



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Waterways Engineering and Wetlands



# Trenchless Technology Technical Guidance Update

Pipeline Safety Conference  
Pennsylvania Public Utility Commission

September 7, 2022

# Stakeholder Workgroup



*"a balanced group of appropriate stakeholders to reflect the interests of representatives of the Appellants, the Department, and a select number of representatives chosen by the Department to represent the interest of proponents of Pipeline Projects..."*

# Goals of the Stakeholder Workgroup

DEP assembled two Stakeholder Workgroups to help develop technical guidance and enhanced best practices for the following:

- HDD Assessment
  - Prevention, Preparedness Contingency (PPC) Plans
  - Operations
  - Ch. 105 Alternatives Analysis
  - Native Seeding/Plantings for Restoration
- 
- The two workgroups that were developed were:
    1. Ch 105 Alternatives Analysis Workgroup
    2. HDD Stakeholder Workgroup (outlined in red).

# Regulatory Citations relating to Trenchless Technology

## § 78a.68a. Horizontal directional drilling for oil and gas pipelines.

- a) Includes HDD for both gathering and transmission lines. Needs permits under **Ch. 102 & 105**.
- b) Must develop a **PPC Plan** under 102.5(l) – including a site-specific contingency plan to control, contain and collect any drilling fluids
- c) Minimum 24-hour notice to DEP prior to any HDD activities (via website)
- d) All required permits and Safety Data Sheets shall be onsite and available upon request.
- e) Material staging areas shall be outside of floodway. (FEMA-delineated or 50')
- f) Drilling fluid additives (other than bentonite) shall be approved by DEP prior to use.
  - Approved list on DEP website
- g) Monitor HDD activities for pressure and loss of drilling fluid returns. (follow PPC Plan)
- h) HDD drilling activities may not result in discharge of drilling fluid to Waters of Commonwealth.
- i) All drilling fluid discharges(e.g., **IRs**) and Loss of circulation shall be reported immediately.
- j) All **water supply** complaints shall be reported within 24 hours

# Other Regulatory Citations

## § 102.5. Permit requirements.

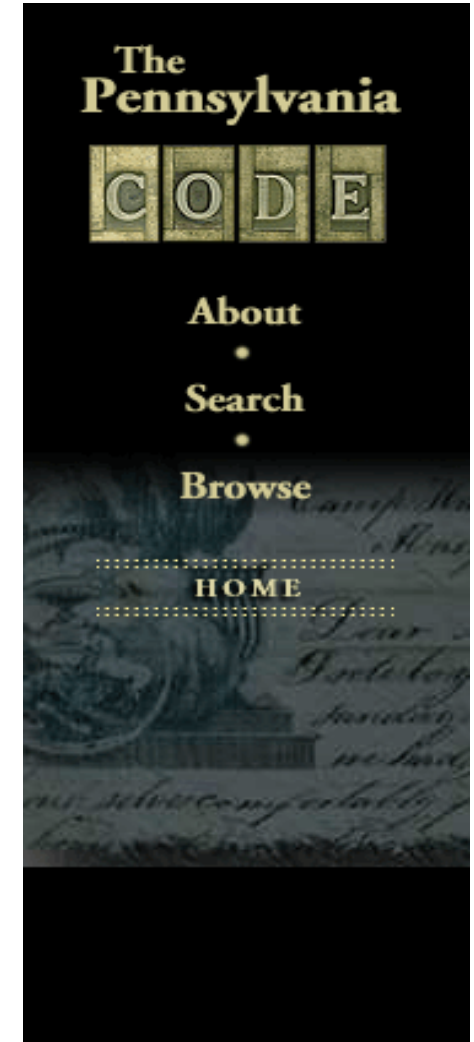
- (l) A person shall prepare and implement a **PPC Plan** when storing, using or transporting materials including fuels, chemicals, solvents, pesticides, fertilizers, lime, petrochemicals, wastewater, wash water, core **drilling wastewater**, cement, sanitary wastes, solid wastes or hazardous materials onto, on or from the project site during earth disturbance activities. The **PPC Plan** shall be available upon request by the Department or conservation district.

## Others:

§ 91.6. Pollution prevention.

§ 91.33. Incidents causing or threatening pollution.

§ 91.34. Activities utilizing pollutants.



# Inadvertent Returns

- IRs are a significant concern with HDD.
- The company is expected to perform studies and surveys to avoid them.
- Where they do occur, there needs to be an *Inadvertent Return PPC Plan\** that deals with them.
- If an IR occurs within Waters of Commonwealth – it is a violation of Ch. 78a.68a(h) and the Clean Streams Law.
  - DEP will send an NOV and may collect penalties.



Source: delcotimes.com

# Key Takeaways of the Trenchless Technology Guidance

- Rather than call it HDD Guidance – we named it TT Guidance since there are a variety of trenchless methods.
- Not all Trenchless Activities are the same. Though all can have issues - the level of analysis should be commensurate with the size & scope of the project.
- Do your homework. Upfront assessment is key – which can be an iterative process. Need a firm understanding of potential risk. (especially to environment and public)
- HDD is not necessarily the least environmentally impacting alternative. There are several factors.
- Location, location, location.



Source: shutterstock.com

# Trenchless Technology Technical Guidance Document

## Section 1. Preamble

### A. Foreword/Executive Summary –

- policies, procedures, and best practices to aid in the prevention of adverse environmental impacts from construction utilizing trenchless technology.
- It is a road map for project proponents
- It outlines the steps and options to be considered when a project proponent, for any project (e.g., fiber optic, pipeline, etc.) proposes the use of a trenchless technology construction method
- It includes a suitability and feasibility analysis, as well as Environmental Considerations, a design and permitting section, and a construction and compliance section.



# Trenchless Technology Technical Guidance Document

## Section 1. Preamble, cont. -

B. Disclaimer

C. Authority

D. Purpose

E. Scope

F. Definitions



Source: co.Williams.com

# Trenchless Technology Technical Guidance Document

## A. Proposed Alternative

## B. Site Suitability Analysis – looks at the physical, technical, and geological constraints of the project.

1. Existing Surface Conditions – (e.g., Topography, Water resources, cultural, etc).
2. Subsurface Conditions – (e.g., geological conditions, soil interfaces and geological contacts, groundwater, existing utilities, such as cross bores, wells).
3. Field Exploration – “ground truthing”. Geotech and Geophysical investigations and hydrogeologic investigations.



Source: [bullyingnoway.gov.au](http://bullyingnoway.gov.au)

# Trenchless Technology Technical Guidance Document

## Section 2. Suitability, Feasibility, and Environmental Considerations, cont.

C. Feasibility Analysis

D. Environmental Considerations

E. Conclusion

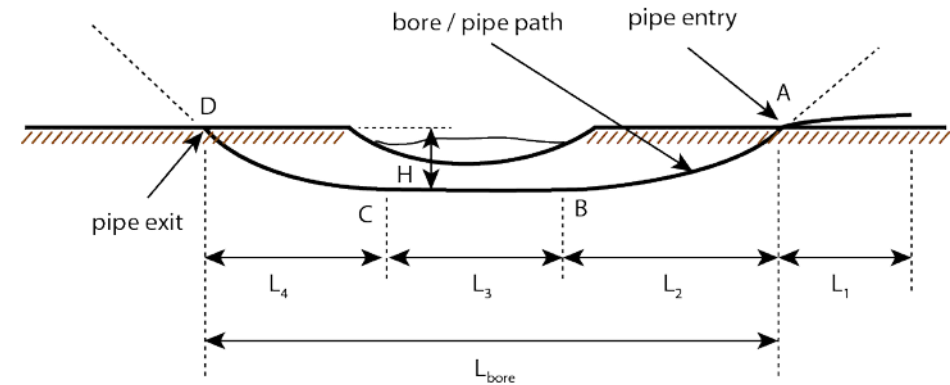


# Trenchless Technology Technical Guidance Document

## A. Preferred Alternative

## B. Design

1. Site Constraints and Topographic Considerations
2. Inadvertent Returns (IRs)
3. Hole Flush
4. Hole Stability
5. Failure Mode Contingency Planning
6. Water Supplies
7. Waters of the Commonwealth



## C. Confirmation

## D. Permitting

# Trenchless Technology Technical Guidance Document

- A. Preparedness, Prevention, and Contingency (PPC) Plan\*
- B. Personnel, Responsibilities, and Trainings
- C. Preconstruction Activities
- D. Drilling Fluid Management



# A Closer Look at PPC Plans

- Regulated by the overarching PA Clean Streams Law
- Generally, for Spill Prevention, Countermeasures & Response at the surface
- For pipelines – especially HDD – can be much more specific and involves the subsurface.
  - Inadvertent Return PPC Plan
    - Bog Turtle Issues
  - Water Supply PPC Plan
  - Geologic Hazards (Karst/Voids/Mines)
- More Details when we discuss Appendices



# PPC Plan: Water Supply Wells

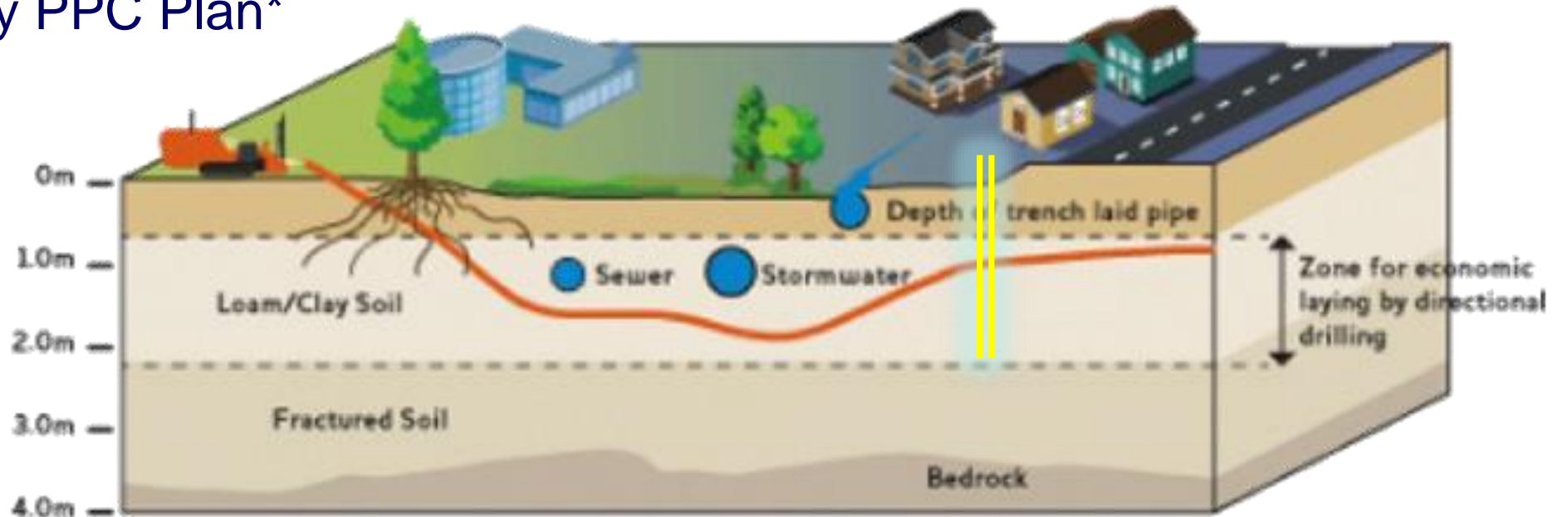
- Though not regulated under Ch. 102 or Ch. 105, the Clean Streams Law requires pipeline companies to avoid and mitigate issues with public and provide water supplies.



Source: canstockphoto.com

# PPC Plan: Water Supply Wells

- Though not regulated under Ch. 102 or Ch. 105, the Clean Streams Law requires pipeline companies to avoid and mitigate issues with public and provide water supplies.
- Impacts to water supplies are also violations and may also result in penalties.
- Water Supply PPC Plan\*



Pipe laying in urban/industrial areas



# Trenchless Technology Technical Guidance Document

## E. Inadvertent Return Minimization and Methodologies

1. Instrumentation
2. Fluid Circulation
3. Loss of Circulation

## F. Inspection, Compliance, Monitoring, and Emergency Response

1. Inspection Protocols
2. Monitoring Protocols
3. Compliance
4. Emergency Response Planning



Source: DEP

# Trenchless Technology Technical Guidance Document

## Appendices

- A. Trenchless Technology Risk Evaluation
- B. Data Resource List
- C. Bore & HDD Flowchart
- D. Instructions for Determining Public Water Supply Source Locations using eMapPA
- E. Example Template for a PPC Plan
- F. Example Notification Letter and Well Construction Questionnaire
- G. Example of Standard Boring Log
- H. Example letter conveying water quality results and notification of EPA Maximum Contaminant Level (MCL) exceedances
- I. Technical Guidance Document – Plan Submittal Checklist

# RPCO Webpage

## RPCO Webpage

The screenshot shows a web browser window displaying the RPCO webpage. The browser's address bar shows the URL <https://www.dep.pa.gov/About/Regional/RPCO/Pages/default.aspx>. The page header includes the Pennsylvania Department of Environmental Protection logo and navigation links for 'About DEP', 'Residents', 'Businesses', 'Public Participation', and 'Data and Tools'. A large banner image depicts a construction site with large green pipes being laid in a trench, with a bridge and a river in the background. Below the banner is a navigation bar with icons and labels for 'Home', 'What is RPCO?', 'Project Submission', 'Pipeline Portal', 'Regional Resources', 'Report an Incident', and 'Contact Us'. The main content area features the heading 'Regional Permit Coordination Office' and a brief description of the office's mission and history. On the right side, there are four blue buttons with white text: 'Project Consultation and Submission', 'RPCO Information Sheet', 'Pipelines', and 'Transportation'.

[www.dep.pa.gov/RPCO](https://www.dep.pa.gov/RPCO)

# Informational Resources

- Pipelines
- Transportation
- Floodplain Restoration
- Stormwater Drainage Wells
- Trenchless Technologies**



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About DEP Residents Businesses

What is RPCO? Project Submission Pipeline Portal Regional Resources Report an Incident

DEP > About DEP > Regional Resources > Regional Permit Coordination Office > Trenchless Technologies

## Trenchless Technologies Resource Page

This webpage provides a centralized collection of information related to trenchless installation methods that project proponents may use to assist them in avoiding impacts to the environment. The goal is to provide best practices applicable to a wide variety of industries for protection of the environment and public safety at the various stages of trenchless development and operation. This includes strategies for planning, permitting, construction and operation.

The demand for underground infrastructure to transport water, wastewater, stormwater, natural gas, oil, and power continues to grow nationwide. Across the Commonwealth of Pennsylvania, there are operators working to make these infrastructure improvements and services more broadly available to homes and businesses. Operators are routinely employing trenchless technologies in their design and construction practices. As Pennsylvania continues to undergo a substantial underground infrastructure build-out the development of guidance is

- Project Consultation and Submission
- RPCO Information Sheet
- Pipelines
- Transportation
- Floodplain Restoration

# Informational Resources

## Trenchless Technology Supporting Documents (under development) ^

1. [Draft Data Resource List](#)
2. [Draft Bore & HDD Flowchart](#)
3. [Draft Instructions for Determining Public Water Supply Source Locations using eMapPA](#)
4. [Draft Example Template for PPC Plans for Pipelines](#)
5. Example Template for PPC Plans for Water and Sewer Lines (under development)
6. Example Template for PPC Plans for Fiber Optic Lines (under development)
7. [Draft Example Notification Letter and Well Construction Questionnaire](#)
8. [Draft Example of Standard Boring Log](#)
9. [Draft Example letter conveying water quality results and notification of EPA maximum contaminant level \(MCL\) exceedances](#)

# Risk Assessment (Appendix A)

1. Drilling fluids other than bentonite or plant-based components under pressure?
2. PNDI receipt show any threats to T&E species
3. Project located within a Zone II wellhead protection area of a Public Water System groundwater source or within a 1,000-foot radius of a potable groundwater source
4. Are portions of the trenchless technology project located within a 2-mile radius of a Public Water System surface water intake?
5. Any evidence of contamination (e.g., USTs, Brownfield, presence of monitoring wells, etc.)?
6. Activity in steep slopes?
7. Activity in questionable geology (e.g., mines, faults, karst, etc.)?
8. Activity occurring with significant elevation difference between entry and exit?

# Risk Assessment (Appendix A)

- Risk Assessment is a tool to help evaluate risk.
- How does it work?
  - 8 criteria identified as above average risk
- Protects the regional reviewer
- Protects the project proponent – evaluation, and subsequent PPC plan, should be commensurate with the size and scope of the project and level of risk.
- Allows for discretion between a pipeline with several crossings vs. fiber optic in all uplands

# Commonly Asked Questions





# Commonly Asked Questions

**Question:** What is going to change in the permitting process once the Trenchless Technology Technical Guidance Document (TGD) is implemented?

# Commonly Asked Questions

**Question:** What is the expected timeline for trenchless crossing permit review once this is implemented?

# Commonly Asked Questions

**Question:** This document is designated as a guidance, not a requirement, so how will PADEP look at submissions in relation to the document?

# Commonly Asked Questions

**Question:** The TGD is very heavy on technical content. Is there going to be a specific competent HDD reviewer to look at the submissions?

# Commonly Asked Questions

**Question:** How will PADEP handle low risk vs. high-risk HDDs or other trenchless methods in regard to feasibility/suitability (i.e. what will need to be required for each)? And how much flexibility will there be based on site specific and project specific conditions.

- Who from PADEP will be the decision maker on high/low risk designations? As mentioned previously, what is the knowledge level of the reviewer making these decisions (competent person)?

# Commonly Asked Questions

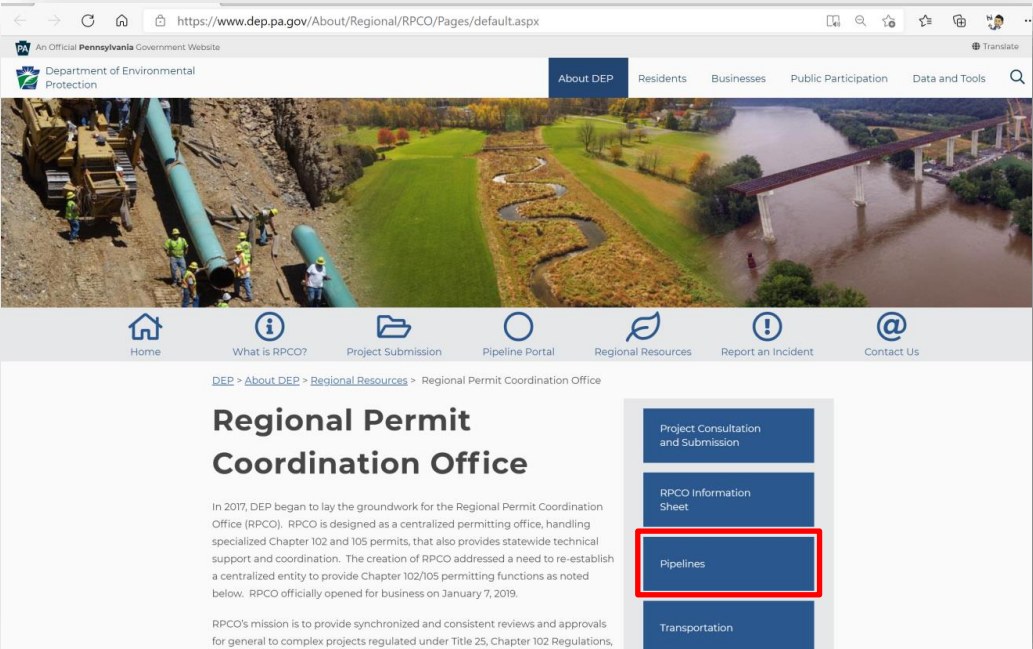
**Question:** Will economic and constructability be included in the decision matrix?

# Next Steps

- Public Comment period closed May 2022 (Final - November 2023)
- Prepare a tutorial video series for the Department's Clean Water Academy?
- Trainings for Regional Offices and County Conservation Districts?
- Additional presentations to Industry
- Merge with other guidance documents to develop a larger guidance manual?

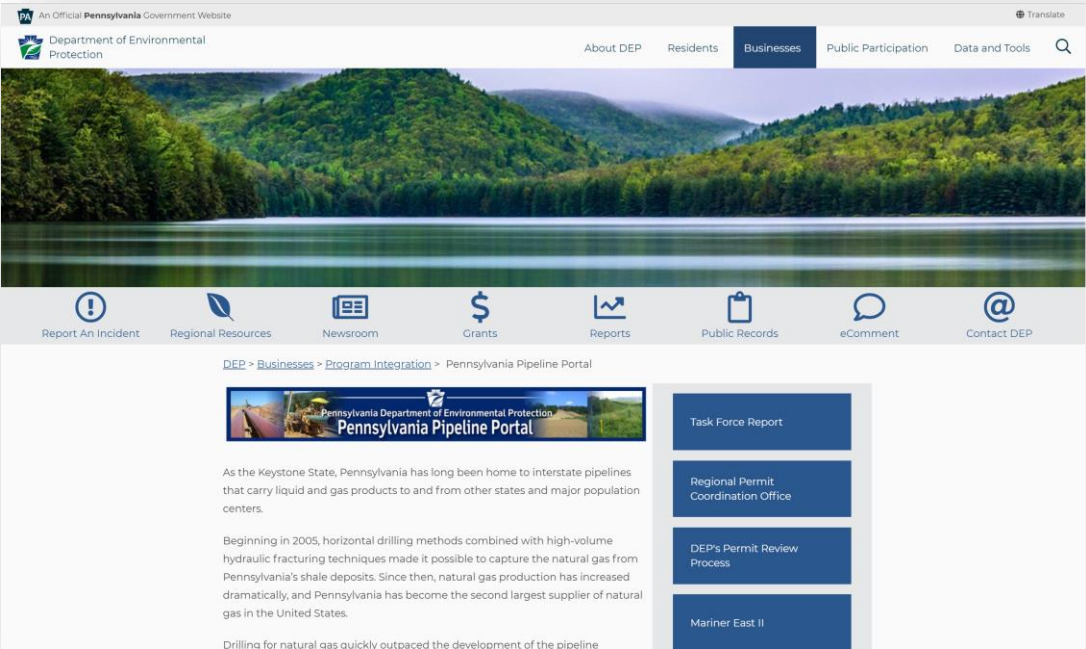
# Informational Resources

## RPCO Webpage



[www.dep.pa.gov/RPCO](https://www.dep.pa.gov/RPCO)

## Pipeline Portal Page



[Pennsylvania Pipeline Portal \(pa.gov\)](https://www.dep.pa.gov/Businesses/ProgramIntegration/PennsylvaniaPipelinePortal)



# Contact

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