

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

API 47-051-101736 County Marshall District Webster
Quad Majorsville Pad Name Charles Yoho MSH Field/Pool Name _____
Farm name Charles Yoho MSH Well Number 8H
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 4418629.2 Easting 532734.5
Landing Point of Curve Northing 4418449.0 Easting 532890.2
Bottom Hole Northing 4416718.2 Easting 533780.4

Elevation (ft) 1,330' 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 9/10/2014 Date drilling commenced 9/10/2014 Date drilling ceased 10/12/2014
Date completion activities began 12/4/2014 Date completion activities ceased 12/10/2014
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 443 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,400 Void(s) encountered (Y/N) depths 875' possible void
Coal depth(s) ft 875 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

Reviewed

*Jim Nicholson 12/6/2017
via email*

01/05/2018

API 47-051 - 101736 Farm name Charles Yoho MSH Well number 8H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s) *	Did cement circulate (Y/N) Provide details below*
Conductor	24"	20"	122'	New	J-55 / 106.50#		Y
Surface	17 1/2"	13 3/8"	946'	New	J-55 / 54.5#		Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,336'	New	J-55 / 40#		Y
Intermediate 2	12 1/4"	9 5/8"	2,336'	New			
Intermediate 3							
Production	8 3/4" / 8 1/2"	5 1/2"	13,528'	New	P-110 / 20#		Y
Tubing							
Packer type and depth set							

Comment Details Cement Plug @500' in length from 2,158' MD to 1,658' MD, 17.5 ppg. class H cement slurry. 554 sacks of cement with a 0.95 ft³/sack yield, 93.5 bbls. cement pumped estimated TOC ~1,658.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	12 yards				Surface	8
Surface	Class A	140	15.60	1.20	18.72	Surface	8
Coal							
Intermediate 1	Class A	840	15.60	1.24	1,041.6	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	2,972	15.60	1.19	3,536.68	1,227'	8
Tubing							

Drillers TD (ft) 13,544' Loggers TD (ft) 13,544'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5,800'

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 _____

API 47- 051 - 101736 Farm name Charles Yoho MSH Well number 8H

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)

Please insert additional pages as applicable.

API 47-051-101736 Farm name Charles Yoho MSH Well number 8H

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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		
Base of Freshwater	-	443'			
Pittsburgh Coal	870'	920'			
Big Injun	2010'	2210'			
Geneseo	6508'	6,539'			
Tully	6539'	6,566'			
Hamilton	6566'	6,667'			
Marcellus	6667'	-			

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 _____ Title Regulatory Analyst II Date 10-12-2017

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

PERFORMANCE RECORD ATTACHMENT

Well Name and Number: Charles YOHO MSH 8H

API No.

Stage	Date	Interval Perforated		Total Number Of Shots	Date	Interval Treated	Fluid		Propping Agent		Average Injection Rate
		To	From				Amount	Type	Amount	Type	
1	12/4/2014	13,156	13,363	25	12/4/2014	13,156	SLK Wtr	4,873	Sand	332,740	80
2	12/5/2014	12,899	13,106	25	12/5/2014	12,899	SLK Wtr	4,904	Sand	331,100	80
3	12/5/2014	12,642	12,849	40	12/5/2014	12,642	SLK Wtr	9,089	Sand	331,820	79
4	12/5/2014	12,385	12,592	40	12/5/2014	12,385	SLK Wtr	7,020	Sand	331,320	71
5	12/6/2014	12,128	12,335	25	12/6/2014	12,128	SLK Wtr	4,971	Sand	331,600	74
6	12/6/2014	11,871	12,078	25	12/6/2014	11,871	SLK Wtr	4,691	Sand	331,180	75
7	12/6/2014	11,614	11,821	25	12/6/2014	11,614	SLK Wtr	4,656	Sand	331,120	80
8	12/6/2014	11,357	11,564	25	12/6/2014	11,357	SLK Wtr	4,643	Sand	332,460	79
9	12/6/2014	11,100	11,307	40	12/6/2014	11,100	SLK Wtr	8,414	Sand	310,200	59
10	12/7/2014	10,843	11,050	40	12/7/2014	10,843	SLK Wtr	8,035	Sand	331,640	59
11	12/7/2014	10,586	10,792	25	12/7/2014	10,586	SLK Wtr	4,750	Sand	331,260	80
12	12/7/2014	10,329	10,536	25	12/7/2014	10,329	SLK Wtr	4,605	Sand	332,240	80
13	12/8/2014	10,072	10,279	40	12/8/2014	10,072	SLK Wtr	6,906	Sand	331,460	78
14	12/8/2014	9,815	10,022	35	12/8/2014	9,815	SLK Wtr	4,480	Sand	332,520	78
15	12/8/2014	9,558	9,765	35	12/8/2014	9,558	SLK Wtr	4,367	Sand	330,280	78
16	12/8/2014	9,301	9,508	35	12/8/2014	9,301	SLK Wtr	4,143	Sand	332,060	76
17	12/9/2014	9,044	9,251	35	12/9/2014	9,044	SLK Wtr	6,757	Sand	331,840	72
18	12/9/2014	8,787	8,994	35	12/9/2014	8,787	SLK Wtr	4,711	Sand	331,140	80
19	12/9/2014	8,530	8,737	35	12/9/2014	8,530	SLK Wtr	4,473	Sand	330,760	75
20	12/9/2014	8,273	8,480	35	12/9/2014	8,273	SLK Wtr	4,467	Sand	332,220	80
21	12/9/2014	8,016	8,223	35	12/9/2014	8,016	SLK Wtr	4,444	Sand	332,700	80
22	12/10/2014	7,759	7,966	35	12/10/2014	7,759	SLK Wtr	4,492	Sand	332,320	80
23	12/10/2014	7,502	7,709	35	12/10/2014	7,502	SLK Wtr	4,984	Sand	332,320	80
24	12/10/2014	7,245	7,452	35	12/10/2014	7,245	SLK Wtr	4,402	Sand	331,640	80
25	12/10/2014	6,988	7,195	35	12/10/2014	6,988	SLK Wtr	4,229	Sand	324,840	80

PREPARED BY: [REDACTED]
 DATE: 12/16/2014
 TIME: 10:00 AM

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

SEARCHED
SERIALIZED
INDEXED
OCT 16 2017
FBI - OKLAHOMA

API 47- 051 - 101736 Farm name Charles Yoho MSH Well number 8H

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

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	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Middlesex	6429		6525		
Geneso	6497		6665		
Tully	6531		6754		
Hamilton	6554		6811		
Marcellus	6662		7223		

Please insert additional pages as applicable.

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Completed by Marlene Williams Telephone 405-935-4158
Signature Marlene Williams Title Regulatory Analyst II Date 10-12-2017

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

01/05/2018

007-13-0017
01/05/2018

PERFORATION RECORD ATTACHMENT

Well Name and Number: Charles YOHO MSH 8H

API No.

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	
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17	12/9/2014	9,044	9,251	35	12/9/2014	9,044	9,251	SLK Wtr	6,757	Sand	331,840	72
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01/05/2018

Charles YOHO MSH 8H
 00113207
 01/05/2018

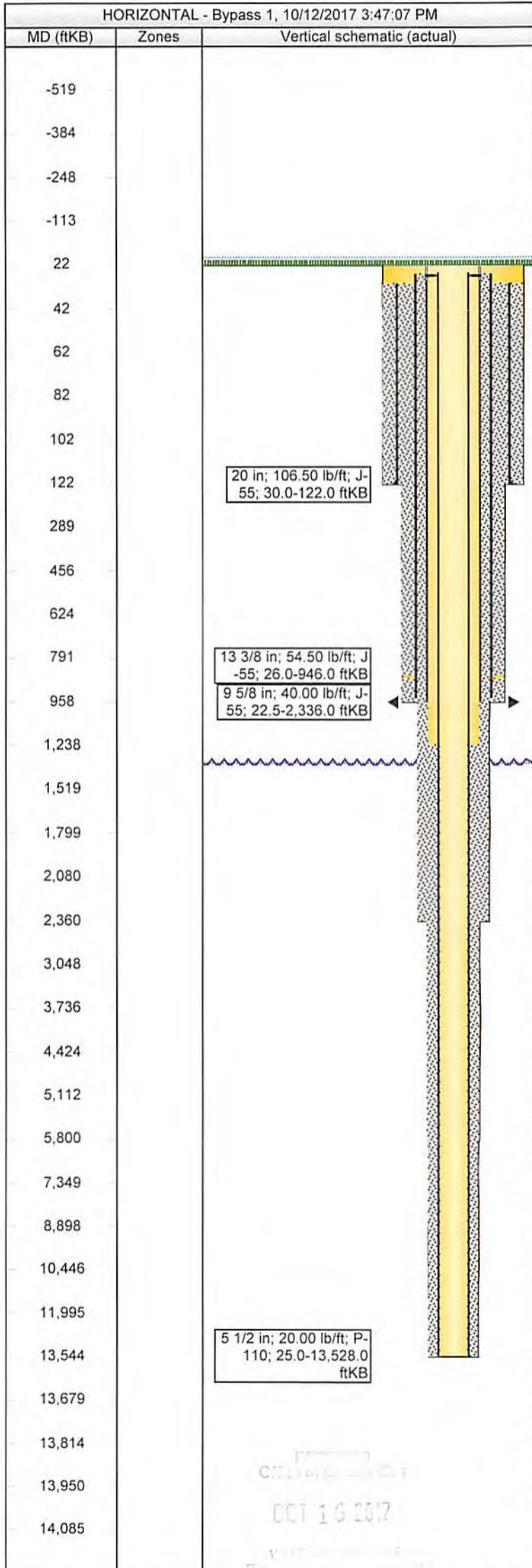
Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0



Cement					
Description: Production Casing Cement					
1,227.0-13,544.0					
Top of Cement (ftKB): 1,227 Top Measurement Method: Returns to Surface					
.0					
Fluid	Amount (sacks)	Class	Dens (lb/gal)	Vol Pumped (bbi)	Yield (ft ³ /sack)
Pre Flush			14.00	60.0	
Lead	901	A	15.30	210.0	1.20
Tail	2,071	A	15.60	363.0	1.19
Displacement			8.30	304.6	
Stimulations & Treatments					
Slickwater Frac on 12/4/2014 12:00 AM					
Date	Type	Wellbore	Zone		
12/4/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	1	Chemical Additives		13,156.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	16.0			
Acid	Acid, Hydrochloric 7.5pct	7,917.0			
Anti-Bacterial Agent	EC6110A	62.0			
Scale Inhibitor	EC6629A	11.0			
Breaker	J218	110.0			
Gelling Agent	J580	1,750.0			
Friction Reducer	J609	228.0			
Iron Control Agent	L058	42.0			
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	2	Break Down	<fluidname>, Slickwater	13,156.0	21.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	3	Acid Stage	15%, HCl Acid	13,156.0	59.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	4	Spacer	<fluidname>, Slickwater	13,156.0	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...
13,363.0	5	Acid Stage	15%, HCl Acid	13,156.0	59.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	6	Pad	<fluidname>, Slickwater	13,156.0	510.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	13,156.0	1367.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	66,160.0	100 Mesh		
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,363.0	8	Proppant Laden Fluid	15#, Linear Gel	13,156.0	2529.00

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

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 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:07 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			Proppant - Natural	Northern White Sand	266,580.0	40/70			
-384			10, Flush						
-248				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-113				13,363.0	10	Flush	<fluidname>, Slickwater	13,156.0	292.00
22				Stim/Treat Additives					
42				Add	Type	Amount	Sand Size		
62				Slickwater Frac on 12/5/2014 12:00 AM					
82				Date	Type	Wellbore	Zone		
102				12/5/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
122				Stim/Treat Stages					
289			1, Chemical Additives						
456			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
624			13,106.0	1	Chemical Additives		12,899.0		
791			Stim/Treat Additives						
958			Add	Type	Amount	Sand Size			
1,238			Corrosion Inhibitor	A264	3.0				
1,519			Acid	Acid, Hydrochloric 7.5pct	3,135.0				
1,799			Anti-Bacterial Agent	EC6110A	61.0				
2,080			Scale Inhibitor	EC6629A	10.0				
2,360			Breaker	J218	110.0				
3,048			Gelling Agent	J580	1,750.0				
3,736			Friction Reducer	J609	200.0				
4,424			Iron Control Agent	L058	9.0				
5,112			2, Break Down						
5,800			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
7,349			13,363.0	2	Break Down	<fluidname>, Slickwater	13,156.0	18.00	
8,898			Stim/Treat Additives						
10,446			Add	Type	Amount	Sand Size			
11,995			3, Acid Stage						
13,544			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,679			13,363.0	3	Acid Stage	15%, HCl Acid	13,156.0	36.00	
13,814			Stim/Treat Additives						
13,950			Add	Type	Amount	Sand Size			
14,085			4, Spacer						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			13,363.0	4	Spacer	<fluidname>, Slickwater	13,156.0	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...	
			13,363.0	5	Acid Stage	15%, HCl Acid	13,156.0	36.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			6, Pad						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			13,363.0	6	Pad	<fluidname>, Slickwater	13,156.0	408.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			7, Proppant Laden Fluid						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			13,363.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	13,156.0	1383.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	263,480.0	40/70			
			8, Proppant Laden Fluid						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			13,363.0	8	Proppant Laden Fluid	15#, Linear Gel	13,156.0	2701.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	263,480.0	40/70			

01/05/2018

OCT 13 2017

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:08 PM			Stim/Treat Stages																																									
MD (ftKB)	Zones	Vertical schematic (actual)	10, Flush																																									
-519			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																				
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-248			Stim/Treat Additives																																									
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42			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Date</th> <th style="width: 20%;">Type</th> <th style="width: 20%;">Wellbore</th> <th style="width: 20%;">Zone</th> </tr> </thead> <tbody> <tr> <td>12/5/2014</td> <td>Slickwater Frac</td> <td>Original Hole</td> <td>MARCELLUS SHALE, Bypass 1</td> </tr> </tbody> </table>						Date	Type	Wellbore	Zone	12/5/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1																												
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62		Stim/Treat Stages																																										
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Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																							
12,849.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	12,642.0	96.00																																							
13,814		Stim/Treat Additives																																										
13,950		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Add</th> <th style="width: 30%;">Type</th> <th style="width: 15%;">Amount</th> <th style="width: 10%;">Sand Size</th> </tr> </thead> <tbody> <tr> <td>Proppant - Natural</td> <td>Northern White Sand</td> <td>700.0</td> <td>100 Mesh</td> </tr> </tbody> </table>						Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	700.0	100 Mesh																													
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Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:08 PM			Stim/Treat Stages						
MD (ftKB)	Zones	Vertical schematic (actual)	7, Sweep						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
-519			12,849.0	7	Sweep	15#, Crosslinked Gel	12,642.0	1090.00	
-384			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
-248			10, Flush						
-113				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
22				12,849.0	10	Flush	<fluidname>, Slickwater	12,642.0	278.00
42			Stim/Treat Additives						
62			Add	Type	Amount	Sand Size			
82			11, Break Down						
102				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
122			12,849.0	11	Break Down	<fluidname>, Slickwater	12,642.0	12.00	
289		Stim/Treat Additives							
456		Add	Type	Amount	Sand Size				
624		12, Acid Stage							
791			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
958			12,849.0	12	Acid Stage	7.5%, HCl Acid	12,642.0	35.00	
1,238		Stim/Treat Additives							
1,519		Add	Type	Amount	Sand Size				
1,799		13, Pad							
2,080			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
2,360			12,849.0	13	Pad	<fluidname>, Slickwater	12,642.0	101.00	
3,048		Stim/Treat Additives							
3,736		Add	Type	Amount	Sand Size				
4,424		14, Proppant Laden Fluid							
5,112			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
5,800			12,849.0	14	Proppant Laden Fluid	<fluidname>, Slickwater	12,642.0	1414.00	
7,349		Stim/Treat Additives							
8,898		Add	Type	Amount	Sand Size				
10,446		Proppant - Natural	Northern White Sand	67,060.0	100 Mesh				
11,995		15, Proppant Laden Fluid							
13,544			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,679			12,849.0	15	Proppant Laden Fluid	15#, Linear Gel	12,642.0	2597.00	
13,814		Stim/Treat Additives							
13,950		Add	Type	Amount	Sand Size				
14,085		Proppant - Natural	Northern White Sand	264,060.0	40/70				
		16, Flush							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			12,849.0	16	Flush	15#, Linear Gel	12,642.0	278.00	
		Stim/Treat Additives							
		Add	Type	Amount	Sand Size				
		Slickwater Frac on 12/5/2014 12:00 AM							
		Date	Type	Wellbore	Zone				
		12/5/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1				
		Stim/Treat Stages							
		1, Chemical Additives							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			12,592.0	1	Chemical Additives		12,385.0		
		Stim/Treat Additives							
		Add	Type	Amount	Sand Size				
		Corrosion Inhibitor	A264	6.0					
		Acid	Acid, Hydrochloric 7.5pct	7,329.0					
		Anti-Bacterial Agent	EC6110A	22.0					
		Scale Inhibitor	EC6629A	16.0					
		Breaker	J218	143.0					
		Gelling Agent	J580	2,378.0					
		Friction Reducer	J609	325.0					
		Iron Control Agent	L058	19.0					

01/05/2018

OCT 13 2017



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
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 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:09 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)	2, Break Down					
-519			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-384			12,592.0	2	Break Down	<fluidname>, Slickwater	12,385.0	16.00
-248			Stim/Treat Additives					
-113			3, Acid Stage					
22			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
42			12,592.0	3	Acid Stage	15%, HCl Acid	12,385.0	34.00
62			Stim/Treat Additives					
82			4, Pad					
102			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
122			12,592.0	4	Pad	<fluidname>, Slickwater	12,385.0	420.00
289			Stim/Treat Additives					
456			5, Proppant Laden Fluid					
624			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
791		12,592.0	5	Proppant Laden Fluid	<fluidname>, Slickwater	12,385.0	368.00	
958		Stim/Treat Additives						
1,238		6, Sweep						
1,519		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
1,799		12,592.0	6	Sweep	15#, Linear Gel	12,385.0	136.00	
2,080		Stim/Treat Additives						
2,360		7, Proppant Laden Fluid						
3,048		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
3,736		12,592.0	7	Proppant Laden Fluid	<fluidname>, Crosslinked Gel	12,385.0	136.00	
4,424		Stim/Treat Additives						
5,112		8, Sweep						
5,800		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
7,349		12,592.0	8	Sweep	15#, Linear Gel	12,385.0	757.00	
8,898		Stim/Treat Additives						
10,446		10, Acid Stage						
11,995		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,544		12,592.0	10	Acid Stage	7.5%, HCl Acid	12,385.0	46.00	
13,679		Stim/Treat Additives						
13,814		11, Flush						
13,950		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
14,085		12,592.0	11	Flush	<fluidname>, Slickwater	12,385.0	383.00	
		Stim/Treat Additives						
		12, Break Down						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		12,592.0	12	Break Down	<fluidname>, Slickwater	12,385.0	28.00	
		Stim/Treat Additives						
		13, Acid Stage						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		12,592.0	13	Acid Stage	7.5%, HCl Acid	12,385.0	28.00	
		Stim/Treat Additives						

01/05/2018

Regulatory Current Wellbore Schematic



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 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:10 PM			Stim/Treat Stages						
MD (ftKB)	Zones	Vertical schematic (actual)	14, Spacer				Top (ftKB)	Clean V...	
-519			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	12,385.0	33.00	
-384			Add	Type	Amount	Sand Size			
-248			15, Acid Stage						
-113			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
22			Add	Type	Amount	Sand Size			
42			16, Pad						
62			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
82			Add	Type	Amount	Sand Size			
102			17, Proppant Laden Fluid						
122			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
289			Add	Type	Amount	Sand Size			
456			Proppant - Natural	Northern White Sand	63,307.0	100 Mesh			
624			18, Proppant Laden Fluid						
791			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
958		Add	Type	Amount	Sand Size				
1,238		Proppant - Natural	Northern White Sand	263,920.0	40/70				
1,519		19, Flush							
1,799		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
2,080		Add	Type	Amount	Sand Size				
2,360		Slickwater Frac on 12/6/2014 12:00 AM							
3,048		Date	Type	Wellbore	Zone				
3,736		12/6/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1				
4,424		Stim/Treat Stages							
5,112		1, Chemical Additives							
5,800		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
7,349		Add	Type	Amount	Sand Size				
8,898		Corrosion Inhibitor	A264	3.0					
10,446		Acid	Acid, Hydrochloric 7.5pct	3,056.0					
11,995		Anti-Bacterial Agent	EC6110A	63.0					
13,544		Scale Inhibitor	EC6629A	10.0					
13,679		Breaker	J218	132.0					
13,814		Gelling Agent	J580	1,785.0					
13,950		Friction Reducer	J609	115.0					
14,085		Iron Control Agent	L058	9.0					
		2, Break Down							
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
		Add	Type	Amount	Sand Size				
		12,335.0	2	Break Down	<fluidname>, Slickwater	12,128.0	12.00		
		Stim/Treat Additives							
		3, Acid Stage							
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
		Add	Type	Amount	Sand Size				
		12,335.0	3	Acid Stage	15%, HCl Acid	12,128.0	36.00		
		Stim/Treat Additives							
		4, Spacer							
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...		
		Add	Type	Amount	Sand Size				
		12,335.0	4	Spacer	<fluidname>, Slickwater	12,128.0	35.00		

01/05/2018



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:10 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			5, Acid Stage						
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
-248				12,335.0	5	Acid Stage	15%, HCl Acid	12,128.0	35.00
-113				Stim/Treat Additives					
22				Add	Type	Amount	Sand Size		
42				6, Pad					
62				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
82				12,335.0	6	Pad	<fluidname>, Slickwater	12,128.0	553.00
102				Stim/Treat Additives					
122				Add	Type	Amount	Sand Size		
289			7, Proppant Laden Fluid						
456			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
624			12,335.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	12,128.0	1515.00	
791			Stim/Treat Additives						
958			Add	Type	Amount	Sand Size			
1,238			Proppant - Natural	Northern White Sand	67,060.0	100 Mesh			
1,519			8, Proppant Laden Fluid						
1,799			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
2,080			12,335.0	8	Proppant Laden Fluid	15#, Linear Gel	12,128.0	2511.00	
2,360			Stim/Treat Additives						
3,048			Add	Type	Amount	Sand Size			
3,736			Proppant - Natural	Northern White Sand	264,540.0	40/70			
4,424			10, Flush						
5,112			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
5,800			12,335.0	10	Flush	<fluidname>, Slickwater	12,128.0	274.00	
7,349			Stim/Treat Additives						
8,898			Add	Type	Amount	Sand Size			
10,446			Slickwater Frac on 12/6/2014 12:00 AM						
11,995			Date	Type	Wellbore	Zone			
13,544			12/6/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
13,679			Stim/Treat Stages						
13,814			1, Chemical Additives						
13,950			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
14,085			12,078.0	1	Chemical Additives		11,871.0		
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Corrosion Inhibitor	A264	3.0				
			Acid	Acid, Hydrochloric 7.5pct	3,019.0				
			Anti-Bacterial Agent	EC6110A	59.0				
			Scale Inhibitor	EC6629A	10.0				
			Breaker	J218	132.0				
			Gelling Agent	J580	1,930.0				
			Friction Reducer	J609	80.0				
			Iron Control Agent	L058	9.0				
			2, Break Down						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			12,078.0	2	Break Down	<fluidname>, Slickwater	11,871.0	12.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			3, Acid Stage						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			12,078.0	3	Acid Stage	15%, HCl Acid	11,871.0	36.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			4, Spacer						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			12,078.0	4	Spacer	<fluidname>, Slickwater	11,871.0	32.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:11 PM		Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)					
			5, Acid Stage				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			12,078.0	5	Acid Stage	15%, HCl Acid	11,871.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			6, Pad				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			12,078.0	6	Pad	<fluidname>, Slickwater	11,871.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			7, Proppant Laden Fluid				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			12,078.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,871.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Proppant - Natural	Northern White Sand	69,860.0	100 Mesh	
			8, Proppant Laden Fluid				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			12,078.0	8	Proppant Laden Fluid	15#, Linear Gel	11,871.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Proppant - Natural	Northern White Sand	261,320.0	40/70	
			10, Flush				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			12,078.0	10	Flush	<fluidname>, Slickwater	11,871.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Slickwater Frac on 12/6/2014 12:00 AM				
			Date	Type	Wellbore	Zone	
			12/6/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1	
			1, Chemical Additives				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			11,821.0	1	Chemical Additives		11,614.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			Corrosion Inhibitor	A264	3.0		
			Acid	Acid, Hydrochloric 7.5pct	2,978.0		
			Anti-Bacterial Agent	EC6110A	58.0		
			Scale Inhibitor	EC6629A	10.0		
			Breaker	J218	132.0		
			Gelling Agent	J580	1,605.0		
			Friction Reducer	J609	72.0		
			Iron Control Agent	L058	9.0		
			2, Break Down				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			11,821.0	2	Break Down	<fluidname>, Slickwater	11,614.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			3, Acid Stage				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			11,821.0	3	Acid Stage	15%, HCl Acid	11,614.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			4, Spacer				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			11,821.0	4	Spacer	<fluidname>, Slickwater	11,614.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	
			5, Acid Stage				
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)
			11,821.0	5	Acid Stage	15%, HCl Acid	11,614.0
			Stim/Treat Additives				
			Add	Type	Amount	Sand Size	

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB

9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

OCT 19 2017

01/05/2018



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:11 PM			Stim/Treat Additives					
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size		
-519			6, Pad					
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
-248				11,821.0	6	Pad	<fluidname>, Slickwater	332.00
-113				Stim/Treat Additives				
22				7, Proppant Laden Fluid				
42				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...
62				11,821.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	1393.00
82				Stim/Treat Additives				
102				8, Proppant Laden Fluid				
122				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...
289			11,821.0	8	Proppant Laden Fluid	15#, Linear Gel	2552.00	
456			Stim/Treat Additives					
624			10, Flush					
791			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
958			11,821.0	10	Flush	<fluidname>, Slickwater	263.00	
1,238			Stim/Treat Additives					
1,519			Slickwater Frac on 12/6/2014 12:00 AM					
1,799			Date	Type	Wellbore	Zone		
2,080			12/6/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
2,360			Stim/Treat Stages					
3,048			1, Chemical Additives					
3,736			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
4,424			11,564.0	1	Chemical Additives		11,357.0	
5,112			Stim/Treat Additives					
5,800			2, Break Down					
7,349			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
8,898			11,564.0	2	Break Down	<fluidname>, Slickwater	21.00	
10,446			Stim/Treat Additives					
11,995			3, Acid Stage					
13,544			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
13,679			11,564.0	3	Acid Stage	7.5%, HCl Acid	33.00	
13,814			Stim/Treat Additives					
13,950			4, Spacer					
14,085			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
			11,564.0	4	Spacer	<fluidname>, Slickwater	36.00	
			Stim/Treat Additives					
			5, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Clean V...	
			11,564.0	5	Acid Stage	7.5%, HCl Acid	35.00	
			Stim/Treat Additives					

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB
 9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

OCT 13 2017
 Bypass 1

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:12 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)					Top (ftKB)	Clean V...
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,564.0	6	Pad	<fluidname>, Slickwater	11,357.0	287.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,564.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,357.0	1417.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	67,760.0	100 Mesh		
			8, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,564.0	8	Proppant Laden Fluid	15#, Linear Gel	11,357.0	2560.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	264,700.0	40/70		
			10, Flush					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,564.0	10	Flush	<fluidname>, Slickwater	11,357.0	254.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Slickwater Frac on 12/6/2014 12:00 AM					
			Date	Type	Wellbore	Zone		
			12/6/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
			1, Chemical Additives					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	1	Chemical Additives	<fluidname>, Slickwater	11,100.0	16.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Corrosion Inhibitor	A264	6.0			
			Acid	Acid, Hydrochloric 7.5pct	7,719.0			
			Anti-Bacterial Agent	EC6110A	105.0			
			Scale Inhibitor	EC6629A	18.0			
			Breaker	J218	209.0			
			Gelling Agent	J580	3,504.0			
			Friction Reducer	J609	393.0			
			Iron Control Agent	L058	19.0			
			2, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	2	Break Down	<fluidname>, Slickwater	11,100.0	16.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			3, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	3	Acid Stage	7.5%, HCl Acid	11,100.0	33.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			4, Spacer					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	4	Spacer	<fluidname>, Slickwater	11,100.0	31.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			5, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	5	Acid Stage	7.5%, HCl Acid	11,100.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB
 9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

OCT 18 2017

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:12 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)						
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	6	Pad	<fluidname>, Slickwater	11,100.0	413.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	11,100.0	387.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	4,748.0	100 Mesh		
			8, Sweep					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	8	Sweep	<fluidname>, Slickwater	11,100.0	219.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			10, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	10	Proppant Laden Fluid	<fluidname>, Slickwater	11,100.0	153.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	2,406.0	100 Mesh		
			11, Sweep					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	11	Sweep	<fluidname>, Slickwater	11,100.0	399.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			12, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	12	Acid Stage	7.5%, HCl Acid	11,100.0	47.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			13, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	13	Pad	<fluidname>, Slickwater	11,100.0	767.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			14, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	14	Proppant Laden Fluid	15#, Crosslinked Gel	11,100.0	314.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	5,857.0	100 Mesh		
			15, Flush					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	15	Flush	<fluidname>, Slickwater	11,100.0	385.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			16, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	16	Break Down	<fluidname>, Slickwater	11,100.0	82.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			17, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			11,307.0	17	Acid Stage	7.5%, HCl Acid	11,100.0	29.00

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB

9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

01/05/2018

OCT 13 2017

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBTD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:13 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			18, Spacer						
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
				11,307.0	18	Spacer	<fluidname>, Slickwater	11,100.0	35.00
-248				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
-113				19, Acid Stage					
22				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,307.0	19	Acid Stage	7.5%, HCl Acid	11,100.0	38.00
42				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
62				20, Pad					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,307.0	20	Pad	<fluidname>, Slickwater	11,100.0	569.00
82				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
102				21, Proppant Laden Fluid					
				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				11,307.0	21	Proppant Laden Fluid	15#, Linear Gel	11,100.0	1640.00
122			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
289			22, Proppant Laden Fluid						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,307.0	22	Proppant Laden Fluid	15#, Linear Gel	11,100.0	2521.00	
456			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
624			Proppant - Natural	Northern White Sand	55,449.0	100 Mesh			
791			23, Flush						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,307.0	23	Flush	15#, Linear Gel	11,100.0	370.00	
958			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
1,238			Proppant - Natural	Northern White Sand	241,740.0	40/70			
1,519			23, Flush						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,307.0	23	Flush	15#, Linear Gel	11,100.0	370.00	
1,799			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
2,080			Slickwater Frac on 12/7/2014 12:00 AM						
			Date	Type	Wellbore	Zone			
			12/7/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
3,048			Stim/Treat Stages						
			1, Chemical Additives						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,050.0	1	Chemical Additives		10,843.0		
4,424			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
5,112			Corrosion Inhibitor	A264	5.0				
			Acid	Acid, Hydrochloric 7.5pct	5,971.0				
5,800			Anti-Bacterial Agent	EC6110A	101.0				
			Scale Inhibitor	EC6629A	17.0				
7,349			Breaker	J218	165.0				
			Gelling Agent	J580	3,278.0				
8,898			Friction Reducer	J609	146.0				
			Iron Control Agent	L058	18.0				
10,446			2, Break Down						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,050.0	2	Break Down	<fluidname>, Slickwater	10,843.0	18.00	
11,995			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
13,544			3, Acid Stage						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			11,050.0	3	Acid Stage	7.5%, HCl Acid	10,843.0	36.00	
13,679			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
13,814			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
13,950			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
14,085			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBTD:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:13 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)	4, Spacer					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-519			11,050.0	4	Spacer	<fluidname>, Slickwater	10,843.0	35.00
-384			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
-248			5, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-113			11,050.0	5	Acid Stage	7.5%, HCl Acid	10,843.0	36.00
22			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
42			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
62			11,050.0	6	Pad	<fluidname>, Slickwater	10,843.0	317.00
82			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
102			6, Sweep					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
122		20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB	11,050.0	6	Sweep	<fluidname>, Slickwater	10,843.0	500.00
289			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
456			6, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
624			11,050.0	6	Acid Stage	7.5%, HCl Acid	10,843.0	36.00
791		13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB	Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
958		9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB	6, Sweep					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
1,238			11,050.0	6	Sweep	<fluidname>, Slickwater	10,843.0	486.00
1,519			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
1,799			6, Sweep					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
2,080			11,050.0	6	Sweep	<fluidname>, Slickwater	10,843.0	998.00
2,360			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
3,048			6, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
3,736			11,050.0	6	Break Down	<fluidname>, Slickwater	10,843.0	13.00
4,424			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
5,112			6, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
5,800			11,050.0	6	Acid Stage	7.5%, HCl Acid	10,843.0	36.00
7,349			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
8,898			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,446			11,050.0	6	Pad	<fluidname>, Slickwater	10,843.0	338.00
11,995			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
13,544		5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB	7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
13,679			11,050.0	7	Proppant Laden Fluid	15#, Linear Gel	10,843.0	2445.00
13,814			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
13,950			Proppant - Natural	Northern White Sand	67,120.0	100 Mesh		
14,085								

01/05/2018

OCT 13 2017

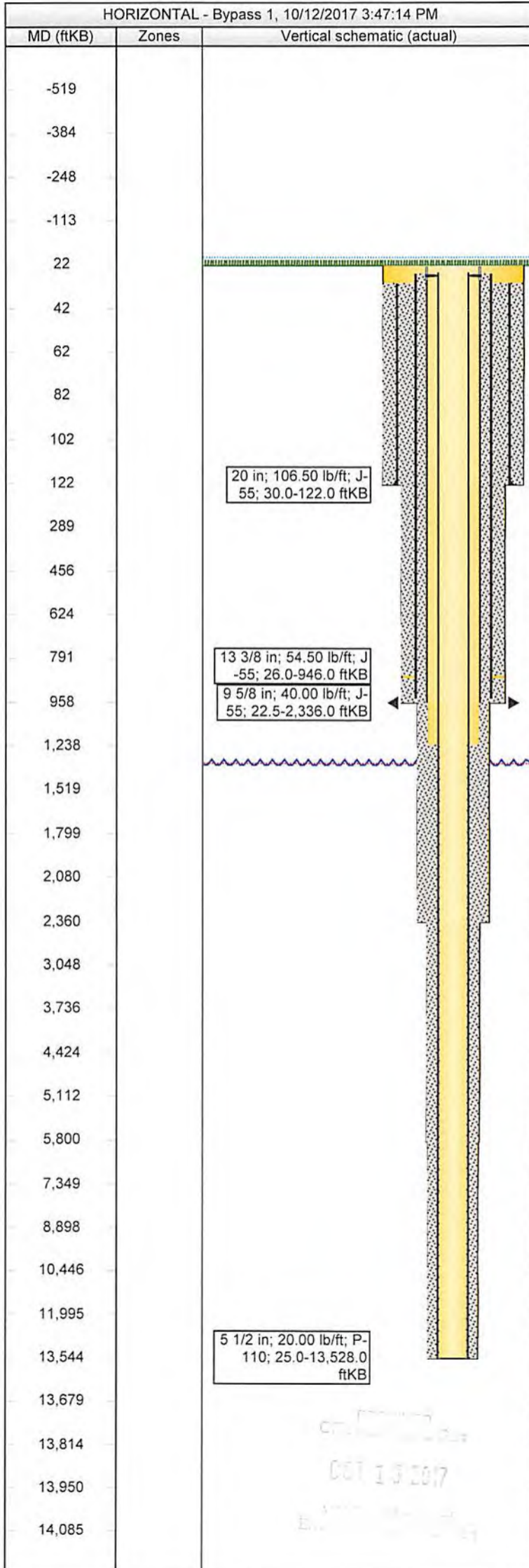


Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0



Stim/Treat Stages					
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,050.0	8	Proppant Laden Fluid	15#, Linear Gel	10,843.0	2493.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	264,520.0	40/70		
10, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
11,050.0	10	Flush	<fluidname>, Slickwater	10,843.0	248.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Slickwater Frac on 12/7/2014 12:00 AM					
Date	Type	Wellbore	Zone		
12/7/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,793.0	1	Chemical Additives		10,586.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	6.0			
Acid	Acid, Hydrochloric 7.5pct	2,990.0			
Anti-Bacterial Agent	EC6110A	60.0			
Scale Inhibitor	EC6629A	10.0			
Breaker	J218	110.0			
Gelling Agent	J580	1,274.0			
Friction Reducer	J609	199.0			
Iron Control Agent	L058	15.0			
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,793.0	2	Break Down	<fluidname>, Slickwater	10,586.0	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...
10,793.0	3	Acid Stage	15%, HCl Acid	10,586.0	36.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,793.0	4	Spacer	<fluidname>, Slickwater	10,586.0	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...
10,793.0	5	Acid Stage	15%, HCl Acid	10,586.0	45.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,793.0	6	Pad	<fluidname>, Slickwater	10,586.0	344.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
10,793.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,586.0	1403.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	67,880.0	100 Mesh		

10/05/2018

OCT 15 2017

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
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 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:14 PM			Stim/Treat Stages																																							
MD (ftKB)	Zones	Vertical schematic (actual)	8, Proppant Laden Fluid																																							
-519			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">Btm (ftKB)</th> <th style="width: 5%;">Stg #</th> <th style="width: 20%;">Stage Type</th> <th style="width: 25%;">Stim/Treat Fluid</th> <th style="width: 15%;">Top (ftKB)</th> <th style="width: 20%;">Clean V...</th> </tr> <tr> <td>10,793.0</td> <td>8</td> <td>Proppant Laden Fluid</td> <td>15#, Linear Gel</td> <td>10,586.0</td> <td>2621.0</td> </tr> </table>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,793.0	8	Proppant Laden Fluid	15#, Linear Gel	10,586.0	2621.0																											
Btm (ftKB)	Stg #		Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																				
10,793.0	8		Proppant Laden Fluid	15#, Linear Gel	10,586.0	2621.0																																				
-384			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>263,380.0</td> <td>40/70</td> </tr> </table>	Stim/Treat Additives				Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	263,380.0	40/70																											
Stim/Treat Additives																																										
Add	Type		Amount	Sand Size																																						
Proppant - Natural	Northern White Sand		263,380.0	40/70																																						
-248			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">10, Flush</th> </tr> <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>10,793.0</td> <td>10</td> <td>Flush</td> <td><fluidname>, Slickwater</td> <td>10,586.0</td> <td>236.00</td> </tr> </table>	10, Flush						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,793.0	10	Flush	<fluidname>, Slickwater	10,586.0	236.00																					
10, Flush																																										
Btm (ftKB)	Stg #		Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																				
10,793.0	10	Flush	<fluidname>, Slickwater	10,586.0	236.00																																					
-113		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
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Add	Type	Amount	Sand Size																																							
22		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Slickwater Frac on 12/7/2014 12:00 AM</th> </tr> <tr> <th>Date</th> <th>Type</th> <th>Wellbore</th> <th>Zone</th> </tr> <tr> <td>12/7/2014</td> <td>Slickwater Frac</td> <td>Original Hole</td> <td>MARCELLUS SHALE, Bypass 1</td> </tr> </table>	Slickwater Frac on 12/7/2014 12:00 AM				Date	Type	Wellbore	Zone	12/7/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1																												
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12/7/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1																																							
42		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">Stim/Treat Stages</th> </tr> <tr> <th colspan="6">1, Chemical Additives</th> </tr> <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>10,536.0</td> <td>1</td> <td>Chemical Additives</td> <td></td> <td>10,329.0</td> <td></td> </tr> </table>	Stim/Treat Stages						1, Chemical Additives						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	1	Chemical Additives		10,329.0																	
Stim/Treat Stages																																										
1, Chemical Additives																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	1	Chemical Additives		10,329.0																																						
62		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>3,010.0</td> <td></td> </tr> <tr> <td>Anti-Bacterial Agent</td> <td>EC6110A</td> <td>58.0</td> <td></td> </tr> <tr> <td>Scale Inhibitor</td> <td>EC6629A</td> <td>10.0</td> <td></td> </tr> <tr> <td>Breaker</td> <td>J218</td> <td>99.0</td> <td></td> </tr> <tr> <td>Gelling Agent</td> <td>J580</td> <td>1,035.0</td> <td></td> </tr> <tr> <td>Friction Reducer</td> <td>J609</td> <td>166.0</td> <td></td> </tr> <tr> <td>Iron Control Agent</td> <td>L058</td> <td>15.0</td> <td></td> </tr> </table>	Stim/Treat Additives				Add	Type	Amount	Sand Size	Corrosion Inhibitor	A264	6.0		Acid	Acid, Hydrochloric 7.5pct	3,010.0		Anti-Bacterial Agent	EC6110A	58.0		Scale Inhibitor	EC6629A	10.0		Breaker	J218	99.0		Gelling Agent	J580	1,035.0		Friction Reducer	J609	166.0		Iron Control Agent	L058	15.0	
Stim/Treat Additives																																										
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Iron Control Agent	L058	15.0																																								
82		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">2, Break Down</th> </tr> <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>10,536.0</td> <td>2</td> <td>Break Down</td> <td><fluidname>, Slickwater</td> <td>10,329.0</td> <td>17.00</td> </tr> </table>	2, Break Down						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	2	Break Down	<fluidname>, Slickwater	10,329.0	17.00																						
2, Break Down																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	2	Break Down	<fluidname>, Slickwater	10,329.0	17.00																																					
102		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
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122		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">3, Acid Stage</th> </tr> <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>10,536.0</td> <td>3</td> <td>Acid Stage</td> <td>15%, HCl Acid</td> <td>10,329.0</td> <td>34.00</td> </tr> </table>	3, Acid Stage						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	3	Acid Stage	15%, HCl Acid	10,329.0	34.00																						
3, Acid Stage																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	3	Acid Stage	15%, HCl Acid	10,329.0	34.00																																					
289		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
456		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">4, Spacer</th> </tr> <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>10,536.0</td> <td>4</td> <td>Spacer</td> <td><fluidname>, Slickwater</td> <td>10,329.0</td> <td>37.00</td> </tr> </table>	4, Spacer						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	4	Spacer	<fluidname>, Slickwater	10,329.0	37.00																						
4, Spacer																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	4	Spacer	<fluidname>, Slickwater	10,329.0	37.00																																					
624		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
791		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">5, Acid Stage</th> </tr> <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>10,536.0</td> <td>5</td> <td>Acid Stage</td> <td>15%, HCl Acid</td> <td>10,329.0</td> <td>41.00</td> </tr> </table>	5, Acid Stage						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	5	Acid Stage	15%, HCl Acid	10,329.0	41.00																						
5, Acid Stage																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	5	Acid Stage	15%, HCl Acid	10,329.0	41.00																																					
958		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
1,238		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">6, Pad</th> </tr> <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>10,536.0</td> <td>6</td> <td>Pad</td> <td><fluidname>, Slickwater</td> <td>10,329.0</td> <td>322.00</td> </tr> </table>	6, Pad						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	6	Pad	<fluidname>, Slickwater	10,329.0	322.00																						
6, Pad																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	6	Pad	<fluidname>, Slickwater	10,329.0	322.00																																					
1,519		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
1,799		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">7, Proppant Laden Fluid</th> </tr> <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>10,536.0</td> <td>7</td> <td>Proppant Laden Fluid</td> <td><fluidname>, Slickwater</td> <td>10,329.0</td> <td>1404.0</td> </tr> </table>	7, Proppant Laden Fluid						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	10,536.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,329.0	1404.0																						
7, Proppant Laden Fluid																																										
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...																																					
10,536.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,329.0	1404.0																																					
2,080		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>68,100.0</td> <td>100 Mesh</td> </tr> </table>	Stim/Treat Additives				Add	Type	Amount	Sand Size	Proppant - Natural	Northern White Sand	68,100.0	100 Mesh																												
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
Proppant - Natural	Northern White Sand	68,100.0	100 Mesh																																							
2,360		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
3,048		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
3,736		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
4,424		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
5,112		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
5,800		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
7,349		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
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Add	Type	Amount	Sand Size																																							
8,898		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
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Add	Type	Amount	Sand Size																																							
10,446		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
11,995		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
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Add	Type	Amount	Sand Size																																							
13,544		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
13,679		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
13,814		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
13,950		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							
14,085		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Stim/Treat Additives</th> </tr> <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>	Stim/Treat Additives				Add	Type	Amount	Sand Size																																
Stim/Treat Additives																																										
Add	Type	Amount	Sand Size																																							

10/05/2018

OCT 13 2017

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:15 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...			
-519			10,536.0	8	Proppant Laden Fluid	15#, Linear Gel	10,329.0	2521.00			
-384			Stim/Treat Additives								
-248					Add	Type	Amount	Sand Size			
-113					Proppant - Natural	Northern White Sand	264,140.0	40/70			
22			10, Flush								
42						Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
62						10,536.0	10	Flush	<fluidname>, Slickwater	10,329.0	229.00
82			Stim/Treat Additives								
102					Add	Type	Amount	Sand Size			
122			Slickwater Frac on 12/8/2014 12:00 AM								
289				Date	Type	Wellbore	Zone				
456				12/8/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1				
624		Stim/Treat Stages									
791		1, Chemical Additives									
958					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
1,238					10,279.0	1	Chemical Additives		10,072.0		
1,519		Stim/Treat Additives									
1,799				Add	Type	Amount	Sand Size				
2,080		Corrosion Inhibitor									
2,360				A264		8.0					
3,048		Acid									
3,736				Acid, Hydrochloric 7.5pct		4,452.0					
4,424		Anti-Bacterial Agent									
5,112				EC6110A		87.0					
5,800		Scale Inhibitor									
7,349				EC6629A		15.0					
8,898		Breaker									
10,446				J218		220.0					
11,995		Gelling Agent									
13,544				J580		3,634.0					
13,679		Friction Reducer									
13,814				J609		139.0					
13,950		Iron Control Agent									
14,085				L058		22.0					
		2, Break Down									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	2	Break Down	<fluidname>, Slickwater	10,072.0	16.00	
		Stim/Treat Additives									
				Add	Type	Amount	Sand Size				
		3, Acid Stage									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	3	Acid Stage	15%, HCl Acid	10,072.0	36.00	
		Stim/Treat Additives									
				Add	Type	Amount	Sand Size				
		4, Spacer									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	4	Spacer	<fluidname>, Slickwater	10,072.0	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...	
					10,279.0	5	Acid Stage	15%, HCl Acid	10,072.0	36.00	
		Stim/Treat Additives									
				Add	Type	Amount	Sand Size				
		6, Pad									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	6	Pad	<fluidname>, Slickwater	10,072.0	1439.00	
		Stim/Treat Additives									
				Add	Type	Amount	Sand Size				
		6, Sweep									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	6	Sweep	15#, Linear Gel	10,072.0	231.00	
		Stim/Treat Additives									
				Add	Type	Amount	Sand Size				
		6, Break Down									
					Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
					10,279.0	6	Break Down	<fluidname>, Slickwater	10,072.0	11.00	

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:16 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			6, Acid Stage						
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
-248				10,279.0	6	Acid Stage	15%, HCl Acid	10,072.0	36.00
-113				Stim/Treat Additives					
22				Add	Type	Amount	Sand Size		
42				6, Pad					
62				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
82				10,279.0	6	Pad	<fluidname>, Slickwater	10,072.0	364.00
102				Stim/Treat Additives					
122				Add	Type	Amount	Sand Size		
289			7, Proppant Laden Fluid						
456			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
624			10,279.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	10,072.0	1889.00	
791			Stim/Treat Additives						
958			Add	Type	Amount	Sand Size			
1,238			8, Proppant Laden Fluid						
1,519			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
1,799			10,279.0	8	Proppant Laden Fluid	15#, Linear Gel	10,072.0	2583.00	
2,080			Stim/Treat Additives						
2,360			Add	Type	Amount	Sand Size			
3,048			10, Flush						
3,736			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
4,424			10,279.0	10	Flush	<fluidname>, Slickwater	10,072.0	229.00	
5,112			Stim/Treat Additives						
5,800			Add	Type	Amount	Sand Size			
7,349			Slickwater Frac on 12/8/2014 12:00 AM						
8,898			Date	Type	Wellbore	Zone			
10,446			12/8/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
11,995			Stim/Treat Stages						
13,544			1, Chemical Additives						
13,679			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,814			10,022.0	1	Chemical Additives		9,815.0		
13,950			Stim/Treat Additives						
14,085			Add	Type	Amount	Sand Size			
			Corrosion Inhibitor	A264	6.0				
			Acid	Acid, Hydrochloric 7.5pct	3,002.0				
			Anti-Bacterial Agent	EC6110A	57.0				
			Scale Inhibitor	EC6629A	9.0				
			Breaker	J218	99.0				
			Gelling Agent	J580	1,234.0				
			Friction Reducer	J609	160.0				
			Iron Control Agent	L058	15.0				
			2, Break Down						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			10,022.0	2	Break Down	<fluidname>, Slickwater	9,815.0	16.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			3, Acid Stage						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			10,022.0	3	Acid Stage	15%, HCl Acid	9,815.0	42.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
						01/05/2018			
			4, Spacer						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			10,022.0	4	Spacer	<fluidname>, Slickwater	9,815.0	45.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
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 1st Gas Sales Date:
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 PBTD:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:16 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)	5, Acid Stage				Top (ftKB)	Clean V...
-519		<div style="position: absolute; top: 10%; left: 10%; border: 1px solid black; padding: 2px;"> 20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB </div> <div style="position: absolute; top: 40%; left: 10%; border: 1px solid black; padding: 2px;"> 13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB 9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB </div> <div style="position: absolute; top: 80%; left: 10%; border: 1px solid black; padding: 2px;"> 5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB </div>	Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-384			10,022.0	5	Acid Stage	15%, HCl Acid	9,815.0	35.00
-248			Stim/Treat Additives					
-113			Add	Type	Amount	Sand Size		
22			6, Pad					
42			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
62			10,022.0	6	Pad	<fluidname>, Slickwater	9,815.0	268.00
82			Stim/Treat Additives					
102			Add	Type	Amount	Sand Size		
122			7, Proppant Laden Fluid					
289			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
456			10,022.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	9,815.0	1396.00
624			Stim/Treat Additives					
791			Add	Type	Amount	Sand Size		
958		8, Proppant Laden Fluid						
1,238		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
1,519		10,022.0	8	Proppant Laden Fluid	15#, Linear Gel	9,815.0	2460.00	
1,799		Stim/Treat Additives						
2,080		Add	Type	Amount	Sand Size			
2,360		10, Flush						
3,048		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
3,736		10,022.0	10	Flush	<fluidname>, Slickwater	9,815.0	218.00	
4,424		Stim/Treat Additives						
5,112		Add	Type	Amount	Sand Size			
5,800		Slickwater Frac on 12/8/2014 12:00 AM						
7,349		Date	Type	Wellbore	Zone			
8,898		12/8/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
10,446		Stim/Treat Stages						
11,995		1, Chemical Additives						
13,544		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,679		9,765.0	1	Chemical Additives	<fluidname>, Slickwater	9,558.0	17.00	
13,814		Stim/Treat Additives						
13,950		Add	Type	Amount	Sand Size			
14,085		2, Break Down						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		9,765.0	2	Break Down	<fluidname>, Slickwater	9,558.0	17.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		3, Acid Stage						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		9,765.0	3	Acid Stage	7.5%, HCl Acid	9,558.0	31.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		4, Spacer						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		9,765.0	4	Spacer	<fluidname>, Slickwater	9,558.0	40.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		5, Acid Stage						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		9,765.0	5	Acid Stage	7.5%, HCl Acid	9,558.0	33.00	

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:17 PM			Stim/Treat Additives					
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size		
-519			6, Pad					
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
-248				9,765.0	6	Pad	<fluidname>, Slickwater 9,558.0 145.00	
-113				Stim/Treat Additives				
22				7, Proppant Laden Fluid				
42				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...
62				9,765.0	7	Proppant Laden Fluid	<fluidname>, Slickwater 9,558.0 1385.00	
82				Stim/Treat Additives				
102				Add	Type	Amount	Sand Size	
122				Proppant - Natural	Northern White Sand	66,320.0	100 Mesh	
289			8, Proppant Laden Fluid					
456			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
624			9,765.0	8	Proppant Laden Fluid	15#, Linear Gel 9,558.0 2502.00		
791			Stim/Treat Additives					
958			Add	Type	Amount	Sand Size		
1,238			Proppant - Natural	Northern White Sand	263,960.0	40/70		
1,519			10, Flush					
1,799			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
2,080			9,765.0	10	Flush	<fluidname>, Slickwater 9,558.0 214.00		
2,360			Stim/Treat Additives					
3,048			Add	Type	Amount	Sand Size		
3,736			Slickwater Frac on 12/8/2014 12:00 AM					
4,424			Date	Type	Wellbore	Zone		
5,112			12/8/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
5,800			Stim/Treat Stages					
7,349			1, Chemical Additives					
8,898			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
10,446			9,508.0	1	Chemical Additives	9,301.0		
11,995			Stim/Treat Additives					
13,544			Add	Type	Amount	Sand Size		
13,679			Corrosion Inhibitor	A264	3.0			
13,814			Acid	Acid, Hydrochloric 7.5pct	3,106.0			
13,950			Anti-Bacterial Agent	EC6110A	53.0			
14,085			Scale Inhibitor	EC6629A	9.0			
			Breaker	J218	110.0			
			Gelling Agent	J580	1,356.0			
			Friction Reducer	J609	167.0			
			Iron Control Agent	L058	8.0			
			2, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
			9,508.0	2	Break Down	<fluidname>, Slickwater 9,301.0 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...	
			9,508.0	3	Acid Stage	7.5%, HCl Acid 9,301.0 35.00		
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
			9,508.0	6	Pad	<fluidname>, Slickwater 9,301.0 57.00		
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB) Clean V...	
			9,508.0	7	Proppant Laden Fluid	<fluidname>, Slickwater 9,301.0 1339.00		

01/05/2018

Regulatory Current Wellbore Schematic



CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:17 PM			Stim/Treat Additives					
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size		
-519			Proppant - Natural	Northern White Sand	67,440.0	100 Mesh		
-384			8, Proppant Laden Fluid					
-248			9,508.0	8	Proppant Laden Fluid	15#, Linear Gel	9,301.0	2491.00
-113								
22								
42								
62								
82								
102								
122								
289								
456								
624								
791								
958								
1,238								
1,519								
1,799								
2,080								
2,360								
3,048								
3,736								
4,424								
5,112								
5,800								
7,349								
8,898								
10,446								
11,995								
13,544								
13,679								
13,814								
13,950								
14,085								
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	67,440.0	100 Mesh		
			8, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,508.0	8	Proppant Laden Fluid	15#, Linear Gel	9,301.0	2491.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	264,620.0	40/70		
			10, Flush					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,508.0	10	Flush	<fluidname>, Slickwater	9,301.0	206.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Slickwater Frac on 12/9/2014 12:00 AM					
			Date	Type	Wellbore	Zone		
			12/9/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
			Stim/Treat Stages					
			1, Chemical Additives					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	1	Chemical Additives		9,044.0	
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Corrosion Inhibitor	A264	3.0			
			Acid	Acid, Hydrochloric 7.5pct	3,102.0			
			Anti-Bacterial Agent	EC6110A	85.0			
			Scale Inhibitor	EC6629A	14.0			
			Breaker	J218	176.0			
			Gelling Agent	J580	2,774.0			
			Friction Reducer	J609	117.0			
			Iron Control Agent	L058	9.0			
			2, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	2	Break Down	<fluidname>, Slickwater	9,044.0	23.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			3, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	3	Acid Stage	7.5%, HCl Acid	9,044.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			4, Spacer					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	4	Spacer	<fluidname>, Slickwater	9,044.0	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...
			9,251.0	5	Acid Stage	7.5%, HCl Acid	9,044.0	35.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	6	Pad	<fluidname>, Slickwater	9,044.0	291.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			9,251.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	9,044.0	1391.00

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:18 PM			Stim/Treat Additives				
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size	
-519			Proppant - Natural	Northern White Sand	65,280.0	100 Mesh	
-384			8, Proppant Laden Fluid				
-248				8	Proppant Laden Fluid	9,044.0	761.00
-113				Stim/Treat Additives			
22				Proppant - Natural	Northern White Sand	63,924.0	40/70
42				8, Sweep			
62				8	Sweep	9,044.0	1182.00
82				Stim/Treat Additives			
102				Proppant - Natural	Northern White Sand	202,636.0	40/70
122				8, Proppant Laden Fluid			
289			8	Proppant Laden Fluid	9,044.0	2795.00	
456			Stim/Treat Additives				
624			Proppant - Natural	Northern White Sand	0.0	40/70	
791			10, Flush				
958			10	Flush	9,044.0	207.00	
1,238			Stim/Treat Additives				
1,519			Slickwater Frac on 12/9/2014 12:00 AM				
1,799			Date	Type	Wellbore	Zone	
2,080			12/9/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1	
2,360			Stim/Treat Stages				
3,048			1, Chemical Additives				
3,736			1	Chemical Additives	8,787.0		
4,424			Stim/Treat Additives				
5,112			Corrosion Inhibitor	A264	3.0		
5,800			Acid	Acid, Hydrochloric 7.5pct	3,143.0		
7,349			Anti-Bacterial Agent	EC6110A	59.0		
8,898			Scale Inhibitor	EC6629A	10.0		
10,446			Breaker	J218	110.0		
11,995			Gelling Agent	J580	1,547.0		
13,544			Friction Reducer	J609	89.0		
13,679			Iron Control Agent	L058	9.0		
13,814			2, Break Down				
13,950			2	Break Down	8,787.0	17.00	
14,085			Stim/Treat Additives				
			3, Acid Stage				
			3	Acid Stage	8,787.0	36.00	
			Stim/Treat Additives				
			4, Spacer				
			4	Spacer	8,787.0	35.00	
			Stim/Treat Additives				
			5, Acid Stage				
			5	Acid Stage	8,787.0	35.00	
			Stim/Treat Additives				

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:18 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)					Clean V...	
			6, Pad					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,994.0	6	Pad	10#, Brine Water	8,787.0	310.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,994.0	7	Proppant Laden Fluid	10#, Brine Water	8,787.0	1388.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	67,280.0	100 Mesh		
			8, Proppant Laden Fluid					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,994.0	8	Proppant Laden Fluid	15#, Linear Gel	8,787.0	2690.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	263,860.0	40/70		
			10, Flush					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,994.0	10	Flush	<fluidname>, Slickwater	8,787.0	200.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Slickwater Frac on 12/9/2014 12:00 AM					
			Date	Type	Wellbore	Zone		
			12/9/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
			1, Chemical Additives					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	1	Chemical Additives		8,530.0	
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Corrosion Inhibitor	A264	3.0			
			Acid	Acid, Hydrochloric 7.5pct	3,069.0			
			Anti-Bacterial Agent	EC6110A	56.0			
			Scale Inhibitor	EC6629A	9.0			
			Breaker	J218	88.0			
			Gelling Agent	J580	1,355.0			
			Friction Reducer	J609	92.0			
			Iron Control Agent	L058	9.0			
			2, Break Down					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	2	Break Down	<fluidname>, Slickwater	8,530.0	10.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			3, Acid Stage					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	3	Acid Stage	7.5%, HCl Acid	8,530.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			4, Spacer					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	4	Spacer	<fluidname>, Slickwater	8,530.0	35.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			5, Acid Stage					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	5	Acid Stage	7.5%, HCl Acid	8,530.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btn (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			8,737.0	6	Pad	10#, Brine Water	8,530.0	293.00

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB
 9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

OCT 13 2017

01/05/2018

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:19 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			7, Proppant Laden Fluid						
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
				8,737.0	7	Proppant Laden Fluid	10#, Brine Water	8,530.0	1403.0
									0
-248				Stim/Treat Additives					
				Add	Type	Amount	Sand Size		
				Proppant - Natural	Northern White Sand	66,620.0	100 Mesh		
-113				8, Proppant Laden Fluid					
22				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
				8,737.0	8	Proppant Laden Fluid	15#, Linear Gel	8,530.0	2468.0
								0	
42			Stim/Treat Additives						
62			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	264,140.0	40/70			
82			10, Flush						
102			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			8,737.0	10	Flush	<fluidname>, Slickwater	8,530.0	192.00	
122			Stim/Treat Additives						
289			Add	Type	Amount	Sand Size			
456			Slickwater Frac on 12/9/2014 12:00 AM						
			Date	Type	Wellbore	Zone			
			12/9/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
624			Stim/Treat Stages						
791			1, Chemical Additives						
958			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			8,480.0	1	Chemical Additives		8,273.0		
1,238			Stim/Treat Additives						
1,519			Add	Type	Amount	Sand Size			
1,799			Corrosion Inhibitor	A264	3.0				
2,080			Acid	Acid, Hydrochloric 7.5pct	3,089.0				
2,360			Anti-Bacterial Agent	EC6110A	57.0				
3,048			Scale Inhibitor	EC6629A	10.0				
3,736			Breaker	J218	110.0				
4,424			Gelling Agent	J580	1,526.0				
5,112			Friction Reducer	J609	118.0				
5,800			Iron Control Agent	L058	9.0				
7,349			2, Break Down						
8,898			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
10,446			8,480.0	2	Break Down	<fluidname>, Slickwater	8,273.0	12.00	
11,995			Stim/Treat Additives						
13,544			Add	Type	Amount	Sand Size			
13,679			3, Acid Stage						
13,814			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,950			8,480.0	3	Acid Stage	15%, HCl Acid	8,273.0	36.00	
14,085			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			4, Spacer						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			8,480.0	4	Spacer	<fluidname>, Slickwater	8,273.0	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...	
			8,480.0	5	Acid Stage	15%, HCl Acid	8,273.0	36.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			6, Pad						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			8,480.0	6	Pad	<fluidname>, Slickwater	8,273.0	309.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			

Regulatory Current Wellbore Schematic



CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:20 PM			Stim/Treat Stages					
MD (ftKB)	Zones	Vertical schematic (actual)					Clean V...	
-519			7, Proppant Laden Fluid				1399.0	
-384			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	0
-248			8,480.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	8,273.0	
-113			Stim/Treat Additives					
22			Add	Type	Amount	Sand Size		
42			Proppant - Natural	Northern White Sand	67,380.0	100 Mesh		
62			8, Proppant Laden Fluid					
82			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
102			8,480.0	8	Proppant Laden Fluid	15#, Linear Gel	8,273.0	2453.0
122			Stim/Treat Additives					
289		Add	Type	Amount	Sand Size			
456		Proppant - Natural	Northern White Sand	264,840.0	40/70			
624		10, Flush						
791		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
958		8,480.0	10	Flush	<fluidname>, Slickwater	8,273.0	186.00	
1,238		Stim/Treat Additives						
1,519		Add	Type	Amount	Sand Size			
1,799		Slickwater Frac on 12/9/2014 12:00 AM						
2,080		Date	Type	Wellbore	Zone			
2,360		12/9/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
3,048		1, Chemical Additives						
3,736		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
4,424		8,223.0	1	Chemical Additives		8,016.0		
5,112		Stim/Treat Additives						
5,800		Add	Type	Amount	Sand Size			
7,349		Corrosion Inhibitor	A264	3.0				
8,898		Acid	Acid, Hydrochloric 7.5pct	3,069.0				
10,446		Anti-Bacterial Agent	EC6110A	56.0				
11,995		Scale Inhibitor	EC6629A	9.0				
13,544		Breaker	J218	99.0				
13,679		Gelling Agent	J580	1,385.0				
13,814		Friction Reducer	J609	88.0				
13,950		Iron Control Agent	L058	9.0				
14,085		2, Break Down						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		8,223.0	2	Break Down	<fluidname>, Slickwater	8,016.0	13.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		3, Acid Stage						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		8,223.0	3	Acid Stage	7.5%, HCl Acid	8,016.0	41.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		6, Pad						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		8,223.0	6	Pad	<fluidname>, Slickwater	8,016.0	262.00	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		7, Proppant Laden Fluid						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		8,223.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	8,016.0	1426.0	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		Proppant - Natural	Northern White Sand	68,260.0	100 Mesh			
		8, Proppant Laden Fluid						
		Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
		8,223.0	8	Proppant Laden Fluid	15#, Linear Gel	8,016.0	2522.0	
		Stim/Treat Additives						
		Add	Type	Amount	Sand Size			
		Proppant - Natural	Northern White Sand	264,440.0	40/70			

01/05/2018

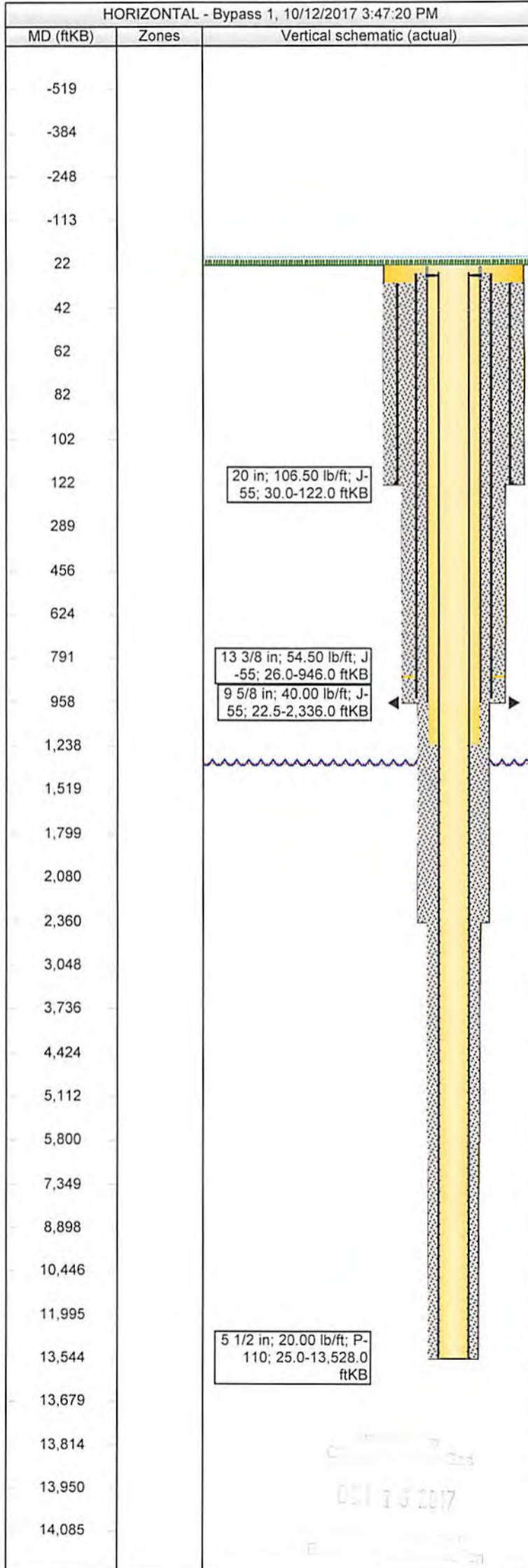
Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0



Stim/Treat Stages					
10, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
8,223.0	10	Flush	<fluidname>, Slickwater	8,016.0	180.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Slickwater Frac on 12/10/2014 12:00 AM					
Date	Type	Wellbore	Zone		
12/10/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
Stim/Treat Stages					
1, Chemical Additives					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	1	Chemical Additives		7,759.0	
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Corrosion Inhibitor	A264	3.0			
Acid	Acid, Hydrochloric 7.5pct	3,089.0			
Anti-Bacterial Agent	EC6110A	57.0			
Scale Inhibitor	EC6629A	9.0			
Breaker	J218	110.0			
Gelling Agent	J580	1,096.0			
Friction Reducer	J609	95.0			
Iron Control Agent	L058	9.0			
2, Break Down					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	2	Break Down	<fluidname>, Slickwater	7,759.0	14.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
3, Acid Stage					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	3	Acid Stage	7.5%, HCl Acid	7,759.0	36.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
4, Spacer					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	4	Spacer	<fluidname>, Slickwater	7,759.0	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...
7,966.0	5	Acid Stage	7.5%, HCl Acid	7,759.0	36.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
6, Pad					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	6	Pad	<fluidname>, Slickwater	7,759.0	249.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
7, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	7,759.0	1408.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	67,700.0	100 Mesh		
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,966.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	7,759.0	996.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	83,664.0	40/70		

01/05/2018



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:21 PM			Stim/Treat Stages						
MD (ftKB)	Zones	Vertical schematic (actual)	8, Proppant Laden Fluid						
-519			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
-384			7,966.0	8	Proppant Laden Fluid	15#, Linear Gel	7,759.0	1537.0	
-248			Stim/Treat Additives						
-113				Add	Type	Amount	Sand Size		
22				Proppant - Natural	Northern White Sand	180,956.0	40/70		
42			10, Flush						
62				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
82				7,966.0	10	Flush	<fluidname>, Slickwater	7,759.0	180.00
102			Stim/Treat Additives						
122				Add	Type	Amount	Sand Size		
289		Slickwater Frac on 12/10/2014 12:00 AM							
456			Date	Type	Wellbore	Zone			
624			12/10/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1			
791		Stim/Treat Stages							
958			1, Chemical Additives						
1,238			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
1,519			7,709.0	1	Chemical Additives		7,502.0		
1,799		Stim/Treat Additives							
2,080			Add	Type	Amount	Sand Size			
2,360			Corrosion Inhibitor	A264	3.0				
3,048			Acid	Acid, Hydrochloric 7.5pct	3,081.0				
3,736			Anti-Bacterial Agent	EC6110A	63.0				
4,424			Scale Inhibitor	EC6629A	10.0				
5,112			Breaker	J218	165.0				
5,800			Gelling Agent	J580	1,708.0				
7,349			Friction Reducer	J609	61.0				
8,898			Iron Control Agent	L058	9.0				
10,446		2, Break Down							
11,995			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,544			7,709.0	2	Break Down	<fluidname>, Slickwater	7,502.0	15.00	
13,679		Stim/Treat Additives							
13,814			Add	Type	Amount	Sand Size			
13,950		3, Acid Stage							
14,085			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,709.0	3	Acid Stage	7.5%, HCl Acid	7,502.0	36.00	
		Stim/Treat Additives							
			Add	Type	Amount	Sand Size			
		4, Spacer							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,709.0	4	Spacer	<fluidname>, Slickwater	7,502.0	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...	
			7,709.0	5	Acid Stage	7.5%, HCl Acid	7,502.0	35.00	
		Stim/Treat Additives							
			Add	Type	Amount	Sand Size			
		6, Pad							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,709.0	6	Pad	10#, Brine Water	7,502.0	196.00	
		Stim/Treat Additives							
			Add	Type	Amount	Sand Size			
		7, Proppant Laden Fluid							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,709.0	7	Proppant Laden Fluid	10#, Linear Gel	7,502.0	1956.00	
		Stim/Treat Additives							
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	67,920.0	100 Mesh			
		8, Proppant Laden Fluid							
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,709.0	8	Proppant Laden Fluid	15#, Linear Gel	7,502.0	2541.00	

01/05/2018

10/12/2017

Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H



Field: MARSHALL
 County: WEST VIRGINIA
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date: API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

HORIZONTAL - Bypass 1, 10/12/2017 3:47:21 PM			Stim/Treat Additives						
MD (ftKB)	Zones	Vertical schematic (actual)	Add	Type	Amount	Sand Size			
-519			Proppant - Natural	Northern White Sand	264,400.0	40/70			
-384			10, Flush						
-248				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
-113				7,709.0	10	Flush	<fluidname>, Slickwater	7,502.0	169.00
22				Stim/Treat Additives					
42				Add	Type	Amount	Sand Size		
62				Slickwater Frac on 12/10/2014 12:00 AM					
82				Date	Type	Wellbore	Zone		
102				12/10/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
122				Stim/Treat Stages					
289				1, Chemical Additives					
456				Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
624				7,452.0	1	Chemical Additives		7,245.0	
791				Stim/Treat Additives					
958				Add	Type	Amount	Sand Size		
1,238			Corrosion Inhibitor	A264	3.0				
1,519			Acid	Acid, Hydrochloric 7.5pct	3,143.0				
1,799			Anti-Bacterial Agent	EC6110A	55.0				
2,080			Scale Inhibitor	EC6629A	9.0				
2,360			Breaker	J218	88.0				
3,048			Gelling Agent	J580	1,054.0				
3,736			Friction Reducer	J609	66.0				
4,424			Iron Control Agent	L058	9.0				
5,112			2, Break Down						
5,800			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
7,349			7,452.0	2	Break Down	<fluidname>, Slickwater	7,245.0	17.00	
8,898			Stim/Treat Additives						
10,446			Add	Type	Amount	Sand Size			
11,995			3, Acid Stage						
13,544			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
13,679			7,452.0	3	Acid Stage	7.5%, HCl Acid	7,245.0	36.00	
13,814			Stim/Treat Additives						
13,950			Add	Type	Amount	Sand Size			
14,085			4, Spacer						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,452.0	4	Spacer	<fluidname>, Slickwater	7,245.0	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...	
			7,452.0	5	Acid Stage	7.5%, HCl Acid	7,245.0	36.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			6, Pad						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,452.0	6	Pad	<fluidname>, Slickwater	7,245.0	207.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			7, Proppant Laden Fluid						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,452.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	7,245.0	1381.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	63,924.0	40/70			
			8, Proppant Laden Fluid						
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...	
			7,452.0	8	Proppant Laden Fluid	<fluidname>, Slickwater	7,245.0	761.00	
			Stim/Treat Additives						
			Add	Type	Amount	Sand Size			
			Proppant - Natural	Northern White Sand	63,924.0	40/70			

01/05/2018



Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBDT:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE

HORIZONTAL - Bypass 1, 10/12/2017 3:47:22 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...
-519			7,452.0	8	Proppant Laden Fluid	15#, Linear Gel	7,245.0	1770.0
-384			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
-248			Proppant - Natural	Northern White Sand	199,756.0	40/70		
-113			10, Flush					
22			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
42			7,452.0	10	Flush	<fluidname>, Slickwater	7,245.0	158.00
62			Stim/Treat Additives					
82			Add	Type	Amount	Sand Size		
102			Slickwater Frac on 12/10/2014 12:00 AM					
122			Date	Type	Wellbore	Zone		
289			12/10/2014	Slickwater Frac	Original Hole	MARCELLUS SHALE, Bypass 1		
456			Stim/Treat Stages					
624			1, Chemical Additives					
791			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
958			7,195.0	1	Chemical Additives		6,988.0	
1,238			Stim/Treat Additives					
1,519			Add	Type	Amount	Sand Size		
1,799			Corrosion Inhibitor					
2,080			A264		3.0			
2,360			Acid					
3,048			Acid, Hydrochloric 7.5pct		3,143.0			
3,736			Anti-Bacterial Agent					
4,424			EC6110A		53.0			
5,112			Scale Inhibitor					
5,800			EC6629A		9.0			
7,349			Breaker					
8,898			J218		66.0			
10,446			Gelling Agent					
11,995			J580		883.0			
13,544			Friction Reducer					
13,679			J609		66.0			
13,814			Iron Control Agent					
13,950			L058		9.0			
14,085			2, Break Down					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			7,195.0	2	Break Down	<fluidname>, Slickwater	6,988.0	10.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			3, Acid Stage					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			7,195.0	3	Acid Stage	7.5%, HCl Acid	6,988.0	35.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			4, Spacer					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			7,195.0	4	Spacer	<fluidname>, Slickwater	6,988.0	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...
			7,195.0	5	Acid Stage	7.5%, HCl Acid	6,988.0	36.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			6, Pad					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			7,195.0	6	Pad	<fluidname>, Slickwater	6,988.0	141.00
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			7, Proppant Laden Fluid					
			Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
			7,195.0	7	Proppant Laden Fluid	<fluidname>, Slickwater	6,988.0	1346.0
			Stim/Treat Additives					
			Add	Type	Amount	Sand Size		
			Proppant - Natural	Northern White Sand	67,320.0	100 Mesh		

20 in; 106.50 lb/ft; J-55; 30.0-122.0 ftKB

13 3/8 in; 54.50 lb/ft; J-55; 26.0-946.0 ftKB
 9 5/8 in; 40.00 lb/ft; J-55; 22.5-2,336.0 ftKB

5 1/2 in; 20.00 lb/ft; P-110; 25.0-13,528.0 ftKB

01/05/2018

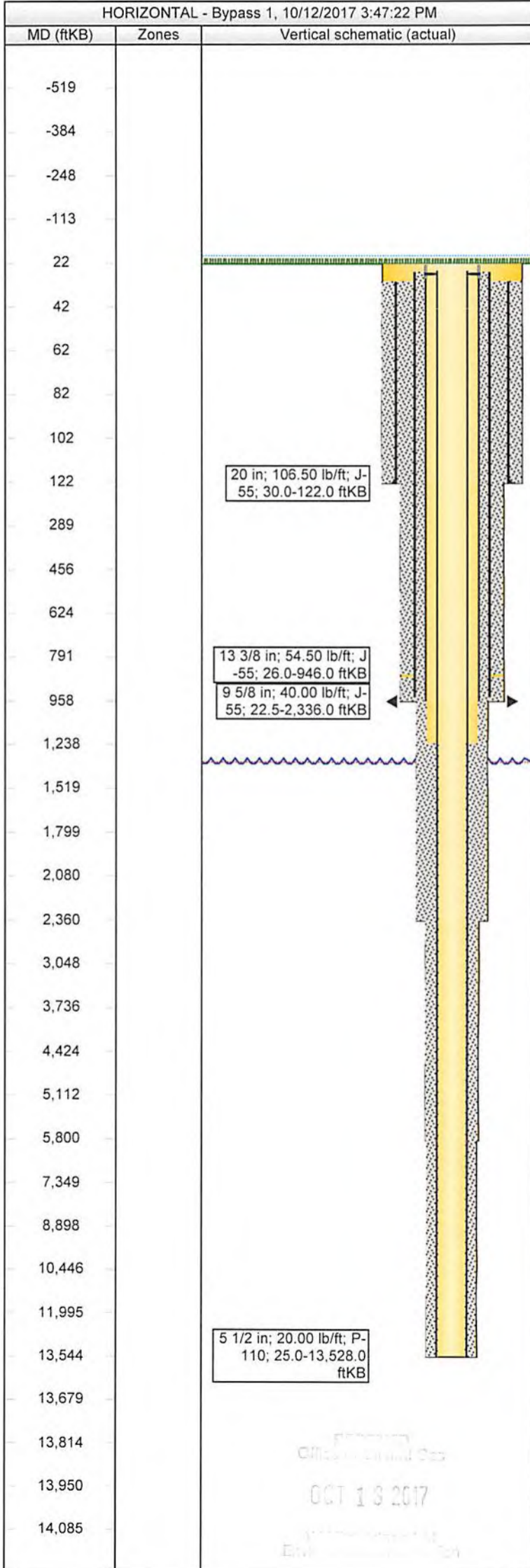


Regulatory Current Wellbore Schematic

CHARLES YOHO MSH 8H

Spud Date: 9/27/2014
 Rig Release Date: 10/15/2014
 Initial Compl. Date:
 API #: 4705101736
 CHK Property #: 838891
 1st Gas Sales Date:
 1st Oil Sales Date:
 PBD:
 TD: 13,544.0

Field:
 County: MARSHALL
 State: WEST VIRGINIA
 Elevation: GL 1,333.0 KB 1,355.0 KB Height: 22.0
 Location: T/D WEBSTER, Q-MAJORSVILLE



Stim/Treat Stages					
8, Proppant Laden Fluid					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,195.0	8	Proppant Laden Fluid	10#, Linear Gel	6,988.0	2452.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		
Proppant - Natural	Northern White Sand	257,520.0	40/70		
10, Flush					
Btm (ftKB)	Stg #	Stage Type	Stim/Treat Fluid	Top (ftKB)	Clean V...
7,195.0	10	Flush	<fluidname>, Slickwater	6,988.0	173.00
Stim/Treat Additives					
Add	Type	Amount	Sand Size		

01/05/2018

OCT 13 2017
 13,950
 13,814



Company: CHESAPEAKE
Well: CHARLES YOHO 8H

Rig Name: NOMAC 337
State/County: WEST VIRGINIA/MARSHALL
VS-Azi: 0.00 Degrees
Latitude: 39.91581, Longitude: -80.61925
Grid North = True North +0.71 degs
Grid Correction Applied = +0.71 degs



Depth Reference : RKB = 22 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: survey.ut
Minimum Curvature Method
Report Date/Time: 8/23/2017 / 10:25

VES Survey International
Morgantown, WV
304-777-2189
Surveyor: Will Clark
Charles YoHo 8H / API 47-051-01736

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
118.74	0.85	25.17	118.74	0.79	0.37	0.79	0.88	25.17	0.71
208.74	0.95	34.13	208.72	2.01	1.08	2.01	2.28	28.09	0.20
298.74	0.98	43.57	298.71	3.19	2.03	3.19	3.78	32.41	0.18
388.74	1.33	12.33	388.69	4.77	2.78	4.77	5.52	30.25	0.78
478.74	1.29	55.21	478.67	6.37	3.83	6.37	7.43	31.07	1.06
568.74	0.93	343.33	568.66	7.64	4.46	7.64	8.84	30.25	1.48
658.74	0.61	57.38	658.65	8.60	4.65	8.60	9.78	28.42	1.07
748.74	0.49	57.87	748.65	9.06	5.39	9.06	10.54	30.72	0.14
838.80	0.36	101.60	838.71	9.21	5.99	9.21	10.99	33.03	0.38
932.90	0.60	83.98	932.80	9.21	6.77	9.21	11.43	36.32	0.30
1027.00	0.52	12.78	1026.90	9.67	7.35	9.67	12.15	37.24	0.69
1121.10	0.84	336.79	1120.99	10.72	7.17	10.72	12.90	33.79	0.55
1215.20	0.93	346.42	1215.08	12.09	6.72	12.09	13.84	29.07	0.18
1309.30	0.93	345.26	1309.17	13.57	6.35	13.57	14.98	25.07	0.02
1403.40	0.67	332.65	1403.26	14.80	5.90	14.80	15.93	21.73	0.33
1497.50	0.55	329.48	1497.36	15.68	5.42	15.68	16.59	19.05	0.13
1591.60	2.41	343.64	1591.42	17.97	4.63	17.97	18.56	14.45	1.99
1685.70	6.58	342.37	1685.21	25.01	2.44	25.01	25.12	5.57	4.44

RETURNED
By: [Signature]
OCT 18 2017
01/05/2018

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1779.80	8.91	340.50	1778.66	35.48	-1.08	35.48	35.50	358.25	0.42
1873.90	10.61	356.09	1871.66	49.47	-3.57	49.47	49.60	355.88	4.63
1988.00	10.32	359.21	1964.19	66.54	-4.28	66.54	66.68	356.32	0.68
2062.10	9.81	0.44	2056.85	82.98	-4.33	82.98	83.09	357.01	0.59
2156.20	6.56	356.46	2149.98	96.36	-4.60	96.36	96.47	357.27	3.51
2250.30	5.94	352.54	2243.52	106.55	-5.56	106.55	106.70	357.01	0.79
2344.40	5.55	351.77	2337.14	115.89	-6.85	115.89	116.09	356.62	0.42
2438.50	4.32	5.37	2430.90	123.92	-7.17	123.92	124.13	356.69	1.80
2532.60	3.17	357.37	2524.79	130.04	-6.96	130.04	130.23	356.94	1.34
2626.70	2.47	352.09	2618.78	134.65	-7.36	134.65	134.85	356.87	0.79
2720.80	1.95	320.65	2712.81	137.90	-8.65	137.90	138.17	356.41	1.37
2814.90	1.59	325.33	2806.87	140.21	-10.40	140.21	140.60	355.76	0.41
2909.00	1.11	316.53	2900.94	141.95	-11.77	141.95	142.44	355.26	0.55
3003.10	1.01	324.09	2995.03	143.28	-12.88	143.28	143.86	354.88	0.19
3097.20	1.02	324.98	3089.11	144.64	-13.85	144.64	145.30	354.53	0.03
3191.30	0.91	330.92	3183.20	145.98	-14.70	145.98	146.72	354.25	0.16
3285.40	0.77	356.46	3277.29	147.27	-15.10	147.27	148.04	354.15	0.42
3379.50	0.62	337.90	3371.38	148.36	-15.33	148.36	149.15	354.10	0.29
3473.60	0.70	324.07	3465.47	149.30	-15.86	149.30	150.14	353.94	0.19
3567.70	0.81	329.66	3559.57	150.34	-16.53	150.34	151.25	353.72	0.13
3661.80	0.89	335.86	3653.66	151.58	-17.17	151.58	152.55	353.54	0.13
3755.90	0.85	344.52	3747.75	152.92	-17.65	152.92	153.94	353.42	0.15
3850.00	0.76	306.26	3841.84	153.97	-18.34	153.97	155.05	353.21	0.57
3944.10	0.60	313.51	3935.93	154.79	-19.32	154.79	155.99	352.88	0.11
4038.20	0.99	318.47	4030.02	155.85	-20.34	155.85	157.17	352.56	0.22
4132.30	0.95	325.53	4124.10	157.10	-21.32	157.10	158.54	352.27	0.13
4226.40	1.66	316.83	4218.18	158.74	-22.69	158.74	160.35	351.86	0.78
4320.50	0.87	316.21	4312.25	160.25	-24.12	160.25	162.05	351.44	0.83
4414.60	0.83	324.73	4406.34	161.32	-25.01	161.32	163.25	351.19	0.14
4508.70	0.81	311.61	4500.43	162.32	-25.90	162.32	164.37	350.93	0.20
4602.80	0.78	315.56	4594.53	163.21	-26.84	163.21	165.41	350.66	0.06
4696.90	0.85	306.79	4688.62	164.09	-27.85	164.09	166.44	350.37	0.15
4791.00	0.88	308.61	4782.71	164.96	-28.97	164.96	167.48	350.04	0.04
4885.10	1.04	314.07	4876.79	166.00	-30.15	166.00	168.72	349.71	0.20
4979.20	0.84	312.56	4970.88	167.07	-31.28	167.07	169.97	349.40	0.21
5073.30	1.03	304.85	5064.97	168.02	-32.48	168.02	171.13	349.08	0.24
5167.40	1.27	290.08	5159.05	168.86	-34.15	168.86	172.28	348.57	0.41
5261.50	1.66	276.27	5253.12	169.37	-36.49	169.37	173.25	347.84	0.55
5355.60	2.24	277.61	5347.16	169.76	-39.67	169.76	174.33	346.85	0.62
5449.70	2.61	252.32	5441.18	169.35	-43.54	169.35	174.86	345.58	1.19

00113
00113 2017
01/05/2018

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5543.80	2.79	231.40	5535.18	167.27	-47.38	167.27	173.85	344.19	1.06
5637.90	2.76	261.07	5629.17	165.49	-51.40	165.49	173.29	342.74	1.51
5732.00	4.97	228.18	5723.06	162.41	-56.68	162.41	172.02	340.76	3.24

ENGINEER
COURTNEY L. BROWN
OCT 13 2017
WID
01/05/2018
ENVIRONMENTAL ENGINEERING



Weatherford®

SURVEY REPORT

Report Date: 10/13/2014
 Customer: Chesapeake
 Job Name: 10399547
 Well Name: Charles Yoho MSH 8H

Field: Marcellus Shale
 Rig: Nomac 337
 Rig Loc: Marshall County

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	153.88 deg	52745 nT	67.15 deg	-8.70 deg	-0.71 deg	-7.99 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	5732.00 ft	4.97 deg	228.18 deg	5723.06 ft	162.29 ft	-56.72 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
5747.00	5.17	228.97	5738.00	161.41	-57.71	-170.34	1.41
5779.00	5.79	227.45	5769.85	159.38	-59.99	-169.51	1.99
5810.00	5.09	202.65	5800.72	157.05	-61.67	-168.16	7.84
5842.00	5.30	156.38	5832.60	154.38	-61.63	-165.75	12.76
5873.00	8.05	125.68	5863.40	151.80	-59.29	-162.40	14.23
5905.00	9.57	118.14	5895.02	149.24	-55.12	-158.27	5.96
5936.00	10.46	135.62	5925.55	146.01	-50.88	-153.50	10.17
5968.00	11.60	129.35	5956.96	141.90	-46.36	-147.82	5.17
5999.00	12.80	113.77	5987.27	138.54	-40.81	-142.35	11.26
6031.00	14.32	101.42	6018.39	136.32	-33.68	-137.23	10.19
6062.00	15.82	93.78	6048.32	135.29	-25.71	-132.79	8.02
6093.00	15.80	91.90	6078.15	134.87	-17.27	-128.70	1.65
6125.00	15.44	92.46	6108.97	134.54	-8.66	-124.61	1.22
6156.00	15.12	97.60	6138.87	133.83	-0.53	-120.40	4.49
6188.00	16.65	104.95	6169.65	132.09	8.04	-115.07	7.89
6219.00	19.46	109.74	6199.12	129.20	17.19	-108.44	10.24
6250.00	22.22	112.64	6228.09	125.20	27.46	-100.33	9.50
6282.00	24.72	115.57	6257.45	119.98	39.08	-90.52	8.62
6313.00	26.36	120.35	6285.42	113.71	50.87	-79.70	8.49
6345.00	28.07	123.06	6313.88	106.01	63.31	-67.31	6.60
6377.00	29.76	128.09	6341.89	97.00	75.88	-53.69	9.25
6408.00	32.33	129.82	6368.45	86.95	88.30	-39.19	8.77
6440.00	35.01	130.99	6395.08	75.44	101.80	-22.92	8.62
6471.00	37.24	132.13	6420.12	63.32	115.48	-6.01	7.51
6502.00	40.10	132.02	6444.32	50.34	129.85	11.97	9.23
6534.00	42.01	132.38	6468.45	36.22	145.42	31.50	6.01
6565.00	44.68	133.36	6490.99	21.74	161.01	51.36	8.88
6597.00	47.14	134.65	6513.25	5.77	177.54	72.98	8.21
6628.00	49.50	139.28	6533.87	-11.15	193.31	95.12	13.50
6660.00	52.83	143.69	6553.94	-30.66	208.81	119.46	14.95
6691.00	56.67	147.13	6571.83	-51.50	223.16	144.49	15.35
6723.00	59.56	148.68	6588.74	-74.52	237.59	171.51	9.92
6754.00	62.22	149.17	6603.82	-97.72	251.57	198.49	8.69
6785.00	64.88	149.71	6617.62	-121.61	265.68	226.16	8.72
6817.00	66.95	150.05	6630.68	-146.88	280.34	255.30	6.54
6848.00	68.05	150.02	6642.54	-171.69	294.64	283.88	3.55
6880.00	69.39	149.58	6654.16	-197.46	309.64	313.62	4.38
6911.00	71.71	149.81	6664.48	-222.70	324.39	342.77	7.52
6943.00	75.39	151.09	6673.54	-249.39	339.52	373.40	12.12

Depth (ft)	Inc (deg)	Azimuth (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
6974.00	78.22	152.14	6680.61	-275.94	353.86	403.55	9.71
7006.00	81.69	151.89	6686.20	-303.76	368.65	435.04	10.87
7037.00	84.57	151.44	6689.90	-330.85	383.25	465.79	9.40
7069.00	85.96	150.52	6692.54	-358.74	398.72	497.64	5.20
7163.00	89.20	151.11	6696.51	-440.72	444.51	591.41	3.50
7257.00	88.48	149.85	6698.42	-522.50	490.82	685.22	1.54
7352.00	91.10	151.85	6698.76	-605.45	537.09	780.08	3.47
7446.00	92.41	152.26	6695.89	-688.45	581.12	873.98	1.46
7541.00	92.38	152.35	6691.92	-772.50	625.23	968.86	0.10
7635.00	89.41	154.46	6690.45	-856.53	667.30	1062.83	3.88
7729.00	88.67	153.69	6692.02	-941.05	708.39	1156.82	1.14
7821.00	87.36	153.45	6695.21	-1023.39	749.31	1248.76	1.45
7915.00	88.67	154.37	6698.47	-1107.75	790.63	1342.70	1.70
8009.00	87.97	154.94	6701.22	-1192.67	830.85	1436.65	0.96
8103.00	90.49	154.42	6702.48	-1277.62	871.04	1530.62	2.74
8198.00	89.93	154.81	6702.14	-1363.45	911.77	1625.61	0.72
8291.00	89.11	154.52	6702.92	-1447.50	951.56	1718.60	0.94
8382.00	88.64	154.55	6704.70	-1529.64	990.68	1809.58	0.52
8477.00	88.60	155.11	6706.99	-1615.60	1031.07	1904.54	0.59
8571.00	88.78	155.13	6709.14	-1700.85	1070.61	1998.49	0.19
8666.00	88.31	155.46	6711.55	-1787.13	1110.30	2093.43	0.60
8760.00	89.77	154.61	6713.13	-1872.33	1149.97	2187.39	1.80
8855.00	89.83	154.64	6713.46	-1958.17	1190.68	2282.39	0.07
8949.00	89.49	154.87	6714.02	-2043.19	1230.77	2376.37	0.44
9044.00	89.11	155.03	6715.18	-2129.24	1270.99	2471.35	0.43
9138.00	89.06	154.76	6716.68	-2214.35	1310.87	2565.32	0.29
9232.00	89.48	154.66	6717.87	-2299.34	1351.02	2659.30	0.46
9327.00	89.32	155.28	6718.87	-2385.41	1391.21	2754.28	0.67
9421.00	88.86	153.34	6720.36	-2470.10	1431.95	2848.26	2.12
9516.00	88.72	153.78	6722.37	-2555.15	1474.24	2943.24	0.49
9611.00	89.97	153.67	6723.45	-2640.32	1516.29	3038.23	1.32
9706.00	89.00	154.02	6724.31	-2725.59	1558.17	3133.23	1.09
9800.00	89.07	154.19	6725.89	-2810.14	1599.21	3227.21	0.20
9895.00	88.83	153.40	6727.63	-2895.36	1641.16	3322.19	0.87
9990.00	88.53	153.89	6729.82	-2980.47	1683.32	3417.17	0.60
10084.00	89.79	151.56	6731.20	-3064.00	1726.39	3511.13	2.82
10179.00	90.07	151.25	6731.32	-3147.41	1771.86	3606.04	0.44
10272.00	89.93	151.51	6731.32	-3229.05	1816.40	3698.95	0.32
10366.00	89.56	151.40	6731.73	-3311.62	1861.32	3792.87	0.41
10459.00	89.20	154.01	6732.74	-3394.25	1903.96	3885.83	2.83
10553.00	89.42	154.71	6733.87	-3478.99	1944.63	3979.82	0.78
10648.00	89.27	154.82	6734.96	-3564.92	1985.13	4074.81	0.20
10742.00	88.79	155.49	6736.55	-3650.20	2024.62	4168.77	0.88
10836.00	88.13	154.77	6739.08	-3735.46	2064.14	4262.71	1.04
10931.00	90.44	154.83	6740.26	-3821.40	2104.58	4357.69	2.43
11026.00	90.12	154.15	6739.80	-3907.14	2145.50	4452.68	0.79
11120.00	87.96	153.13	6741.37	-3991.35	2187.22	4546.66	2.54
11211.00	87.33	153.79	6745.11	-4072.69	2227.85	4637.58	1.00
11305.00	89.81	153.00	6747.46	-4156.70	2269.93	4731.54	2.77
11400.00	89.23	152.90	6748.25	-4241.31	2313.13	4826.52	0.62
11494.00	89.34	154.42	6749.43	-4325.54	2354.83	4920.51	1.62
11589.00	88.62	154.59	6751.12	-4411.27	2395.72	5015.49	0.78
11683.00	89.79	154.54	6752.42	-4496.15	2436.09	5109.47	1.25

01/05/2018

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11777.00	89.11	154.05	6753.32	-4580.84	2476.85	5203.46	0.89
11871.00	89.98	152.74	6754.07	-4664.89	2518.95	5297.45	1.67
11965.00	88.86	150.60	6755.02	-4747.62	2563.55	5391.37	2.57
12059.00	89.49	151.95	6756.37	-4830.04	2608.72	5485.26	1.58
12154.00	90.82	150.05	6756.12	-4913.12	2654.77	5580.14	2.44
12247.00	90.49	153.20	6755.05	-4994.93	2698.96	5673.05	3.41
12342.00	89.56	152.90	6755.01	-5079.61	2742.02	5768.03	1.03
12436.00	90.00	153.84	6755.37	-5163.64	2784.15	5862.03	1.10
12530.00	88.83	152.22	6756.33	-5247.41	2826.78	5956.01	2.13
12624.00	89.60	153.29	6757.62	-5330.97	2869.81	6049.98	1.40
12719.00	90.93	153.97	6757.18	-5416.08	2912.00	6144.98	1.57
12813.00	90.61	153.85	6755.92	-5500.50	2953.34	6238.97	0.36
12908.00	90.00	155.83	6755.41	-5586.48	2993.72	6333.95	2.18
13002.00	89.41	155.55	6755.90	-5672.14	3032.42	6427.90	0.69
13096.00	89.28	155.56	6756.97	-5757.71	3071.31	6521.85	0.14
13190.00	88.90	155.94	6758.46	-5843.40	3109.92	6615.79	0.57
13284.00	88.92	156.00	6760.25	-5929.24	3148.19	6709.71	0.07
13379.00	88.85	156.57	6762.10	-6016.20	3186.39	6804.61	0.60
13484.00	88.24	155.83	6764.77	-6112.24	3228.75	6909.49	0.91
Projected to Total Depth:							
13544.00	88.24	155.83	6766.61	-6166.96	3253.30	6969.42	0.00

Vertical Section is 6969.42 ft along the target direction of 153.88 deg at a measured depth of 13544.00 ft.
Horizontal Displacement is 6972.47 ft along the well bore azimuth of 152.19 deg.
The total correction is -7.99 deg relative to Grid North.

01/05/2018
00:15:07

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	12/4/2014
State:	WEST VIRGINIA
County:	MARSHALL
API Number:	4705101736
Operator Name:	SWN PRODUCTION CO LLC
Well Name and Number:	CHARLES YOHO MSH 8H
Longitude:	-80.617173
Latitude:	39.917049
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,767
Total Water Volume (gal)*:	6,358,800

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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
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	84.37982%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00123%	
			Glutaraldehyde (Pentanediol)	000111-30-8	60.00%	0.01479%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00247%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
A264, J218, J580, J609, L058, Acid, Hydrochloric 7.5pct, Northern White Sand, 100 Mesh Sand	SCHLUMBERGER	Breaker, Corrosion Inhibitor, Friction Reducer, Gelling Agent, Iron Control Agent, Acid, Proppant- Natural	Crystalline silica	14808-60-7	98.01803%	15.31059%	
			Hydrochloric acid	7647-01-0	1.14232%	0.17843%	
			Guar gum	9000-30-0	0.53723%	0.08392%	
			Ammonium sulfate	7783-20-2	0.09355%	0.01461%	
			Acrylamide, 2-acrylamido-2-methylpropanesulfonic acid, sodium salt polymer	38193-60-1	0.06905%	0.01079%	
			Calcium chloride	10043-52-4	0.06105%	0.00954%	
			Diammonium peroxidisulphate	7727-54-0	0.03826%	0.00598%	

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Polymer of 2-acrylamido-2-methylpropanesulfonic acid sodium salt and methyl acrylate	136793-29-8	0.00740%	0.00116%	
Urea	57-13-6	0.00454%	0.00071%	
Potassium borate	1332-77-0	0.00448%	0.00070%	
Sodium erythorbate	6381-77-7	0.00378%	0.00059%	
Potassium chloride	7447-40-7	0.00360%	0.00056%	
Methanol	67-56-1	0.00340%	0.00053%	
Fatty acids, tall-oil	61790-12-3	0.00237%	0.00037%	
Non-crystalline silica (impurity)	7631-86-9	0.00229%	0.00036%	
Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.00196%	0.00031%	
Potassium hydroxide	1310-58-3	0.00166%	0.00026%	
Glycerol	56-81-5	0.00146%	0.00023%	
Sodium chloride	7647-14-5	0.00110%	0.00017%	
Sodium sulfate	7757-82-6	0.00106%	0.00017%	
Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00093%	0.00014%	
Propargyl alcohol	107-19-7	0.00062%	0.00010%	
Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00029%	0.00005%	
2-propenamid	79-06-1	0.00023%	0.00004%	
Hexadec-1-ene	629-73-2	0.00021%	0.00003%	
Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00012%	0.00002%	
1-Octadecene (C18)	112-88-9	0.00010%	0.00002%	
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%	
Magnesium silicate hydrate (talc)	14807-96-6	0.00001%	< 0.00001%	
Octamethylcyclotetrasiloxane	556-67-2	0.00001%	< 0.00001%	
Decamethyl cyclopentasiloxane	541-02-6	< 0.00001%	< 0.00001%	
poly(tetrafluoroethylene)	9002-84-0	< 0.00001%	< 0.00001%	
Dodecamethylcyclohexasiloxane	540-97-6	< 0.00001%	< 0.00001%	
Copper(II) sulfate	7758-98-7	< 0.00001%	< 0.00001%	

Printed on 10/16/2017
 10/16/2017
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Additional Ingredients Not Listed on MSDS						
EC6110A, EC6629A	NALCO	Anti-Bacterial Agent, Scale Inhibitor	Methanol (Methyl Alcohol)	000067-56-1		0.00555%
			Proprietary Acrylate Polymer	TRADE SECRET		0.00555%
			Proprietary Quaternary Ammonium Salt	TRADE SECRET		0.00555%
			Water	007732-18-5		0.02374%

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

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

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

01/05/2018

01/05/2018
14:00:00
14:00:00
14:00:00

SURFACE HOLE DEC. LONG: 80.61713
 SURVEYED LONG: 80° 37' 01.8"

9,500'

Latitude: 39° 57' 30" (NAD27)

Longitude: 80° 35' 00" (NAD27)

TOP HOLE (UTM NAD 83) N) 4418629.2 E) 532734.6	A MICHAEL R. MAGERS ET UX 15-14-7.2 LEASE NUMBER 8 1.05 AC
	B MICHAEL R. AND DANA S. MAGERS 15-14-7.3 LEASE NUMBER 9 3.389 AC
	C CINDY KAY McNIER 15-14-13.3 LEASE NUMBER 10 1.816 AC

BOTTOM HOLE (UTM NAD 83) N) 4416767.5 E) 533758.2
--

NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD

① N 89°17'42" W 962'
② S 86°57'13" W 942'
③ S 30°49'59" W 685'

WELL (SURFACE HOLE) CHARLES YOHO MSH 8H WV-N (NAD 83) N: 518112.2 E: 1655210.0 UTM (NAD 83) N: 4418629.2 E: 532734.6

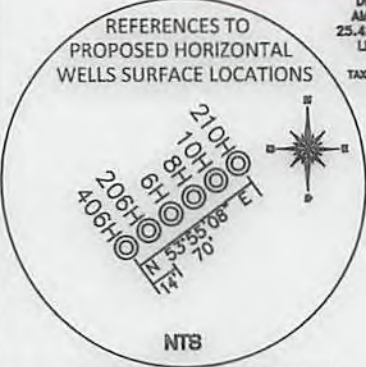
WELL (LANDING POINT) CHARLES YOHO MSH 8H WV-N (NAD 83) N: 517512.3 E: 1655710.7 UTM (NAD 83) N: 4418449.0 E: 532890.2
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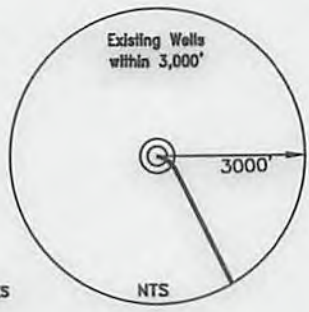
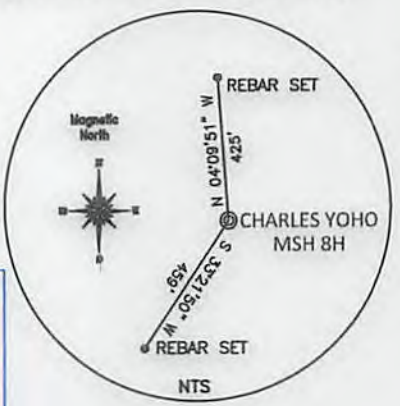
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WELL (BOTTOM HOLE) CHARLES YOHO MSH 8H WV-N (NAD 83) N: 511783.8 E: 1658536.8 UTM (NAD 83) N: 4416718.2 E: 533780.4
--



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: E.A.M.



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



FILE #: CHE 119
DRAWING #: 2276
SCALE: PLAT - 1" = 1200' 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
 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
 COUNTY/DISTRICT: MARSHALL/WEBSTER
 SURFACE OWNER: DOROTHY L. YOHO
 OIL & GAS ROYALTY OWNER: DOROTHY L. YOHO
 LEASE NUMBERS:

DATE: OCTOBER 4, 2017
 OPERATOR'S WELL #: CHARLES YOHO MSH 8H
 API WELL #: 47 51
 STATE COUNTY PERMIT

ASBUILT ELEVATION: 1330'
 QUADRANGLE: MAJORSVILLE, WV
 ACREAGE: 84.25 +/-
 ACREAGE: 439.65 +/-

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: 6,7661.61' TMD: 7,163'
 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

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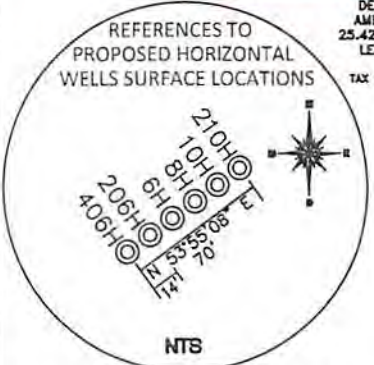
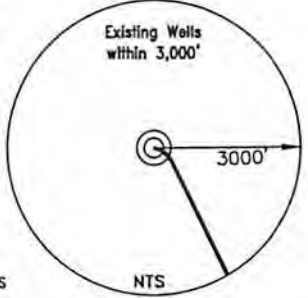
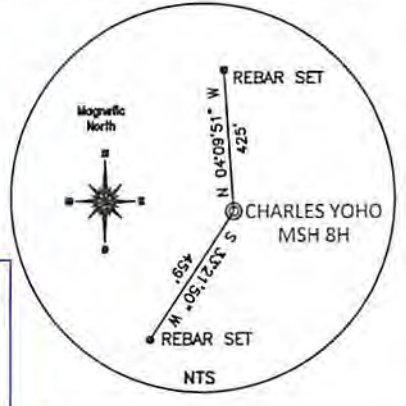
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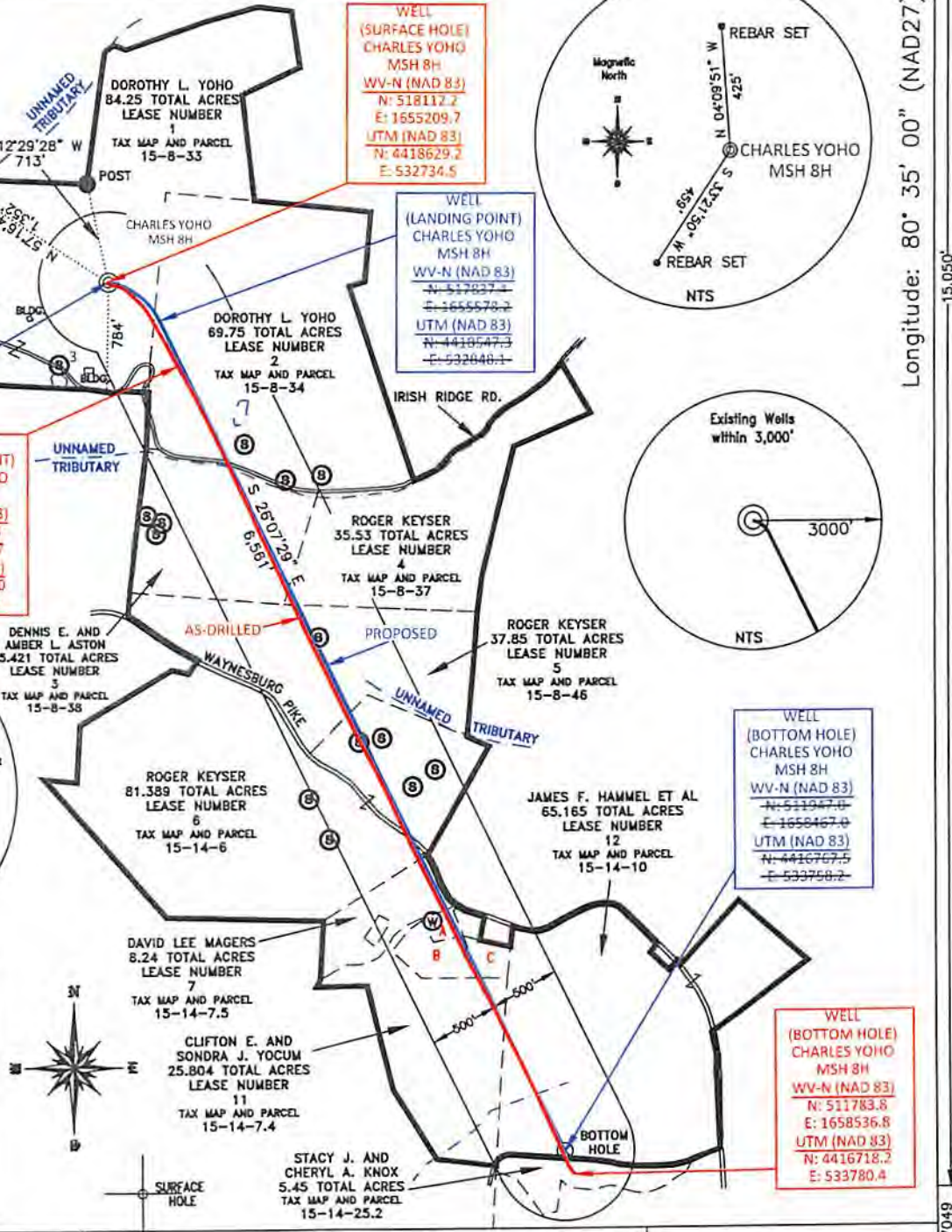
WELL (LANDING POINT) CHARLES YOHO MSH 8H
 WV-N (NAD 83)
 N: 517827.4
 E: 1655578.2
 UTM (NAD 83)
 N: 4418547.3
 E: 532848.1

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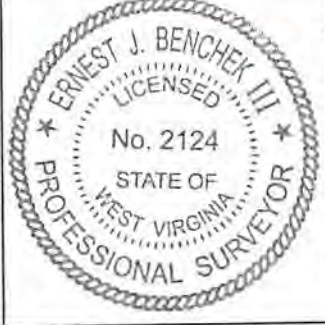


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