419.0								
11,619.1								
11,819.9								
12,020.0								
12,221.1								
12,446.9								
12,670.9								
12,872.0								
13,071.9								
13,273.0		Bit Sub; 14,667.5-14,668.5 ftKB; 3.72 in; pumped off hybrid tool/ production						
13,473.1		Drill Bit; 14,668.5-14,669.0 ftKB; 4 5/8 in; Pumped off hybrid tool/Production						
13,700.1		Cast Iron Bridge Plug; 14,670.0-14,672.0 ftKB; 4.78 in; Stage 1						
13,923.9		Cast Iron Bridge Plug; 14,900.0-14,902.0 ftKB; 4.78 in; Tri-States Wire Line set CIBP above Toe Sleeve.						
14,124.0								
14,325.1								
14,524.9								
14,669.9		5 1/2 in; 20.00 lb/ft; P110-HC; 30.0-15,035.0 ftKB						
14,889.1								

Stim/Treat Additives			
Add	Type	Amount	Sand Size
Proppant - Natural	Northern White Sand	209,370.0	40/70

9, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
6,910.0	9	Flush	<fluidname>, Slickwater	6,708.0	159.00

Stim/Treat Additives			
Add	Type	Amount	Sand Size

OCT 16 2017
 10:15 AM
 15.035.0

01/05/2018



Company: Chesapeake Operating, Inc Lease / Well: Mark Edison MSH 8H County/Parish: Marshall County State: WV Date: 6/26/2014 API#: 47-5101692 Dir. Company: WEATHERFORD Latitude: NA Longitude: NA	Operator: Chris Gross Job Number: SVPA-140250 Gyro Serial #: IS 173 Proposed Direction: 163.9 Mag. Declination: 8.01 WEST GRID NORTH Rig/RKB: Nomac 337 22 ft. Tie-in Company: NA X: NA Y: NA
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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	0.13	205.81	100.00	0.08	-0.10	-0.05	0.13	0.11	205.81
200.00	0.07	215.52	200.00	0.21	-0.25	-0.13	0.06	0.29	207.87
300.00	0.05	202.56	300.00	0.28	-0.34	-0.19	0.02	0.39	208.47
400.00	0.11	47.67	400.00	0.27	-0.32	-0.13	0.16	0.35	202.48
500.00	0.20	75.10	500.00	0.23	-0.21	0.11	0.11	0.24	152.94
600.00	0.33	102.37	600.00	0.37	-0.23	0.56	0.18	0.60	112.16
655.00	0.35	117.04	655.00	0.56	-0.34	0.86	0.16	0.93	111.37
	0.00	0.00							

Chris Gross
 OCT 16 2017
 Surveyor
 T. J. [unclear]

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	9/15/2014
State:	WEST VIRGINIA
County:	MARSHALL
API Number:	4705101692
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	MARK EDISON MSH 8H
Longitude:	-80.649871
Latitude:	39.976118
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,433
Total Water Volume (gal)*:	8,842,386

RECEIVED
 OCT 13 2017
 11:51 AM

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%	84.18666%	
EC6111A	NALCO	Anti-Bacterial Agent	Glutaraldehyde (Pentanediol)	000111-30-8	30.00%	0.00777%	
EC6486A	NALCO	Scale Inhibitor	Ethylene Glycol	000107-21-1	30.00%	0.00157%	
			Proprietary Amine Triphosphate	TRADE SECRET	30.00%	0.00157%	
A264, J218, J475, J580, J609, J610, L058, Acid, Hydrochloric 15pct, Acid, Hydrochloric 7.5pct, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Breaker, Corrosion Inhibitor, Cross Linker, Friction Reducer, Gelling Agent, Iron Control Agent, Acid, Proppant - Natural	Crystalline silica	14808-60-7	98.41180%	15.22291%	
			Hydrochloric acid	7647-01-0	1.03427%	0.15999%	
			Guar gum	9000-30-0	0.35998%	0.05568%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Printed:
 09/15/2014 10:53 AM
 OCT 16 2017
 10:53 AM

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
			Ammonium sulfate	7783-20-2	0.08427%	0.01304%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.06220%	0.00962%	
			Diammonium peroxodisulphate	7727-54-0	0.01790%	0.00277%	
			Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00666%	0.00103%	
			Urea	57-13-6	0.00409%	0.00063%	
			Sodium erythorbate	6381-77-7	0.00398%	0.00062%	
			Methanol	67-56-1	0.00344%	0.00053%	
			Fatty acids, tall-oil	61790-12-3	0.00240%	0.00037%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00198%	0.00031%	
			Non-crystalline silica (impurity)	7631-86-9	0.00175%	0.00027%	
			Potassium borate	1332-77-0	0.00098%	0.00015%	
			Sodium sulfate	7757-82-6	0.00095%	0.00015%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Produced Pursuant to
 Order No. 1000000000
 OCT 13 2017
 Page 1 of 1
 E:\...

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
			Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00094%	0.00015%	
			Prop-2-yn-1-ol	107-19-7	0.00063%	0.00010%	
			Potassium hydroxide	1310-58-3	0.00036%	0.00006%	
			Glycerol	56-81-5	0.00032%	0.00005%	
			Hexadec-1-ene	629-73-2	0.00021%	0.00003%	
			2-propenamid	79-06-1	0.00020%	0.00003%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00011%	0.00002%	
			1-Octadecene (C18)	112-88-9	0.00010%	0.00002%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00007%	0.00001%	
			Dimethyl siloxanes and silicones	63148-62-9	0.00006%	0.00001%	
			Formaldehyde	50-00-0	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%	
			Decamethyl cyclopentasiloxane	541-02-6	< 0.00001%	< 0.00001%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracturing Jobs
 CST 15 2017

Fracture Date:	9/15/2014
State:	WEST VIRGINIA
County:	MARSHALL
API Number:	4705101692
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	MARK EDISON MSH 8H
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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
			Copper(II) sulfate	7758-98-7	< 0.00001%	< 0.00001%	
			Dodecamethylcyclohexasiloxane	540-97-6	< 0.00001%	< 0.00001%	
			Magnesium silicate hydrate (talc)	14807-96-6	< 0.00001%	< 0.00001%	
			poly(tetrafluoroethylene)	9002-84-0	< 0.00001%	< 0.00001%	

Additional Ingredients Not Listed on MSDS							
EC6111A, EC6486A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Diethylene Glycol	000111-46-6		0.00006%	
			Proprietary Organic Acid Derivatives	TRADE SECRET		0.00183%	
			Water	007732-18-5		0.03097%	

* 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%

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,433
Total Water Volume (gal)*:	8,842,386

Produced Pursuant to
 Order No. 10300
 OCT 16 2017
 Environmental Protection
 Dept.

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
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"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.

SURFACE HOLE DEC. LONG: 80.649871
SURVEYED LONG: 80° 38' 59.5"

6,980'

Latitude: 40° 00' 00" (NAD27)

Longitude: 80° 37' 30" (NAD27)

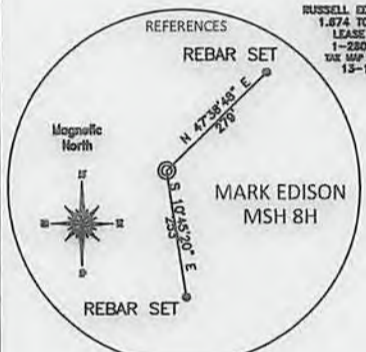
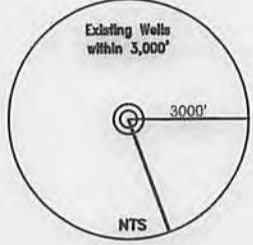
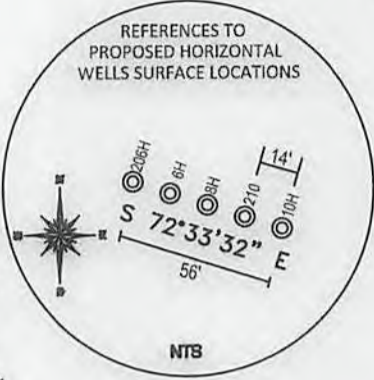
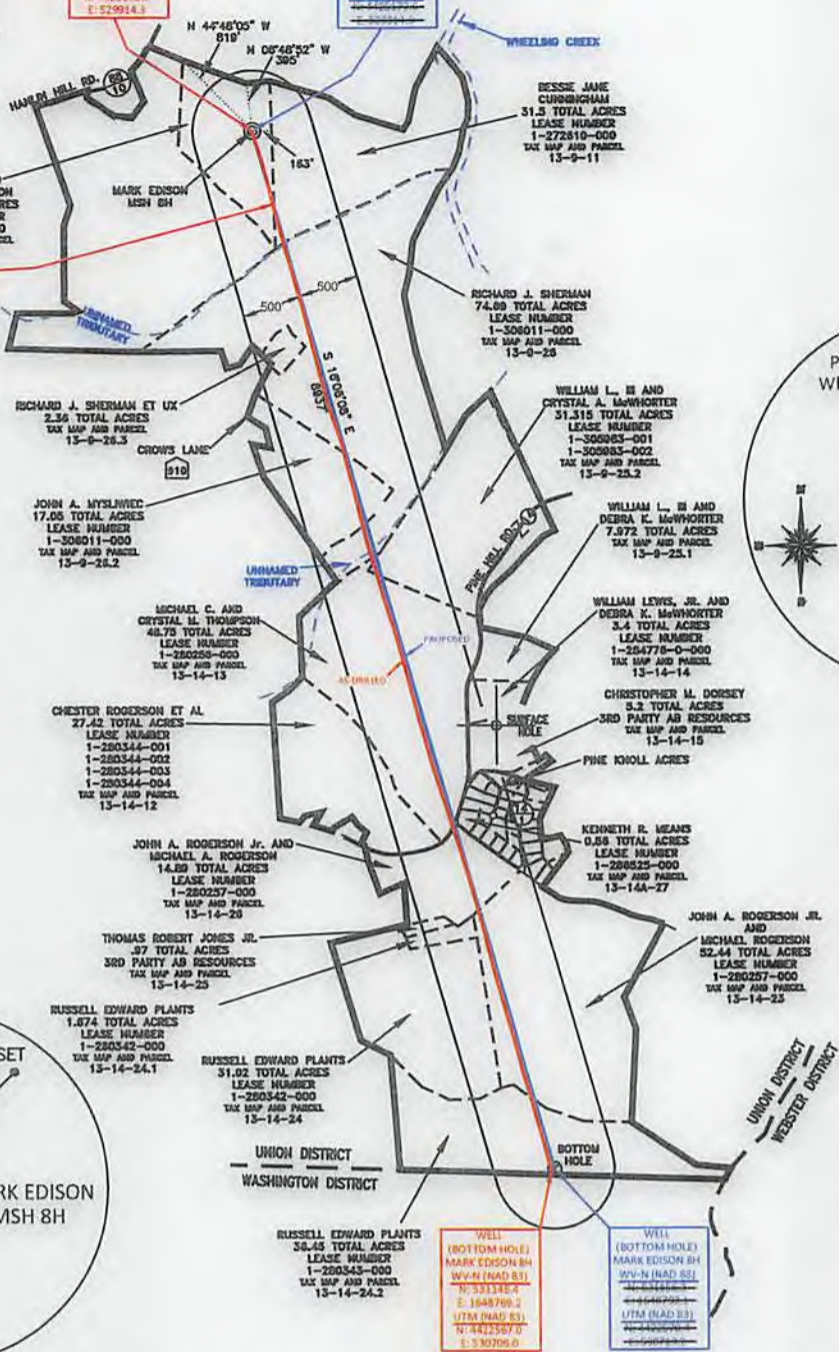
TOP HOLE (UTM NAD 83)
N) 4425173.6
E) 529914.3

BOTTOM HOLE (UTM NAD 83)
N) 4422570.4
E) 530713.2

WELL (SURFACE HOLE)
MARK EDISON 8H
WV-N (NAD 83)
N: 539742.7
E: 1648314.4
UTM (NAD 83)
N: 4425173.6
E: 529914.3

WELL (SURFACE HOLE)
MARK EDISON 8H
WV-N (NAD 83)
N: 539742.7
E: 1648314.4
UTM (NAD 83)
N: 4425173.6
E: 529914.3

WELL (LANDING POINT)
MARK EDISON 8H
WV-N (NAD 83)
N: 539136.0
E: 1646486.9
UTM (NAD 83)
N: 4427982.7
E: 529969.9



REFERENCE NOTES
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Marshall County, West Virginia JUNE 2013
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
Drafted by: EAM.

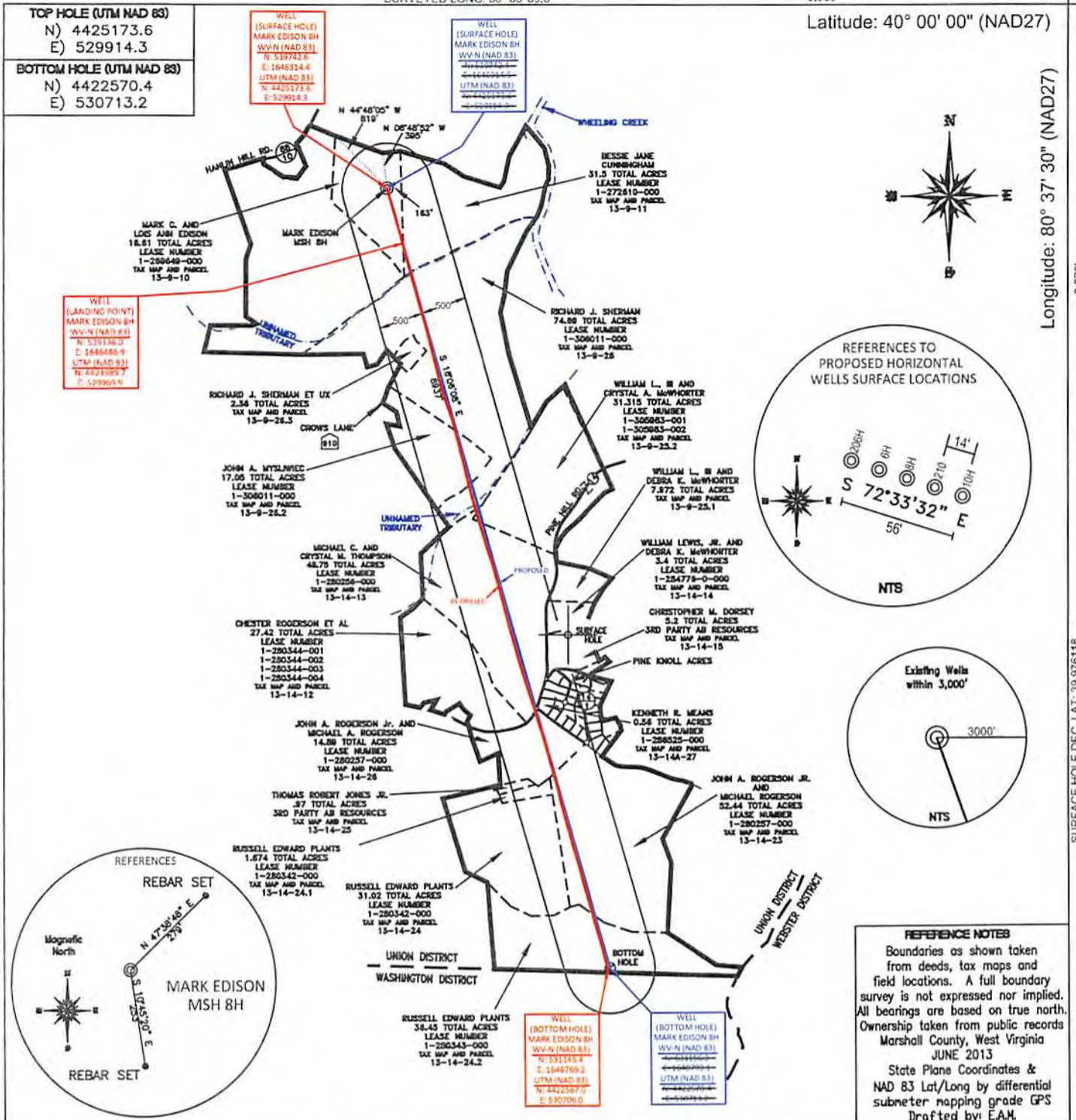
FILE #: CHE 116	I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION. Signed: L.L.S. #2124 : Ernest J. Benchek III	
DRAWING #: 2267		
SCALE: PLAT - 1" = 1600' TICK MARK - 1" = 2000'		
MINIMUM DEGREE OF ACCURACY: 1/200		
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS		

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WYDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304
Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1220'
COUNTY/DISTRICT: MARSHALL COUNTY / UNION DISTRICT QUADRANGLE: MOUNDSVILLE, WV
SURFACE OWNER: MARK C. AND LOIS ANN EDISON ACREAGE: 16.61 +/-
OIL & GAS ROYALTY OWNER: MARK C. AND LOIS ANN EDISON ACREAGE: 323.695 +/- 01/05/2018
LEASE NUMBERS: _____

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

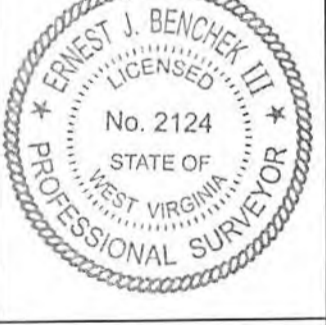
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,431.75' TMD: 15,035'
WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC DESIGNATED AGENT: JODY JONES
ADDRESS: PO BOX 18496 ADDRESS: 2321 ENERGY DRIVE
CITY: OKLAHOMA CITY STATE: OK ZIP CODE: 73154-0496 CITY: LOUISVILLE STATE: OH ZIP CODE: 44641



FILE #: CHE 116
DRAWING #: 2267
SCALE: PLAT - 1" = 1600'
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MINIMUM DEGREE OF ACCURACY: 1/200
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I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *[Signature]*
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP

OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

Well Type: Oil Waste Diposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1220'

COUNTY/DISTRICT: MARSHALL COUNTY / UNION DISTRICT QUADRANGLE: MOUNDSVILLE, WV

SURFACE OWNER: MARK C. AND LOIS ANN EDISON ACREAGE: 16.61 +/-

OIL & GAS ROYALTY OWNER: MARK C. AND LOIS ANN EDISON ACREAGE: 323.695 +/-

LEASE NUMBERS: _____

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

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01/05/2018