Working with Consultants
Section 401 CWA Natural Gas Pipelines

Association of State Wetland Managers
18 July 2018
WVDNR
Environmental Coordination Unit
Marcellus Shale in West Virginia

With recent drilling it has come to the Survey's attention that Marcellus Shale may exist west of the current thickness line. We will be examining data to determine what changes may be needed to the thickness map.

Legend
- Compressed Marcellus Vertical Wells
- Completed Marcellus Devonian Wells
- Permitted Marcellus Wells

"Marcellus" Thickness (isopach)
0 ft. - 20 ft.
21 ft. - 40 ft.
41 ft. - 60 ft.
61 ft. - 80 ft.
81 ft. - 100 ft.
Over 100 ft.
Possible/Uncertain Marcellus
Undetermined Thickness
Marcellus Assumed to be Absent

"Marcellus" Thickness (isopach) Contours
- Thickness Contour (20 ft.)
- Possible/Uncertain Marcellus Shale Present

Onondaga Fold Axis
- Anticline
- Inferred Anticline
- Syncline
- Inferred Syncline

Onondaga
The Onondaga Limestone and equivalent units underlie the Marcellus Shale. The top of this Onondaga and equivalent units is approximately 330 ft. below the base of the Marcellus.

Explanations
- Marcellus Wells
  A complete Marcellus well has one or more zones in the Marcellus that have been prepared for production. This may or may not be producing currently. A permitted Marcellus well has one or more Marcellus/Davenport shales or dolostone target.

- "Marcellus" Thickness
  "Marcellus" thickness data do not represent the entire thickness of the Marcellus Shale but a subset of it. Specifically, these data represent an interval of geologically cohesive, high permeability, mudstone with high gas content developed in the Hummer Group, as described by Schwegler, WVGS OP 820 (1986).

- Onondaga
  The Onondaga Limestone and equivalent units underlie the Marcellus Shale. The top of this Onondaga and equivalent units is approximately 330 ft. below the base of the Marcellus.
Wells
Pipelines

Gathering
Transmission
Distribution
Gathering
Transmission
Distribution
Permitting

USACE
USFWS
WVDEP
WVDNR
FERC
USACE
NWP 12 Utility Line Activities
Corps NWP 12 Specific Regional Conditions:

d. Anti-seep collars or clay plugs must be utilized for trenching activities conducted in a perennial or intermittent stream or a wetland.

e. Should an inadvertent return of drilling mud occur during a directional drilling activity, and the clean-up of drilling muds necessitates the use of NWP 12 the permittee must report to the Corps the location and circumstances of the clean-up after the work has been conducted unless a PCN is otherwise required.
NWP 12 West Virginia 401 Water Quality Certification Special Conditions:

A. Individual State Water Quality Certification is required for
i. Pipelines equal to or greater than 36 inches in diameter;
ii. Pipelines crossing a Section 10 river (unless the bore is greater than 100 feet below the stream bed on the Ohio River mainstem, or greater than 50 feet below the stream bed on all other Section 10 waters);
36 inch Diameter
Section 10 Streams in West Virginia

1. Ohio River………..Total Length in State
2. Kanawha River…………Total Length
3. New River…………Total Length in State
4. Big Sandy River…………Total Length
5. Tug Fork……………………58 Miles
6. Elk River……………………139 Miles
7. Gauley River………………..75 Miles
8. Guyandotte River…………122 Miles
9. Little Kanawha River……130.75 Miles
10. Greenbrier River………..150.50 Miles
11. Coal River…………………57.90 Miles
12. Monongahela River……..Total Length in State
13. Tygart River……………….7 Miles
14. West Fork……………………74 Miles
15. Shenandoah River……….Total Length in State
16. Potomac River…………….Total Length in State
West Virginia 401 Special Conditions: continued

**H.** Horizontal directional drilling for underwater crossings requires an Inadvertent Return Contingency Plan certified by a West Virginia Professional Engineer to be kept on site and made available upon request.

**J.** Prior written notification to West Virginia Department of Environmental Protection, Division of Water and Waste Management (WV DEP DWWM) is required when this permit is being used for vented low water crossings.

**L.** No structure authorized by this permit shall impede or prevent fish movement upstream or downstream.
Inadvertent Return
TITLE 47
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER RESOURCES
SERIES 5A
RULES FOR INDIVIDUAL STATE CERTIFICATION OF ACTIVITIES REQUIRING A FEDERAL PERMIT
4.1. Information contained within environmental processes and reviews such as environmental assessments, environmental impact statements and mining and reclamation plans, may be used to meet part or all of the requirements of this Rule.

4.1. b. The Secretary shall, within one year after an application is deemed complete, issue, waive or deny the request for a water quality certification.
WVDEP
Stormwater Permit
Water Withdrawal
Jurisdiction

All Waters of the US are Waters of the State, not all Waters of the State are Waters of the US.
USFWS
Endangered Species
401 Review
ROE Stream Crossing
Wildlife Management Areas
Mussel Surveys
FERC Cooperating Agency
Native Mussel Protection
CSR 58-60-5.11
State Wildlife Action Plan

Species of Greatest Conservation Need
FERC

Interstate Transmission of Natural Gas
Understanding Pipeline Construction
Clearing
Trenching
Pipe String
Welding
Lowering
Grading
Side Slope Construction
Stream Crossings

- Wet Trench
- Dry Trench
- HDD
- Direct Pipe
Wet Trench
Dry Trench
HDD

A small diameter pilot hole is drilled from the entry point, under the river bed, to the exit point.

Next, a reaming tool is pulled back through the pilot hole to enlarge the hole. More than one pass may be required to make the hole larger than the diameter of the pipe.

Prefabricated pipe is attached to a swivel behind the reamer and pulled into place under the river bed.
Staging Areas
Access Roads
Temporary Workspace
Staging
Temporary Bridge
Armored Ford - Concrete
Armored Ford - Block
Temporary Workspace
Stream Crossing
Identify Resources
Plan
Network
Communicate
(Early and Often)
Communication

Boomer v. Millennial
Training
Experience
Volume
West Virginia 2015-2018

Brooke County Access
Eastern Panhandle Expansion
Mountain Valley Pipeline
Equitrans Expansion
WB Xpress
Mountaineer Xpress
Ohio Valley Connector
Utica Access
Rover
WB2VA Integrity
Leach Xpress
Atlantic Coast Pipeline
Supply Header Project
TERMINOLOGY

**DRIP**: A vessel attached beneath a gas pipeline in which water and liquids accumulate due to gravity.

**LOOPING**: Two or more pipelines running parallel to each other to increase capacity.

**MUD**: Drilling fluid circulated through the drill pipe and back to the surface during rotary drilling.

**PIG**: A scraping instrument for cleaning a pipeline.

**SMART PIG**: Inspection devices that record information about the internal conditions of a pipeline.
Acronyms and Abbreviations

ATWS additional temporary workspace

AMM Avoidance and Minimization Measures

LOD Limit of Disturbance

MLV mainline valve

TOYR time of year restriction

TWS temporary workspace
Single and complete project
Permanent Impact
Temporary Impact
Informal Consultation
Formal Consultation
Jeopardy
Formal Conference
BA biological assessment
BO Biological Opinion
LAA likely to be adversely affected
FERC

Ex-parte
Cooperating agency
Intervenor
Open House
Participating agency
Resource Reports
Scoping meetings
EO 13807

“...Federal environmental review and permitting...coordinated, predictable and transparent”
“If you can find a path with no obstacles, it probably doesn’t lead anywhere.”

Frank A. Clark