



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Monday, June 8, 2020
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359

SPRING, TX 773914954

Re: Permit Modification Approval for CHARLES JAMISON MSH 10H
47-051-02301-00-00

Modified type and size of production casing to 6".

SWN PRODUCTION COMPANY, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

A blue ink signature of James A. Martin, written in a cursive style. The signature is positioned to the right of the name and title, and partially overlaps the text of the permit details below.

Operator's Well Number: CHARLES JAMISON MSH 10H
Farm Name: CHARLES AND JEAN JAMISON
U.S. WELL NUMBER: 47-051-02301-00-00
Horizontal 6A New Drill
Date Modification Issued: June 5, 2020

Promoting a healthy environment.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: SWN Production Co., LLC 494512924 Marshall 7-Liberty 278-Cameron
Operator ID County District Quadrangle

2) Operator's Well Number: Charles Jamison MSH 10H Well Pad Name: Charles Jamison MSH

3) Farm Name/Surface Owner: Charles & Jean Jamison Public Road Access: Grapevine Ridge Drive

4) Elevation, current ground: 1358' Elevation, proposed post-construction: 1335'

5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____

(b) If Gas Shallow Deep _____
Horizontal *JM* 5/27/2020

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Down-Dip Well to the South, Target Top TVD- 7283', Target Base TVD- 7327', Anticipated Thickness- 44', Associated Pressure- 4763

8) Proposed Total Vertical Depth: 7309'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 23,875'

11) Proposed Horizontal Leg Length: 15,858.91'

12) Approximate Fresh Water Strata Depths: 326'

13) Method to Determine Fresh Water Depths: Covered water wells within radius, unknown depth, surface elevation correlates to 325' TVD, less than alternate min

14) Approximate Saltwater Depths: 1121' Salinity Profile

15) Approximate Coal Seam Depths: 1119'

16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No _____

(a) If Yes, provide Mine Info: Name: McElroy Mine/Marshall County Mine
Depth: 1060'
Seam: Pittsburgh
Owner: Murray Energy Corporation

*Rec via
email
5/27/20
JA*

WW-6B
(04/15)

API NO. 47- 051 - 0230 (MWD)
 OPERATOR WELL NO. Charles Jamison MSH 10H
 Well Pad Name: Charles Jamison MSH

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	H-40	48#	440'	440'	427 sx/CTS
Coal	See	Interm	Casing				
Intermediate	9 5/8"	New	J-55	36#	2617'	2617'	1020 sx/CTS
Production	6"	New	HP-110	24#	0'	4400'	
Production	5 1/2"	New	HP-110	20#	4400'	23,875'	Lead 551sx tall 4196sx/100' inside interval
Liners							

JM 5/27/2020

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	See	Interm. Casing					
Intermediate	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/50% Excess
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

Southwestern Energy Company

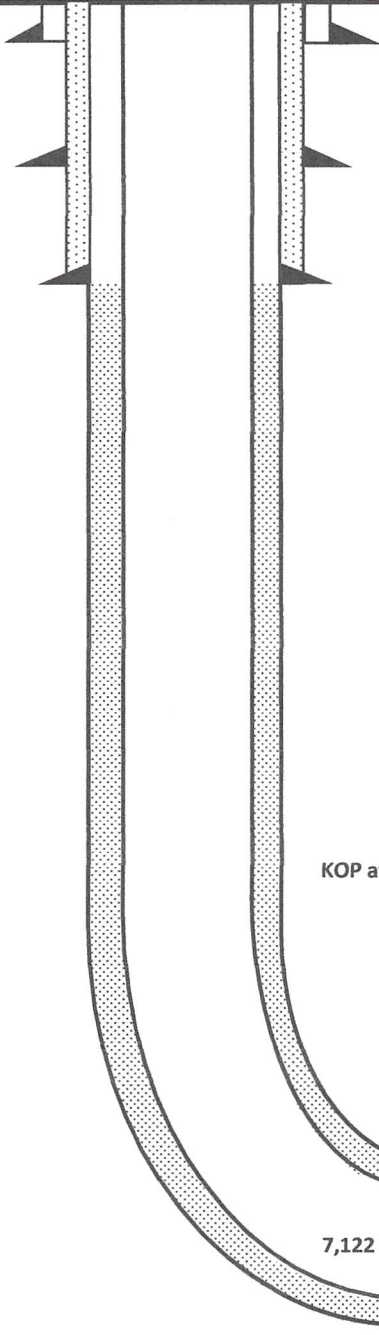
Proposed Drilling Program

Well: CHARLES JAMISON MSH 10
Field: VICTORY FIELD WET
County: MARSHALL
SHL: 39.7919 Latitude -80.6076 Longitude
BHL: 39.7595 Latitude -80.5785 Longitude
KB Elev: 1,361 ft MSL **KB:** 26 ft AGL

Re-entry Rig: TBD
Prospect: VICTORY
State: WV



GL Elev: 1,335 ft MSL



PROD TOC Lead @ 2,637' MD
PROD TOC Tail @ 5,100' MD

TUBULAR DETAIL

	Size (in)	Weight	Grade	From	To
Conductor:	20	94.0 #	H-40	0'	100'
Surface:	13.375	48.0 #	H-40	0'	440'
Intermed/Coal:	9.625	36.0 #	J-55	0'	2,617'
Production:	6	24.0 #	HP-110	0'	4,400'
	5.5	20.0 #	HP-110	4,400'	23,875'

CEMENT DETAIL

	Sacks	Class	Density
Conductor	151	A	19.3
Surface	427	A	15.6
Intermediate	1020	A	15.6
Production Lead	551	A	15.6
Production Tail	4196	A	15.6

0' to 460'
 Air / Mist

 460' to 2,637'
 Air / Mist
 ↓

2,637' to 6,603'
 Air / Mist
 ↓
 Air
 TD at 6,603'

6,603' to 8,014'
 12.0 - 12.5 ppg
 ↓
 8,014' to 23,875'
 12.0 - 12.5 ppg

KOP at 6,603' MD

Freshwater Depth - 326' TVD
 Coal Depth - 1,119' TVD
 Saltwater Depth - 1,121' TVD
 TVD - 7,309'
 TMD - 23,875'

7,122' Target Center

TD at 23,875' MD
 7,309' TVD

EOB at 7,122' TVD

SHL Onondaga 7,140' TVD

Onondaga 7,327' TVD

JM 5/27/2020

May 27, 2020

Ms. Laura Adkins
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RE: Proposed Modification: Charles Jamison MSH 8H & Charles Jamison MSH 10H

Dear Ms. Adkins

Enclosed please find the required documents to modify this well. We are wanting to use up inventory that we purchased and have not yet used, so we added an additional ~4400' of 6" production casing to each well.. These wells are situated on the Jamison's property, in Liberty District, Marshall County, West Virginia.

Enclosed you will find:

- Updated 6B
- Updated Casing Program

If you have any questions or desire additional information, please me at 304-884-1613

Thank you.

Sincerely,



Brittany Woody
Senior Regulatory Analyst
Southwestern Energy Production Company, LLC



May 13, 2020

Ms. Laura Adkins
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RE: Proposed Modification: Charles Jamison MSH 8H API 47-051-02127
Charles Jamison MSH 10H API 47-051-02301

Dear Ms. Adkins

Enclosed please find the required documents to modify this well. We are wanting to use up inventory that we purchased and have not yet used, so we added ~4400' of 6" production casing to each well.. These wells are situated on the Jamison's property, in Liberty District, Marshall County, West Virginia.

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- Updated 6B
- Updated Casing Program

RECEIVED
Office of Oil and Gas

JUN 05 2020

WV Department
Environmental Protection

If you have any questions or desire additional information, please me at 304-884-1613

Thank you.

Sincerely,

Brittany Woody

Brittany Woody
Senior Regulatory Analyst
Southwestern Energy Production Company, LLC

*Check #0001051578
6/2/2020
\$5,000.00*

$\frac{R^2}{A} \rightarrow V^+$