

Working with Consultants
Section 401 CWA Natural Gas
Pipelines

Association of State Wetland
Managers

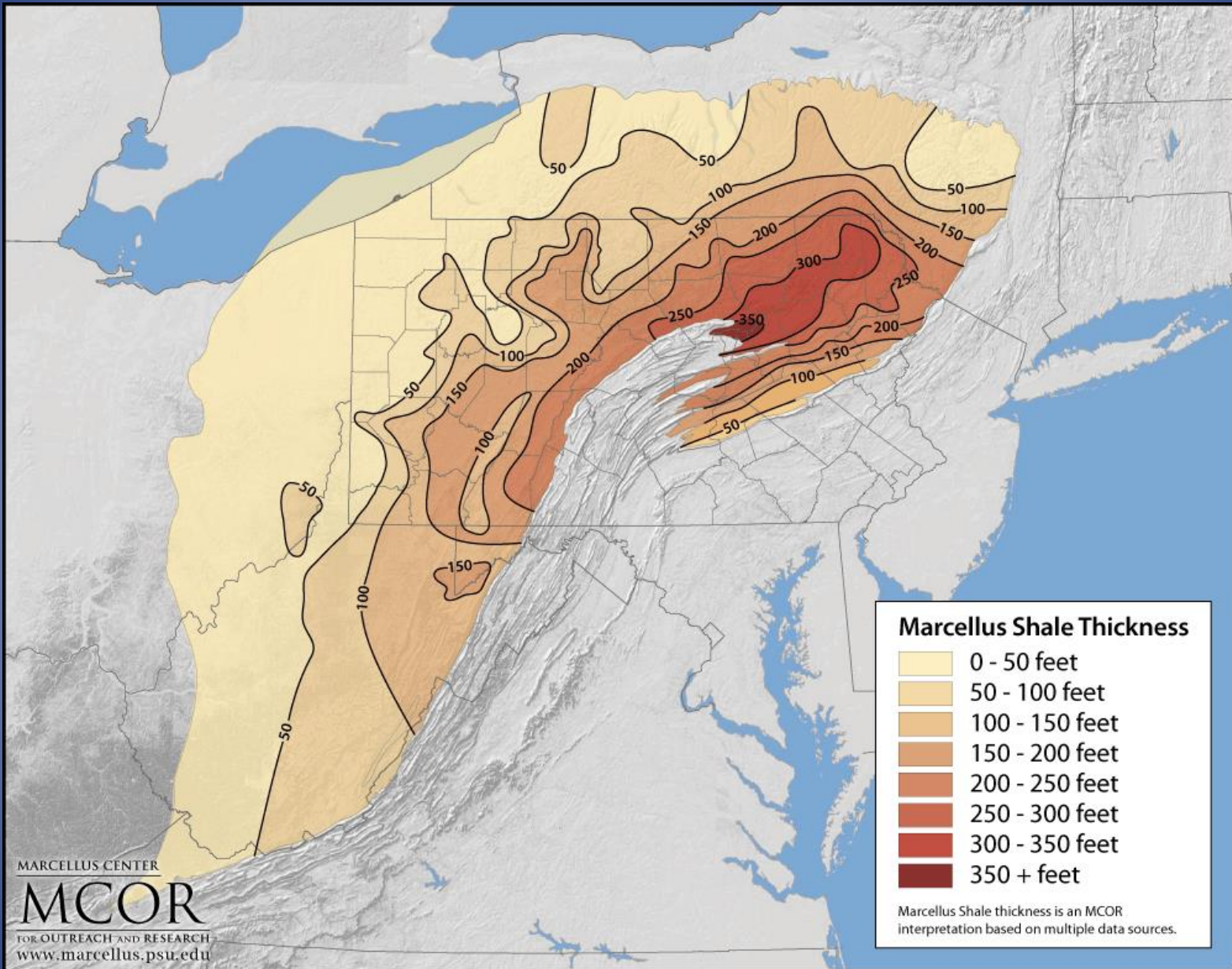
18 July 2018

WVDNR

Environmental Coordination Unit



Scope and Scale



MARCELLUS CENTER

MCOR

FOR OUTREACH AND RESEARCH
www.marcellus.psu.edu



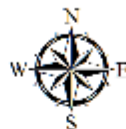
Marcellus Shale in West Virginia

Publications Policy:

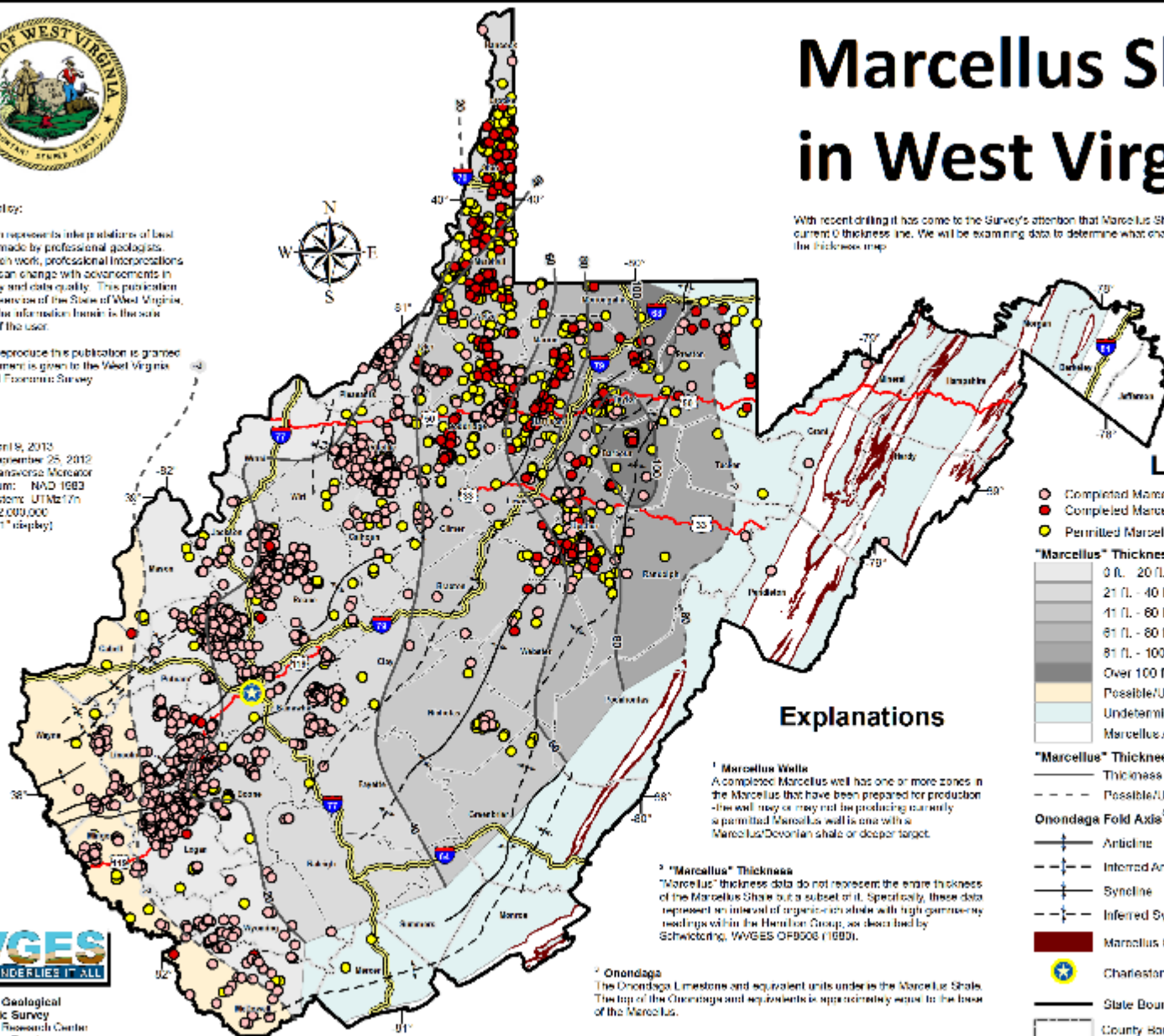
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Permission to reproduce this publication is granted if acknowledgment is given to the West Virginia Geological and Economic Survey.

Map Date: April 8, 2013
Data Date: September 25, 2012
Projection: Transverse Mercator
Horizontal Datum: NAD 1983
Coordinate System: UTMz17n
Map Scale: 1:2,000,000
(for full 8.5" x 11" display)



With recent drilling it has come to the Survey's attention that Marcellus Shale may exist west of the current 0 thickness line. We will be examining data to determine what changes may be needed to the thickness map.



Legend

- Completed Marcellus Vertical Wells¹
 - Completed Marcellus Deviated Wells¹
 - Permitted Marcellus Wells²
- "Marcellus" Thickness (Isopach)²**
- 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) Contours²**
- Thickness Contour (20 ft.)
 - - - Possible/Uncertain Marcellus Shale Present
- Onondaga Fold Axis²**
- Anticline
 - - - Inferred Anticline
 - Syncline
 - - - Inferred Syncline
- Marcellus Outcrop
 - ★ Charleston, WV
 - State Boundary
 - County Boundaries
 - Interstate Highways
 - U.S. Highways

Explanations

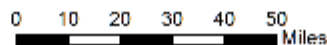
¹ **Marcellus Wells**
A completed Marcellus well has one or more zones in the Marcellus that have been prepared for production - the well may or may not be producing currently - a permitted Marcellus well is one with a Marcellus/Devonian shale or deeper target.

² **"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 organic-rich shale with high gamma-ray readings within the Hamilton Group, as described by Schwabinger, WVGES OF8006 (1980).

³ **Onondaga**
The Onondaga Limestone and equivalent units underlie the Marcellus Shale. The top of the Onondaga and equivalents is approximately equal to the base of the Marcellus.



West Virginia Geological and Economic Survey
Mont Cumber Research Center
1 Mont Cumber Road
Martinsburg, WV 25208-8079
Phone: (304) 594-2331
www.wvges.wvnet.edu



Upstream
Midstream
Downstream

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.





05/06/2014

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

- 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

§47-5A-4. Applications, Procedures for Certification Issuance.

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



SOP



Watershed Assessment Branch 2015 Field Sampling Standard Operating Procedures



West Virginia
Department of Environmental Protection
Division of Water and Waste Management
Watershed Assessment Branch
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0485
www.dep.wv.gov

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



WVDNR

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

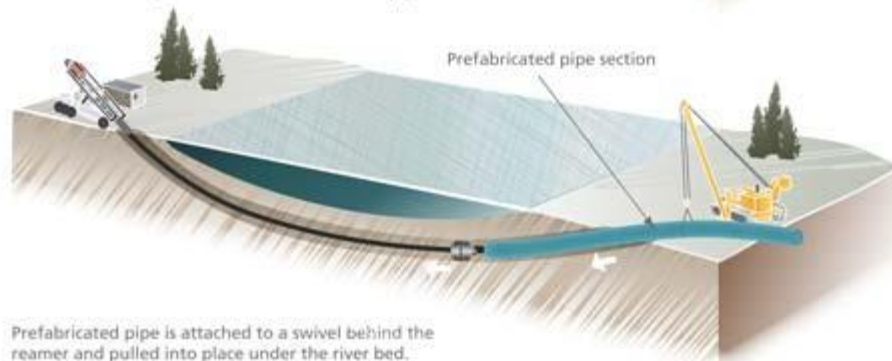
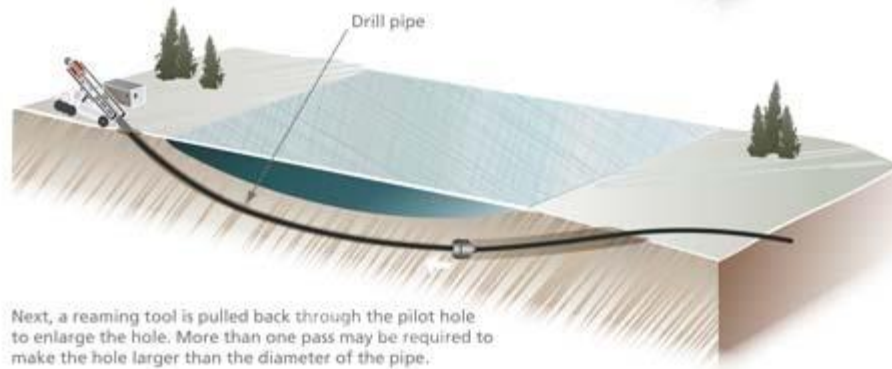
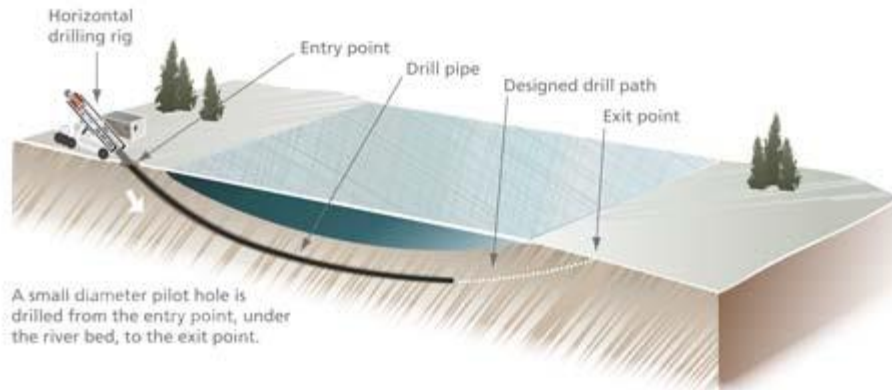
Wet Trench



Dry Trench



HDD



HDD



Staging Areas
Access Roads
Temporary Workspace

Staging



Temporary Bridge



Ford



Armored Ford - Concrete



Armored Ford - Block



Temporary Workspace



Stream Crossing







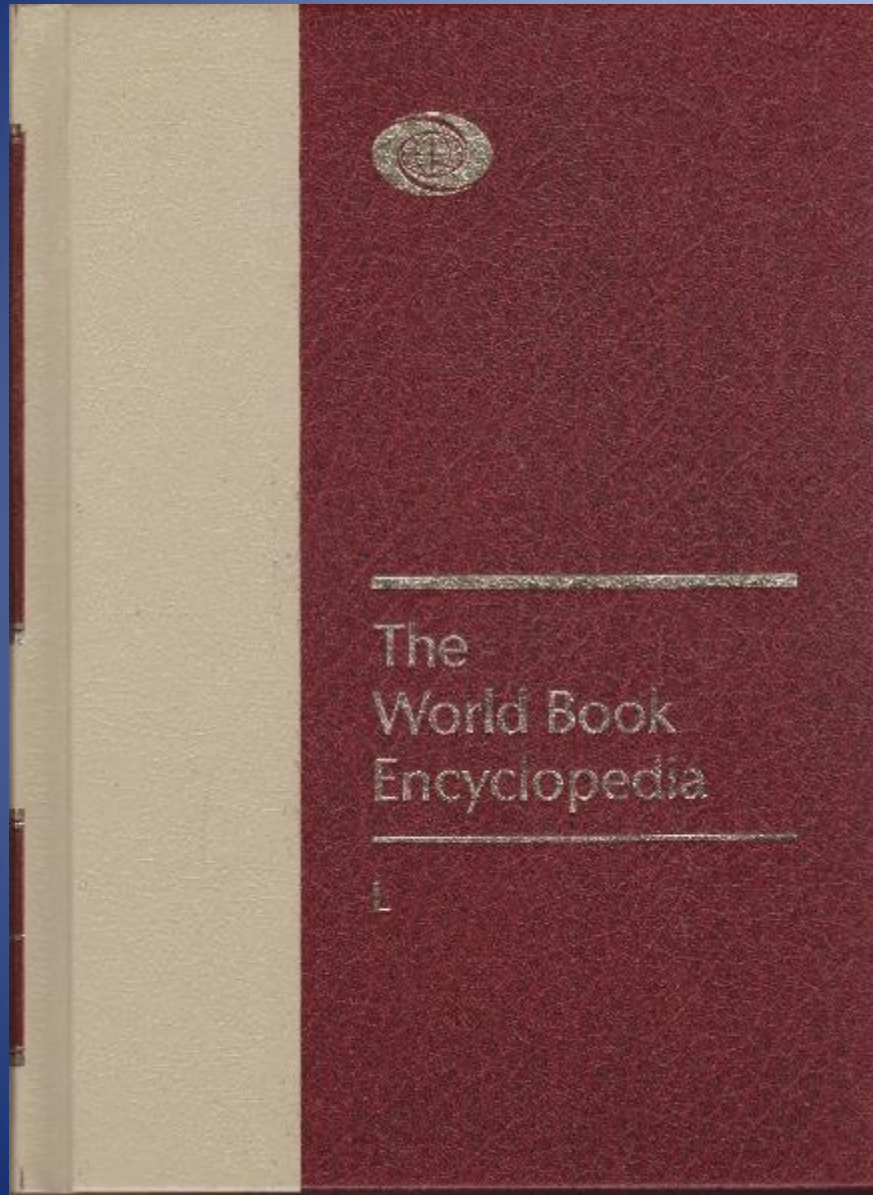


Identify Resources
Plan
Network
Communicate
(Early and Often)

Communication

Boomer v. Millennial





urban
DICTIONARY

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

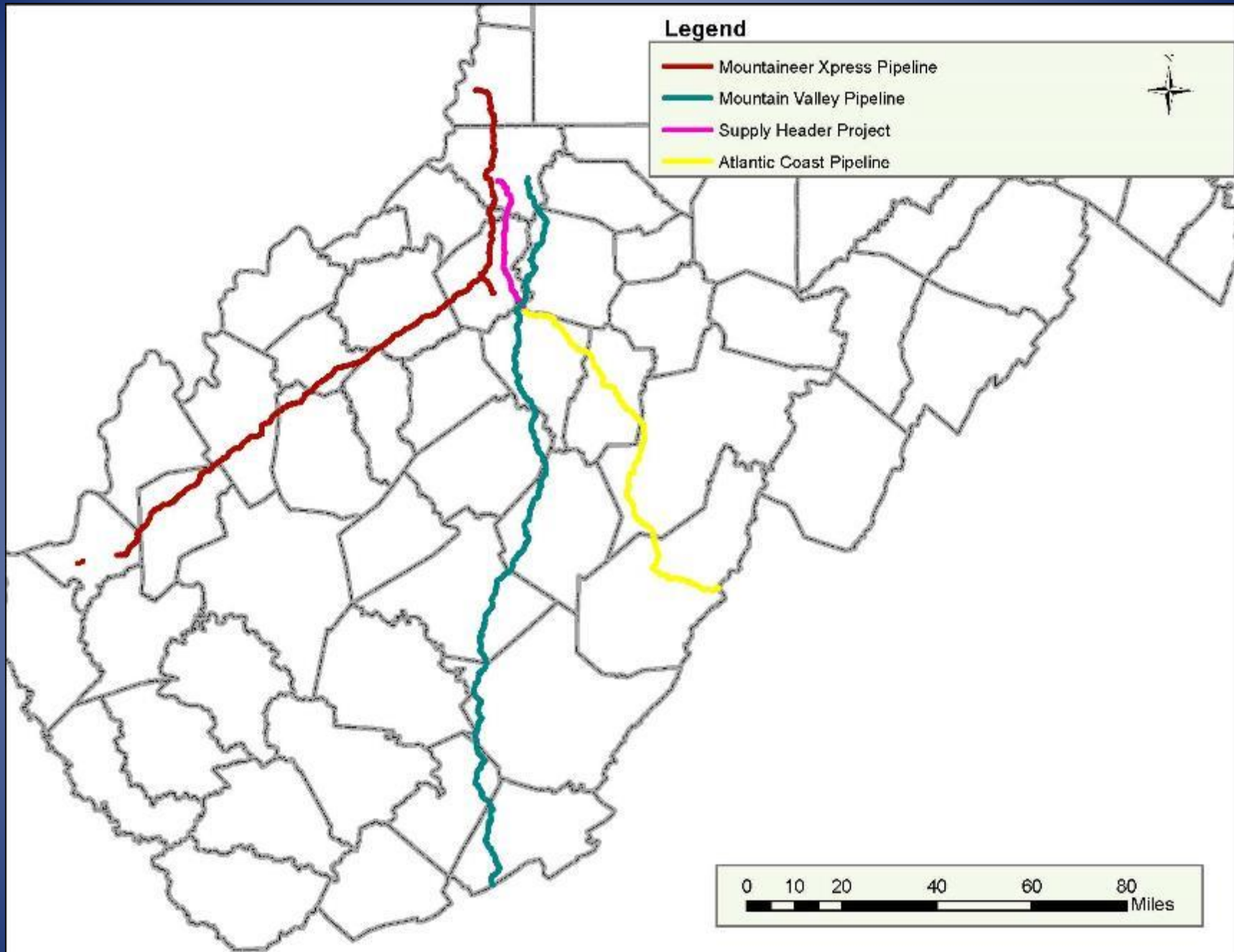
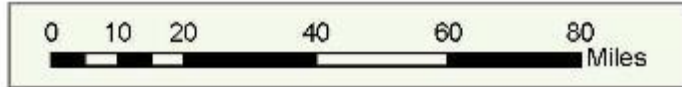
Leach Xpress

Atlantic Coast Pipeline

Supply Header Project

Legend

- Mountaineer Xpress Pipeline
- Mountain Valley Pipeline
- Supply Header Project
- Atlantic Coast Pipeline



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

USACE

Single and complete project
Permanent Impact
Temporary Impact

USFWS

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

