



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

Friday, April 25, 2025
PERMIT MODIFICATION APPROVAL
Horizontal 6A / Re-Work

EQT PRODUCTION COMPANY
400 WOODCLIFF DR.

CANONSBURG, PA 15317

Re: Permit Modification Approval for HANSEN 5H
47-051-01649-00-00

Increasing CO2 injection rate

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.

James A. Martin
Chief

Operator's Well Number: HANSEN 5H
Farm Name: BAYER MATERIAL SCINECES, LLC
U.S. WELL NUMBER: 47-051-01649-00-00
Horizontal 6A Re-Work
Date Modification Issued: 4/25/2025

Promoting a healthy environment.

04/25/2025

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

| | | | | |
|---|-------------|----------|----------|------------------|
| 1) Well Operator: <u>EQT Production Company</u> | 306686 | Marshall | Franklin | New Martinsville |
| | Operator ID | County | District | Quadrangle |

2) Operator's Well Number: 5H Well Pad Name: Hansen

3) Farm Name/Surface Owner: Covestro, Inc. Public Road Access: County Route 2/2

4) Elevation, current ground: 1,247' (built) Elevation, proposed post-construction: 1,247' (built)

5) Well Type (a) Gas ☒ Oil ☐ Underground Storage ☐
Other ☐
(b) If Gas Shallow ☒ Deep ☐
Horizontal ☒

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 6,532', 50', 2,000 psi

8) Proposed Total Vertical Depth: 6,532' (drilled - see WR-35)

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12,203' (drilled - see WR-35)

11) Proposed Horizontal Leg Length: 5,645

12) Approximate Fresh Water Strata Depths: 55'

13) Method to Determine Fresh Water Depths: Submitted WR-35

14) Approximate Saltwater Depths: 1,590'

15) Approximate Coal Seam Depths: 820'-830'; 1,130'-1,160'

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: _____

Strader Gower
04/03/2025

WW-6B
(04/15)

API NO. 47- 051 - 01649
OPERATOR WELL NO. 5H
Well Pad Name: Hansen

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 | PE/54.5 | 54.5 | 110' | 110' | to surface |
| Fresh Water | | | | | | | |
| Coal | 13.375 | New | H-40 | 48 | 1,213' | 1,213' | to surface |
| Intermediate | 9.625 | New | J-55 | 36 | 2,644' | 2,644' | to surface |
| Production | 5.5 | New | P-110 | 20 | 12,171' | 12,171' | to surface |
| Tubing | 2.375 | New | N80 | 4.7 | 7,060' | 7,060' | |
| Liners | | | | | | | |

| 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 | 26 | .25 | 880 | | Class A | 1.19 |
| Fresh Water | | | | | | | |
| Coal | 13.375 | 17.5 | .33 | 1730 | | Class A | 1.21 |
| Intermediate | 9.625 | 12.25 | .352 | 3,520 | | Class A | 1.27 |
| Production | 5.5 | 8.875 | .361 | 12,640 | | 50:50 Class A | 1.21 |
| Tubing | 2.375 | | .19 | 11,200 | | | |
| Liners | | | | | | | |

RECEIVED
Office of Oil and Gas

APR 11 2025

PACKERS

WV Department of
Environmental Protection

| | | | | |
|-------------|--|--|--|--|
| Kind: | | | | |
| Sizes: | | | | |
| Depths Set: | | | | |

Strader Gower
04/03/2025

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

Set temporary retrievable packer above upper most perforation stage at 7055' +/- 15'
Set temporary bridge plug between stages 19 and 20 at 7900' +/- 15'
Set downhole pressure gauge
Replace production tubing with corrosion resistant tubing
After injection and production, remove temporary bridge plug and packer
Reinstall tubing and bring well back to production

7055' for the retrievable packer and ~7898' for the retrievable bridge plug

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

Inject carbon dioxide below fracture pressure over 3 stages for well stimulation
Max rate is 700 tons per day
Max bottom hole pressure not to exceed 90% of frac pressure (BHP gauge will be monitored during test)

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): N/A - site built, no disturbance proposed

22) Area to be disturbed for well pad only, less access road (acres): N/A - site built, no disturbance proposed

23) Describe centralizer placement for each casing string:

N/A - casing is set and cemented - WR-35

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

N/A - casing is set and cemented - See WR-35

25) Proposed borehole conditioning procedures:

Prior to workover a well clean out and casing inspection was performed. Workover will focus on stimulation of well with carbon dioxide.

*Note: Attach additional sheets as needed.



EQT Production Company
400 Woodcliff Drive | Canonsburg, PA 15317

April 10, 2025

Via FedEx Overnight Delivery

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

RE: Horizontal Well Work Permit Modification Application
Hansen 5H
Permit Number 47-051-01649
Franklin District, Marshall County, WV

WVDEP Recipient,

- Completed WW-6B, approved by the Inspector

EQT is proposing to increase the daily CO₂ injection rate to 700 tons/day.

The fee for this well has been paid via credit card.

EQT 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
Regional Manager - Permitting
jzavatchan@eqt.com
724-746-9073

RECEIVED
Office of Oil and Gas

APR 11 2025

WV Department of
Environmental Protection

04/25/2025