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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Thursday, January 24, 2019  
PERMIT MODIFICATION APPROVAL  
Horizontal / Drilling Deeper

CUNNINGHAM ENERGY LLC  
3230 PENNSYLVANIA AVENUE

CHARLESTON, WV 25302

Re: Permit Modification Approval for SAMPLES 6H  
47-039-06379-00-00

**CASING PROGRAM CHANGE FOR CONDUCTOR CASING, FRESH WATER CASING  
AND INTERMEDIATE CASING.**

CUNNINGHAM ENERGY 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, is positioned to the right of his name and title.

Operator's Well Number: SAMPLES 6H  
Farm Name: HUFFMAN, ROBERT  
U.S. WELL NUMBER: 47-039-06379-00-00  
Horizontal Drilling Deeper  
Date Modification Issued: 01/24/2019

Promoting a healthy environment.

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

1) Well Operator: CUNNINGHAM ENERGY, LLC

	494508594	KANAWHA	BIG SANDY	CLIO 7.5'
Operator ID                      County                      District                      Quadrangle				

2) Operator's Well Number: SAMPLES 6H                      3) Elevation: 945'

4) Well Type: (a) Oil  or Gas \_\_\_\_\_

(b) If Gas: Production  / Underground Storage \_\_\_\_\_

Deep \_\_\_\_\_ / Shallow

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5) Proposed Target Formation(s): WEIR                      Proposed Target Depth: 2,150'

6) Proposed Total Depth: 2,000 TVD/6,380' Feet                      Formation at Proposed Total Depth: WEIR

7) Approximate fresh water strata depths: 200'

8) Approximate salt water depths: 1475' - 1525'

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9) Approximate coal seam depths: NO COAL LISTED ON TITLE

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Environmental Protection

10) Approximate void depths, (coal, Karst, other): NONE

11) Does land contain coal seams tributary to active mine? NONE

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)  
DRILL AND STIMULATE A SHALLOW HORIZONTAL WELL. WE PLAN TO RUN THE WEATHERFORD WET S  
SYSTEM AND PERFORATE.

*Henry W. Hales*  
*1-18-19*

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	
Conductor	20"	LS	65LBS	30'	30'	CTS
Fresh Water	13 3/8"	LS	43.6 LBS	400'	400'	CTS
Coal						
Intermediate	9 5/8"	AT-50	26 LBS	1900'	1900'	CTS
Production	5 1/2"	P-110	20 LBS	6,380'	6380'	CTS
Tubing						
Liners						

Packers: Kind: \_\_\_\_\_  
                  Sizes: \_\_\_\_\_  
                  Depths Set \_\_\_\_\_

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modification

47-039-0637940

WW - 2B  
(Rev. 8/10)

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
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SYSTEM AND PERFORATE.      *work permit - drill deeper gas*

13) **CASING AND TUBING PROGRAM**      *Aug 2nd Meeting 10-18-18*

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13 3/8"	LS	43.6 LBS	30'	30'	CTS <i>Existing</i>
Fresh Water	10 3/4"	J-55	40.5 LBS	400'	400'	CTS
Coal						RECEIVED
Intermediate	8 5/8"	J-55	24 LBS	1900'	1900'	Office of Oil and Gas CTS
Production	5 1/2"	P-110	20 LBS	6,380'	6380'	OCT 2018 CTS
Tubing						WV Department of Environmental Protection
Liners						

Packers: Kind: \_\_\_\_\_  
 Sizes: \_\_\_\_\_  
 Depths Set \_\_\_\_\_