



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, June 16, 2021
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit Modification Approval for EVANS 1213 N-1H
47-041-05708-00-00

Sidetrack, Shorten surface casing with landowner waiver.

HG ENERGY II APPALACHIA, 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.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin
Chief

Operator's Well Number: EVANS 1213 N-1H
Farm Name: JAMES M & SUZANNE L EVANS
U.S. WELL NUMBER: 47-041-05708-00-00
Horizontal 6A New Drill
Date Modification Issued: 6/16/2021

Promoting a healthy environment.

06/18/2021



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

June 1, 2021

WV DEP
Division of Oil & Gas
Attn: Taylor Brewer
601 57th Street
Charleston, West Virginia 25304

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Office of Oil and Gas

JUN 11 2021

WV Department of
Environmental Protection

RE: Flesher 1213 N-1H Request for Permit Revision – (47-041-05708)
Freemans Creek District, Lewis County, West Virginia
Request for Modification Due to Side Track, Setting Surface Casing at 800'

Dear Mr. Brewer -

Per our discussions, enclosed are revised forms (WW-6B, casing schematic, WW-6A4W and a check for expedited service) for the requested 1213 N-1H well work permit revision. We ask the permit be modified to reflect the side track and change in surface casing due to losing a joint of casing and the drill bit in the original hole of the 1213 N-1H. The modification has been verbally approved by Doug Newlon, DEP, and allows HG to continue the drilling of the 1213 N-1H well via its original drill plan.

Please let me know if you have any questions or require additional information. I can be reached at (304) 420-1119 or dwhite@hgenergyllc.com.

Very truly yours,

Diane White

Diane C. White

Enclosures

cc: Sam Ward – DEP State Inspector

Check # 26408
\$5000.00
6/3/2021

(check rec'd 6/16/21)

06/18/2021

WW-6B
(04/15)

API NO. 47- 041 - 05708
OPERATOR WELL NO. Evans 1213 N-1H
Well Pad Name: Evans 1213

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

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1) Well Operator: HG Energy II Appalachia, Inc. 494519932 Lewis Freeman Big Isaac 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Evans 1213 N-1H Well Pad Name: Evans 1213

3) Farm Name/Surface Owner: James & Suzanne Evans Public Road Access: Mare Run Rd at CR 10/9

4) Elevation, current ground: 1233' Elevation, proposed post-construction: 1227'

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

(b) If Gas Shallow Deep _____
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6709'/6791' and 82' in thickness. Anticipated pressure at 4314#.

JEB
6/16/21

8) Proposed Total Vertical Depth: 6760'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 24,050'

11) Proposed Horizontal Leg Length: 16,716'

12) Approximate Fresh Water Strata Depths: None noted during drilling

13) Method to Determine Fresh Water Depths: Actual well data

14) Approximate Saltwater Depths: None found

15) Approximate Coal Seam Depths: 470', 530', 600', 885', 1018', 1107'

16) Approximate Depth to Possible Void (coal mine, karst, other): None

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: _____
Depth: _____
Seam: _____
Owner: _____

WW-6B
(04/15)

API NO. 47- 41 - 05708
 OPERATOR WELL NO. Evans 1213 N-1H
 Well Pad Name: Evans 1213

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	30"	New	LS	157.5	120'	120'	Drilled In
Fresh Water/Coal	20"	NEW	J-55	94	800'	800'	CTS
Intermediate 1	13 3/8"	NEW	J-55 BTC	68	2100'	2100'	CTS
Intermediate 2	9 5/8"	NEW	J-55 BTC	40	2900'	2900'	CTS
Production	5 1/2"	NEW	P-110 HP	23	24050'	24050'	CTS
Tubing							
Liners							

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JCB
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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	30"	30"	.500				Drilled In
Fresh Water/Coal	20"	26"	.438	2110	1200	Type 1, Class A	40 % excess yield = 1.20, CTS
Intermediate 1	13 3/8"	17 1/2"	.480	3450		Type 1/Class A	Lead 40% excess, Tail 0% excess
Intermediate 2	9 5/8"	12 1/4"	.395	3950		Type 1/Class A	Lead 40% excess, Tail 0% Excess
Production	5 1/2"	8 1/2"	.415	16240	12500	Type 1/Class A	20% excess yield = 1.19, tail yield 1.94
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

WW-6B
(10/14)

API NO. 47- 041 - 05708
OPERATOR WELL NO. Evans 1213 N-1H
Well Pad Name: Evans 1213

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6760 feet. Drill horizontal leg to estimated 16,716 lateral length, 24,050 TMD. Hydraulically fracture, stimulate and be capable of producing from the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface. We plan to run an ACP above the Gantz/Dominion Storage interval to aid in sealing off and isolating the storage interval.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The stimulation will be completed with multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. See attached list. Maximum pressure not to exceed 12,500 psi.

Job 6/16/21

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 14.36 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.26 acres

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23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing.
Freshwater/Coal - centralized every 3 joints to surface.
Intermediate 1 - Bow Spring on every joint, will also be running ACP for isolating storage zone
Intermediate 2 - Bow Spring on first 2 joints then every third joint to 100' from surface.
Production - Run 1 spiral centralizer every 5 joints from the top of the curve to surface. Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.

24) Describe all cement additives associated with each cement type:

Conductor - N/A, Casing to be drilled in w/ Dual Rotary Rig.
Fresh Water/Coal - 15.8 ppg PNE-1 + 3% bwoc CaCl₂, 40% Excess Yield = 1.20, CTS
Intermediate 1 - Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl₂, 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl₂ zero% Excess, CTS
Intermediate 2 - Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl₂, 40% Excess, Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl₂ zero% Excess, CTS
Production - Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170, Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess, Lead Yield=1.19, Tail Yield=1.94, CTS

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD.
Fresh Water/Coal - Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.
Intermediate 1 - Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Intermediate 2 - Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.
Production - Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.

*Note: Attach additional sheets as needed.



1213 N-1H
Marcellus Shale Horizontal
Lewis County, WV

1213 N-1H SHL

14205092.28N 1777976.99E

Ground Elevation

1227.6'

1213 N-1H LP

14205790.8N 1778661.61E

Azm

340.528°

1213 N-1H BHL

14221545.52N 1773094.48E

WELLBORE DIAGRAM:

HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
30"	30" 157.5# LS	Conductor	0	120	AIR	N/A, Casing to be drilled in w/ Dual Rotary Rig	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.5" wall thickness
26"	20" 94# J-55	Fresh Water	0	0	AIR	15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS	Centralized every 3 joints to surface	Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.	Surface casing = 0.438" wall thickness Burst=2110 psi
		Kittanning Coal	470', 530', 600'	475', 535', 605'					
		Fresh Water Protection	0	800					
17.5"	13-3/8" 68# J-55 BTC	Little Lime	1474	1494	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on every joint *will also be running ACP for isolating storage zone*	Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.480" wall thickness Burst=3450 psi
		Big Lime	1524	1594					
		Injun / Gantz (Storage)	1594 / 1866	1692 / 1926					
		Intermediate 1	0	2100					
12.25"	9-5/8" 40# J-55 BTC	Fifty / Thirty Foot	1978 / 2075	1998 / 2102	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.395" wall thickness Burst=3950 psi
		Gordon Stray / Gordon	2120 / 2156	2154 / 2232					
		5th Sand	2369	2409					
		Bayard / Warren	2449 / 2771	2479 / 2796					
		Intermediate 2	0	2900					
8.75" Vertical	5-1/2" 23# P-110 HP CDC HTQ	Speechley	3076	3096	AIR / 9.0ppg SOBM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 5 joints from the top of the curve to surface.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=16240 psi Note:Actual centralizer schedules may be changed due to hole conditions
		Balltown	3286	3346					
		Benson	4386	4411					
8.5" Curve	5-1/2" 23# P-110 HP CDC HTQ	Rhinestreet	6009	6279	11.5ppg-12.5ppg SOBM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the top of the curve to the 1st 5.5' long joint to the top of the curve.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=16240 psi Note:Actual centralizer schedules may be changed due to hole conditions
		Cashaqua	6279	6379					
		Middlesex	6379	6411					
		West River	6411	6482					
		Burkett	6482	6492					
		Tully Limestone	6492	6600					
		Hamilton	6600	6753					
8.5" Lateral	5-1/2" 23# P-110 HP CDC HTQ	Marcellus	6709	6791	11.5ppg-12.5ppg SOBM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the top of the curve to the 1st 5.5' long joint to the top of the curve.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=16240 psi Note:Actual centralizer schedules may be changed due to hole conditions
		TMD / TVD (Production)	24050	6760					
		Onondaga	6791						

LP @ 6760' TVD / 7334' MD

8.5" Hole - Cemented Long String
5-1/2" 23# P-110 HP CDC HTQ

+/-16716' ft Lateral

TD @ +/-6760' TVD
+/-24050' MD

X=centralizers

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 WV Dept of Environment and Natural Resources
 JAN 29 2021
 Environmental Protection

47694105708



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

June 1, 2021

Suzanne & James Evans
1064 38th Street
Parkersburg, WV 26104

RE: Evans 1213 N-1H Well Work Permit Modification - Notification
Freemans Creek District, Lewis County
West Virginia

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Office of Oil and Gas
JUN 11 2021
WV Department of
Environmental Protection

Dear Mr. and Mrs. Evans:

Enclosed are copies of various application papers that we will be filing with the West Virginia Department of Environmental Protection (WVDEP), Office of Oil and Gas. A modification to the well work permit is being requested for the above-referenced well.

Pursuant to WV Code Chapter 22B, Article 6, you are receiving copies of this correspondence because the well or other anticipated disturbance is located on your surface property. Your rights as a surface owner (road) are detailed in the enclosed permit application papers.

No action on your part is required. If you have any questions or comments regarding this application, you may call this office at (304) 420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

CC: Sam Ward – DEP State Inspector

06/18/2021

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

WAIVER

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Surface Owner Waiver:

I, Suzanne Evans, hereby state that I have read the notice provisions listed above and hereby waive the notice requirements under West Virginia Code § 22-6A-16(b) for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>541928.5</u>
County:	<u>Lewis</u>		Northing:	<u>4329720.8</u>
District:	<u>Freemans Creek</u>	Public Road Access:	<u>Mare Run Road/CR 10/9</u>	
Quadrangle:	<u>Camden WV 7.5'</u>	Generally used farm name:	<u>Evans</u>	
Watershed:	<u>Mare Run</u>			

Name: Suzanne Evans
 Address: 1064 38th Street
Parkersburg, WV 26104

Signature: *Suzanne Evans*
 Date: 06/07/2021

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Office of Oil and Gas
JUN 11 2021

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.