



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, November 2, 2022
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

EQT PRODUCTION COMPANY
625 LIBERTY AVE., SUITE 1700
PITTSBURGH, PA 15222

Re: Permit Modification Approval for HAGGARD 8H
47-103-03430-00-00

Cement Variance to include the use of Class A / Class L cement

EQT PRODUCTION COMPANY

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 blue ink signature of James A. Martin, written in a cursive style. Below the signature, the name 'James A. Martin' and the title 'Chief' are printed in a black, sans-serif font.

James A. Martin
Chief

Operator's Well Number: HAGGARD 4H
Farm Name: AMIE LEE HENDERSON
U.S. WELL NUMBER: 47-103-03430-00-00
Horizontal 6A New Drill
Date Modification Issued: 11/02/2022

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11/04/2022

CK# 0000594082
amt \$2,500.00
9/28/22

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

1) Well Operator: EQT Production Company 306686 Wetzel Center Littleton
Operator ID County District Quadrangle

2) Operator's Well Number: 8H Well Pad Name: Haggard

3) Farm Name/Surface Owner: Amie Lee Henderson Public Road Access: CR 8/2

4) Elevation, current ground: 1,512' Elevation, proposed post-construction: 1,512'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes - Currently Under Construction

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 7,618', 47', 2,620 psi

8) Proposed Total Vertical Depth: 7,618'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 10,336'

11) Proposed Horizontal Leg Length: 2,219'

12) Approximate Fresh Water Strata Depths: 443'

13) Method to Determine Fresh Water Depths: Offset wells: 47-103-02236, 47-103-02647

14) Approximate Saltwater Depths: No deep water shows listed in offsets

15) Approximate Coal Seam Depths: 1,317'-1,320'; 1,415'-1,420'

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A

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: _____

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18) **CASING AND TUBING PROGRAM**

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	26	New	A252 GR3	85.6	40	40	50 ft^3 / CTS
Fresh Water	13 3/8	New	J-55	54.5	1470	1470	1325 ft^3 / CTS
Coal							
Intermediate	9 5/8	New	J-55	36	2908	2908	1100 ft^3 / CTS
Production	6	New	P-110	24	10336	10336	500' above intermediate casing
Tubing							
Liners							

Kenneth Greynolds Digitally signed by Kenneth Greynolds
DN: CN = Kenneth Greynolds email = Kenneth.L.Greynolds@wv.gov, C = AD O = WVDEP OU = Oil and Gas
Date: 2022.09.16 14:10:04-0400

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	26	30	0.312	1000	18	Class A/L	1.04 - 1.20
Fresh Water	13 3/8	17 1/2	0.380	2730	2184	Class A/L	1.04 - 1.20
Coal							
Intermediate	9 5/8	12 3/8	0.352	3520	2816	Class A/L	1.04 - 1.20
Production	6	8 1/2	0.400	14580	11664	Class A/H/L	1.04 - 2.10
Tubing							
Liners							

PACKERS

Kind:			
Sizes:			
Depths Set:			

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

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical, kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

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

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.1%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10,000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 350,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000-600,000 pounds of proppant per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 15.24 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.84 acres

23) Describe centralizer placement for each casing string:

- Surface: Bow spring centralizers – One centralizer at the shoe and one spaced every 500’.
- Intermediate: Bow spring centralizers– One centralizer at the shoe and one spaced every 500’.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP.

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

Conductor: Class A no additives
Surface: Calcium Chloride. Used to speed the setting of cement slurries
Intermediate: Calcium Chloride. Used to speed the setting of cement slurries.
Production: Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Production: Perform a cleanup cycle by pumping 3-8 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

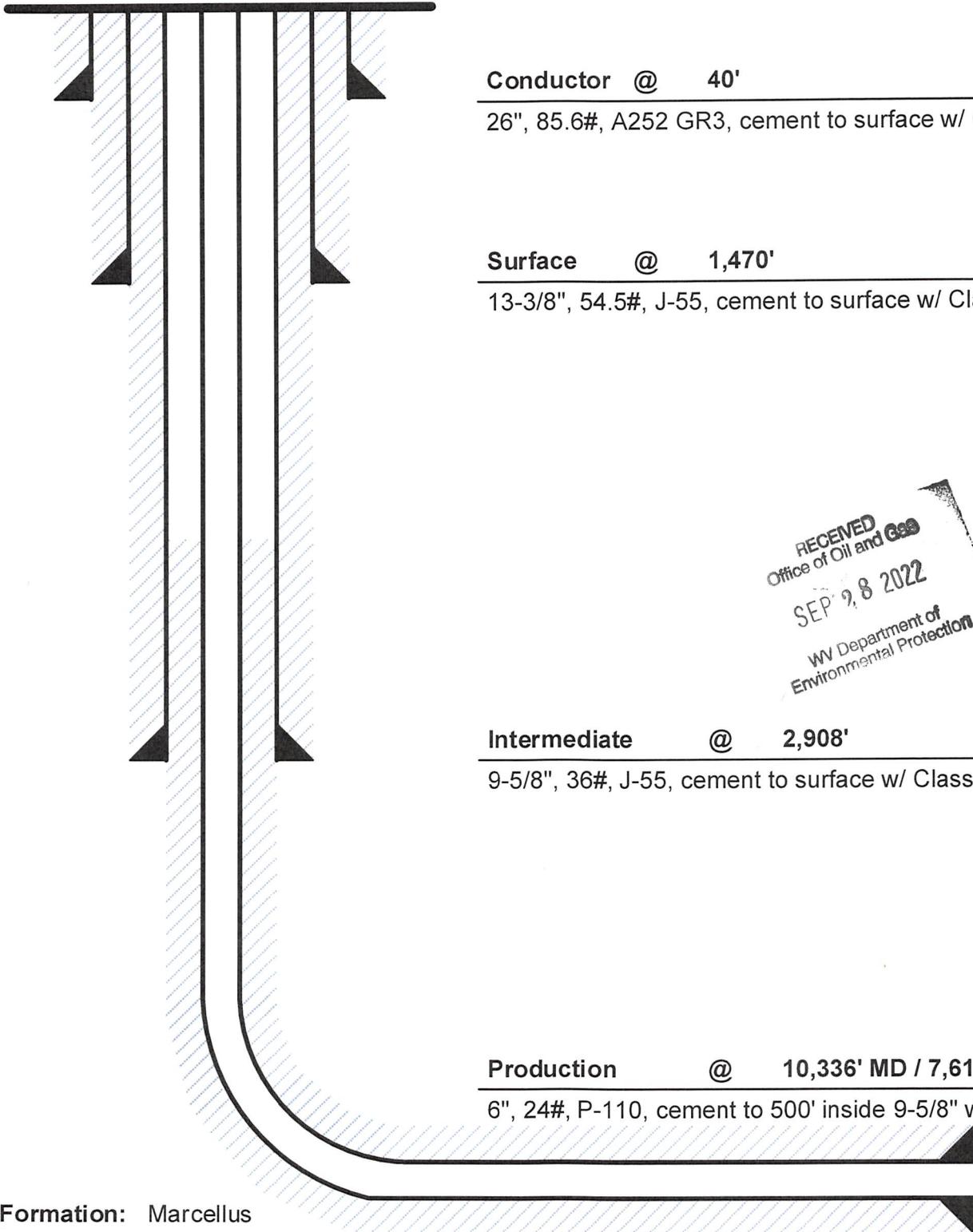
*Note: Attach additional sheets as needed.

EQT Production

Wellbore Diagram

Well: Haggard 8H
Pad: Haggard
Elevation: 1512' GL 1525' KB

County: Wetzel
State: West Virginia



Conductor @ 40'

26", 85.6#, A252 GR3, cement to surface w/ Class A/L

Surface @ 1,470'

13-3/8", 54.5#, J-55, cement to surface w/ Class A/L

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Intermediate @ 2,908'

9-5/8", 36#, J-55, cement to surface w/ Class A/L

Production @ 10,336' MD / 7,618' TVD

6", 24#, P-110, cement to 500' inside 9-5/8" w/ Class A/H/L

Formation: Marcellus

Kenneth Greynolds
Digitally signed by Kenneth Greynolds
 DN: cn = Kenneth Greynolds, email = Kenneth.L.Greynolds@wv.gov, c = AD O = WDEP OU = Oil and Gas
 Date: 2022.09.16 14:10:46 -0400

NOTED 11/04/2022



September 27, 2022

Mr. Taylor Brewer
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Class L Cement Variance Request
Haggard 8H Well
Permit Number 47-103-03430
Center District, Wetzell County

Dear Mr. Brewer,

EQT Production Company (EQT) has been notified by our cement providers that they will no longer be providing Class A cement. As a result of this, EQT is requesting the option to utilize Class L cement, if necessary, in place of Class A cement for its cement jobs.

The variance request from Legislative Rule 35CSR8, Section 9.2.h.8, related to the use of Class L Cement, was approved by the Office of Oil and Gas on September 13, 2022. A copy of the variance is included with this request.

If you have any questions, please do not hesitate to contact me at 724-746-9073.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John Zavatchan'.

John Zavatchan
Project Specialist - Permitting

Enc.

11/04/2022



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
Phone (304) 926-0450

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

**BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA**

**IN THE MATTER OF A VARIANCE FROM)
LEGISLATIVE RULE 35CSR4)
SECTION 11.5 AND LEGISLATIVE RULE)
35CSR8 SECTION 9.2.h.8.,)
RELATING TO THE CEMENTING)
OF OIL AND GAS WELLS)**

ORDER NO. 2022-14

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REPORT OF THE OFFICE

In response to industry requests, the West Virginia Department of Environmental Protection, Office of Oil and Gas has reviewed the proposed use of American Petroleum Institute (API) Class L cement to be used in place of API Class A cement for well construction.

FINDINGS OF FACT

1. On July 14, 2022, Northeast Natural Energy (NNE) submitted a variance request from Legislative Rule 35CSR8 Section 9.2.h.8., for the use of API Class L cement in place of API Class A cement, relating to the construction of horizontal wells.
2. Laboratory analysis submitted by NNE on July 14, 2022, indicates API Class L cement is comparable to API Class A cement and thereby satisfies the requirements of the West Virginia Code.
3. Contemporaneously, the Chief of the Office of Oil and Gas also chose to consider a variance to Legislative Rule 35CSR4 Section 11.5., for the use of API Class L cement in place of API Class A cement, relating to the construction of vertical wells.

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4. On August 18, 2022, the Office of Oil and Gas provided public notice of acceptance of public comments on the variance consideration. During the 20-day public comment period, no comments were received.

CONCLUSIONS OF LAW

Pursuant to Article 6 and Article 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to Legislative Rule 35CSR4, Section 18 and Legislative Rule 35CSR8, Section 14, the Chief of the Office of Oil and Gas may grant a variance from any requirement of these rules.

ORDER

It is ordered that the Class L cement product approved and monogrammed by API is approved for use in place of API Class A cement for well construction subject to the provisions of Legislative Rule 35CSR4 and Legislative Rule 35CSR8.

Dated this, the 13th day of September, 2022.

IN THE NAME OF THE STATE OF WEST VIRGINIA

OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA



James Martin, Chief
Office of Oil and Gas

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HAGGARD WW-GB FORM 2H, 4H, 6H, 8H, 10H, 12H, 14H, 16H

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Amie Lee Henderson
470 Travis Drive
Bridgeport, WV 26330

for Instructions

PA 16117 09/15/2022

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Consol RCPC LLC
1000 Consol Energy Drive
Canonsburg, PA 15317

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Blackrock Enterprises, LLC
PO Box 342
Salem, WV 26424

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EQT PRODUCTION COMPANY
400 Woodcliff Drive | Canonsburg, PA 15317
P: 724-746-9073 | www.eqt.com

September 27, 2022

Via FedEx Overnight

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304

RE: Well Work Permit Modification Application
Haggard 8H Well
Permit Number 47-103-03430
Center District
Wetzel County, WV

WVDEP Recipient,

Attached please find following information to modify the existing Well Work Permit for this well:

- Check in the amount of \$2,500.00
- Completed Form WW-6B and supporting documents, approved by the Oil and Gas Inspector
- Revised Well Bore Diagram
- Cement Variance Request Cover Letter
- Class L Cement Variance as approved by the WVDEP
- Proof of notification of the surface owner and coal related parties

This modification is to add the potential use of Class L cement as an option for casing and cementing of this well.

EQT Production trusts that if any portion of the submitted documentation is found to be inadequate for processing the permit, notification will be made to our Permitting department at your earliest convenience. It is EQT Production's intent to cooperate fully to provide any additional requested documentation and clarification in a timely manner such that permitting proceeds in a predictable and logical manner.

Best Regards,

A handwritten signature in blue ink, appearing to read 'J. Zavatchan'.

John Zavatchan
Project Specialist – Permitting
jzavatchan@eqt.com
724-746-9073

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September 27, 2022

Mr. Taylor Brewer
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Class L Cement Variance Request
Haggard 8H Well
Permit Number 47-103-03430
Center District, Wetzel County

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Dear Mr. Brewer,

EQT Production Company (EQT) has been notified by our cement providers that they will no longer be providing Class A cement. As a result of this, EQT is requesting the option to utilize Class L cement, if necessary, in place of Class A cement for its cement jobs.

The variance request from Legislative Rule 35CSR4 Section 11.5, related to the use of Class L Cement, was approved by the Office of Oil and Gas on September 13, 2022. A copy of the variance is included with this request.

If you have any questions, please do not hesitate to contact me at 724-746-9073.

Sincerely,

John Zavatchan
Project Specialist - Permitting

VOID

Enc.

11/04/2022



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Modification Horizontal H6A Well Work Permit (47-103-03398, 103-03430, 103-03522, 103-03523, 103-03524)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Wed, Nov 2, 2022 at 8:32 AM

To: John <JZavatchan@eqt.com>, "Shrum, Becky" <bshrum@eqt.com>, Erin Spine <espine@eqt.com>, Olivia Pishioneri <opishioneri@eqt.com>, Todd <tklaner@eqt.com>, Scott Lemley <slemley@wvassessor.com>, "Greynolds, Kenneth L" <kenneth.l.greynolds@wv.gov>

I have attached a copy of the newly issued well [permit](#) number(s). This will serve as your copy.

CEMENT VARIANCE FOR THE FOLLOWING API #s :**47-103-03398 - CASH 1H****47-103-03430 - HAGGARD 8H****47-103-03522 - CASH 7H****47-103-03523 - CASH 5H****47-103-03524 - CASH 3H**

If you have any questions, then [please](#) contact us here at the Office of Oil and Gas.

Thank you,

Wade A. Stansberry**Environmental Resource Specialist 3****West Virginia Department of Environmental Protection****Office of Oil & Gas****601 57th St. SE****Charleston, WV 25304****(304) 926-0499 ext. 41115****(304) 926-0452 fax****Wade.A.Stansberry@wv.gov****5 attachments** **47-103-03398 - mod.pdf**
2810K **47-103-03430 - mod.pdf**
3219K **47-103-03523 - mod.pdf**
3607K **47-103-03524 - mod.pdf**
3603K **47-103-03522 - mod.pdf**
3989K**11/04/2022**