

*Regional Energy Access Expansion Project
401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

**SECTION 11.0
POTENTIAL DISCHARGES TO
WATERS OF THE COMMONWEALTH**

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A. Aspects of the Proposed Project that may have the Potential to Discharge to Waters of the Commonwealth during Construction, Operation, and Maintenance of the Proposed Project

A.1 Location and Receiving Waters

Section 10.1 shows the regional location of the Project facilities. Section 10.2 includes aerial maps that identify the proposed pipeline routes, compressor station locations, locations of new ancillary facilities, and locations of aboveground facilities that will be modified as part of the Project. Section 4.0 includes a list of receiving waters and their Chapter 93 designations.

A.2 Construction

Transco will design, construct, test, operate, and maintain all Project facilities to conform with applicable regulations, including USDOT regulations in 49 CFR Part 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*, and Commission regulations in 18 CFR Section 380.15: *Siting and Maintenance Requirements*. In addition, unless otherwise authorized through a modification granted by FERC, Transco will comply with the FERC Plan and FERC Procedures.

A.2.1 General Pipeline Construction Techniques

The general procedures for pipeline construction are described in this section. Transco will use conventional techniques for buried pipeline construction to support safe, stable, and reliable transmission facilities, consistent with Commission and USDOT specifications. Construction of the proposed pipelines will follow a set of sequential operations, unique to the pipeline industry, as described below and reflected in Figure A.2-1. Transco anticipates that the Project will require multiple construction spreads that will proceed along the pipeline ROWs in one continuous operation. Main Line Valve construction will be completed by a special crew which is accounted for in the pipeline crews. Separate crews will be required for each compressor station and aboveground facilities will be grouped into geographic spreads. The entire process will be coordinated in such a manner as to minimize the total time a tract of land is disturbed and, therefore, susceptible to erosion and/or temporarily precluded from its normal use.

Areas requiring special construction plans and techniques may include road or utility crossings, waterbodies and wetlands, unusual topographies associated with unstable soils and trench conditions, residential or urban areas, agricultural areas, areas requiring rock removal, and permanent recreation facilities, among others. Typically, pipeline construction will take place in the following order:

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- Surveying and Staking
- Installation of Erosion and Sediment Controls
- Clearing, Grading, and Fencing
- Trenching
- Pipe Stringing
- Pipe Bending
- Pipe Assembly and Welding
- X-Ray and Weld Repair
- Coating Field Welds, Inspection, and Repair
- Pipe Preparation and Lowering-In
- Tie-Ins
- Padding, Backfilling, and Grade Restoration
- Clean-up and Restoration
- Hydrostatic Testing

Pipeline Construction

How Williams Builds Pipelines



1. Pre-construction survey

Before construction begins, Williams surveys environmental features along proposed pipeline segments. Utility lines and agricultural drainages are located and marked to prevent accidental damage during pipeline construction. The pipeline's centerline and the exterior right-of-way and workspace is staked.

2. Clearing and grading

The pipeline right-of-way is cleared of vegetation. Temporary erosion control measures are installed prior to any earth-moving activities. Topsoil is removed from the work area and stockpiled in agricultural areas.

3. Pipe stringing and bending

Individual joints of pipe are strung along the right-of-way adjacent to the excavated ditch and arranged so they are accessible to construction personnel. A mechanical pipe-bending machine bends individual joints of pipe to the desired angle at locations where there are significant changes in the natural ground contours or where the pipeline route changes direction.

4. Welding, pipe coating and x-ray inspection

After the stringing and bending are complete, the pipe sections are aligned, welded together, and placed on temporary supports along the edge of the trench. All welds are then x-rayed. Line pipe requires a coating at the welded joints. The entire pipe coating is then electronically inspected.

5. Trenching

Williams then uses backhoes and trenching machines to excavate the trench. The soil that is excavated during ditching operations is temporarily stockpiled on the right-of-way.

6. Lowering pipe in and backfilling

The pipe assembly is lowered into the trench by sideboom tractors. The trench is backfilled. No foreign materials are allowed in the trench.

7. Testing

After backfilling, the pipe is filled with water and pressure tested. Tested water is obtained and disposed of in accordance with applicable regulations.

8. Restoration

Williams' policy is to clean up and restore the work area as soon as possible. Disturbed areas are restored, as nearly as possible, to their original contours. Temporary environmental control measures are maintained until the area is restored, as closely as possible, to its original condition.



Figure A.2-1 Typical Pipeline Construction Sequence

A.2.2 Specialized Pipeline Construction Technique

In addition to conventional pipeline construction techniques, specialized construction techniques will be utilized in sensitive resource areas, including waterbody and wetland crossings or in areas with construction constraints, such as residential areas, road crossings, utility crossings, areas with side slopes, and rocky areas. These construction methods will be outlined in Chapter 102 and 105 permit submittals.

A.2.3 General Aboveground Facility Construction

The aboveground facilities will be constructed in accordance with Transco's specifications and USDOT requirements. The duration of construction for the aboveground facilities will vary based on the scope of the work required to construct each proposed facility. Typically, aboveground facility construction will take place in the following order:

- Surveying and Staking
- Installation of Erosion and Sediment Controls
- Clearing, Grading, and Fencing
- Foundations
- Building Design and Construction
- Pressure Testing
- Infrastructure Facilities
- Final Grading / Landscaping

A.3 Operation and Maintenance

Transco will operate and maintain the proposed facilities in compliance with USDOT regulations provided in 49 CFR Part 192, the FERC guidance in 18 CFR 380.15, maintenance provisions of the Transco Plan and Transco Procedures outlined in Appendix A, and applicable laws and regulations. The facilities will be operated and maintained in a manner such that pipeline integrity is protected to confirm that a safe, continuous supply of natural gas reaches its ultimate destination. Maintenance activities will include regularly scheduled gas-leak surveys and measures necessary to repair potential leaks. The latter may include repair or replacement of pipe segments. All fence posts, signs, marker posts, aerial markers, and decals will be painted or replaced to verify that the pipeline locations will be visible from the air and ground. The pipeline and aboveground facilities will be patrolled on a routine basis, and personnel well qualified to

perform both emergency and routine maintenance on interstate pipeline facilities will handle maintenance.

A.3.1 Pipeline Facilities Operation and Maintenance

Operational activity on the pipeline will be limited primarily to maintenance of the permanent ROW and inspection, repair, and cleaning of the pipeline itself. Regular pipeline patrols will provide information on possible leaks, construction activities, erosion, exposed pipe, population density, possible encroachment, and other potential problems that may affect the safety and operation of the pipeline. In addition, Transco will be a participant in the “Dig Safe” system for utility companies in the states where the Project will occur, as well as the national “Call Before You Dig” system. Under either system, anyone planning excavation activities must call a dedicated telephone number to alert all utility companies. Representatives of the utility companies that may be affected then visit the site and mark their facilities so that the excavation can proceed with relative certainty as to the location of all underground lines. The pipeline cathodic protection system also will be monitored and inspected periodically to verify proper and adequate corrosion protection. Appropriate responses to conditions observed during inspection will be taken.

Other maintenance functions will include: 1) periodic seasonal mowing of the ROWs in accordance with the timing restrictions outlined in the Transco Plan; 2) terrace repair, backfill replacement, and drain tile repair, as necessary; 3) periodic inspection of water crossings; and 4) maintenance of a supply of emergency pipe, leak repair clamps, sleeves, and other equipment needed for repair activities. Transco will not use herbicides or pesticides within 100 feet of a wetland or waterbody unless approved by applicable regulatory agencies.

A.3.2 Aboveground Facilities Operation and Maintenance

Transco will operate and maintain the proposed aboveground facilities in accordance with standard procedures designed to verify the integrity of the facilities and to provide its customers and the general public with a safe and dependable natural gas supply. The facilities will be designed, constructed, and operated in accordance with requirements of the Commission, USDOT, and other regulatory requirements, as applicable.

In accordance with USDOT regulations (49 CFR Part 192), the facilities will be inspected regularly for leakage as part of scheduled operations and maintenance. Standard operations at aboveground facilities include activities, such as the calibration, maintenance, and inspection of

equipment; the monitoring of pressure, temperature, and vibration data; and traditional landscape maintenance, such as mowing and application of fertilizer. Standard operations also include the periodic checking of safety and emergency equipment and cathodic protection systems.

Project facilities will be marked and identified in accordance with applicable regulations. Liaison will be maintained with the public and government agencies. Overall, maintenance activities will be in compliance with requirements of the Transco Plan, as well as other applicable regulatory requirements. The aboveground facilities will be linked to Transco's information and data software networks and infrastructure that monitor the pipeline system on a 24-hour-per-day basis.

B. State Permits / Authorizations being Sought to Address the Potential of Discharge into Waters of the Commonwealth

The Project will comply with federal environmental and energy policies and regulations, which include applicable state environmental regulations. The applicable state environmental permits, licenses, approvals, and certificates that have been identified to date and will be sought for the Project are identified in Section 5.0 and are further described below as they relate to water quality and use. Transco and its representatives have and will continue to consult the applicable federal, state, and local regulatory officials and government agencies regarding this Project. Table B-1 below outlines the state permits being sought and a summary of the activity each permit covers.

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Table B-1 – Summary and Description of State Authorizations

Permit/Approval	Description	Plans to be Prepared
CWA 401 Water Quality Certification	A 401 water quality certification is required for projects requiring Federal Energy Regulatory Commission (FERC) approval that may result in a discharge into waters of United States. A water quality certification is issued to ensure that the discharge complies with applicable water quality requirements. Section 401(a)(1) of the CWA (33 U.S.C. § 1341)	<ul style="list-style-type: none"> • Chapter 105 Water Obstruction and Encroachment Permit • Chapter 102 ESCGP-3 • CWA Section 402 NPDES – Hydrostatic Test Water Discharge Permit • Submerged Land License Agreement
Chapter 105 Water Obstruction and Encroachment Permit (Joint Permit Application)	The JPA will ensure water obstructions and encroachments in the Commonwealth are designed in order to protect the health, safety, welfare and property of the people. The permit will assure proper planning, design, construction, maintenance and monitoring of water obstructions and encroachments, in order to prevent unreasonable interference with water flow and to protect navigation. The design will protect the natural resources, environmental rights and values secured by PA. CONST. art. I, § 27 and conserve and protect the water quality, natural regime and carrying capacity of watercourses. (25 PA Code §Chapter 105.2).	<ul style="list-style-type: none"> • Chapter 105 Impact Drawings • Transco Plan and Procedures • Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials • Direct Pipe Monitoring, Inadvertent Return Response, and Contingency Plan
Chapter 102 ESCGP-3 Individual Permit	This permit authorizes activities for oil and gas activities using erosion and sediment controls and stormwater best management practices associated with the project. Transco will conduct earth disturbance activities to develop, implement and maintain BMPs to minimize the potential for accelerated erosion and sedimentation and to manage post construction stormwater. The BMPs shall be undertaken to protect, maintain, reclaim and restore water quality and the existing and designated uses of waters of this Commonwealth. (25 PA Code § Chapter 102.2)	<ul style="list-style-type: none"> • Erosion and Sediment Control/Site Restoration Plans • Post Construction Stormwater Management Plans
CWA Section 402 NPDES – Hydrostatic Test Water Discharge Permit/Approval	The PAG-10 General Permit is intended to provide NPDES permit coverage only for the discharge of water used for the hydrostatic testing of existing or proposed tanks or pipelines, regardless of the contents of such tanks or pipelines.	<ul style="list-style-type: none"> • Testing plans will include facility location and outfall details. • Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials
Submerged Land License Agreement	A SLLA is necessary for any regulated water obstruction or encroachment that occupies submerged lands of the Commonwealth located in a navigable river or stream declared a Public Highway	The SLLA items are included with the JPA submission.

C. Methods, Means and Equipment to be Implemented to Avoid, Treat, Control, Manage or Monitor Potential Discharges

The Project will implement the appropriate Chapter 102 Erosion and Sediment Control and Post Construction Stormwater Management BMP's as outlined in the permit applications. Antidegradation Best Available Combination of Technologies (ABACT) controls will be utilized in special protection watersheds. Perimeter controls will be placed as designed along the Project to protect water quality and use of the surrounding areas. Disturbed areas will be stabilized with the appropriate seed and mulch/erosion control blanket as outlined in the plans. Stormwater management design will result in no net increase in the rate of stormwater runoff and minimize any increase in stormwater runoff volume through use of approved BMP's.

Resources identified in the Chapter 105 plans will also be protected during construction through the use of BMP's outlined in the Chapter 102 plans. Specific resource crossing plans (Susquehanna River) have been developed to address appropriate concerns as it relates to the crossing. During the Project design and routing, Transco worked to avoid and minimize impacts to resources regulated by Chapter 105 by avoiding these resources co-locating the Project where possible as well as implementing workspace reductions at these resources. The workspace presented in the Chapter 105 plans avoids and minimizes resource impacts to the extent practical to meet Project's purpose and need.

Hydrostatic test water will either be hauled to an approved treatment facility or discharged on site per CWA Section 402 NPDES requirements. For those discharged on site, water sampling will be conducted to monitor the water quality, as outlined in the permit conditions.

Specific methods, means and equipment to be utilized to avoid, treat, control, manage or monitor potential discharges are outlined in Appendix A – Transco Plan and Procedures and Appendix B - Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials, which includes the Direct Pipe® Monitoring, Inadvertent Return Response, and Contingency Plan.

In addition, for purposes of quality assurance and compliance with mitigation measures and other applicable regulatory requirements, Transco will be represented on each construction spread by a Chief Inspector. The Chief Inspector will be assisted by one or more craft inspectors and an environmental compliance manager. Additionally, a lead EI will oversee several other EIs. The EIs will have stop work authority. The EIs' duties are consistent with those contained in Transco Plan and Procedures, *Responsibilities of the Environmental Inspector*, of the Transco

Plan and will include ensuring Project compliance with environmental conditions, Transco's environmental designs and specifications, and environmental conditions attached to other permits or authorizations. Prior to construction, Project EIs and the contractor's supervisory personnel will receive copies of the Project permits, compliance documents and the construction drawings.

Transco will conduct safety and specialized training for its EIs and general environmental awareness training for other company construction personnel and contractors regarding proper field implementation of the Transco Plan and Transco Procedures, regulatory conditions, and other mitigation measures. Transco's Operation and Maintenance Plan will include copies of pertinent permits, with particular reference to long-term permit conditions that require training.

Transco's engineering and construction departments are responsible for designing and constructing certificated facilities in compliance with applicable regulatory and non-regulatory requirements and agreements. Issues of non-compliance with mitigation measures or other regulatory requirements that cannot be solved in the field will be addressed by Transco's Construction Manager. If technical or management assistance is required, construction headquarters staff will request assistance from the appropriate Transco department or division. Transco's operations department will be responsible for long-term Project maintenance and regulatory compliance.

Routine reporting or specific communication with regulatory staff regarding design, installation, and maintenance of the facilities will be the responsibility of Transco's Permits Department. Regulatory staff inquiries regarding these proposed facilities should be addressed to Transco's Permits Department.

APPENDIX A

TRANSCO PLAN AND PROCEDURES



Transcontinental Gas Pipe Line Company, LLC

Resource Report No. 1

General Project Description

Transco Plan and Procedures

Regional Energy Access Expansion

March 2021

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Transcontinental Gas Pipe Line Company, LLC

**Transco Project-Specific Upland Erosion Control,
Revegetation, and Maintenance Plan**

Regional Energy Access Expansion

March 2021

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I. APPLICABILITY

- A. The intent of this Plan is to identify baseline mitigation measures for minimizing erosion and enhancing revegetation for the Transcontinental Gas Pipe Line Company, LLC (Transco) Regional Energy Access Expansion (Project). Transco will specify in its application for a new Federal Energy Regulatory Commission (FERC) authorization and in prior notice and advance notice filings, individual measures in this Plan it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe alternative measures they would use. Transco will also explain how those alternative measures would achieve a comparable level of mitigation. Deviations from the FERC Plan proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco will request further changes as variances to the measures in the Transco Plan. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on wetland and waterbody systems are addressed in the Transco Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by Section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.
3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of the Transco Plan, Transco Procedures, the environmental conditions of FERC's Orders, the mitigation measures (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance.
3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area.
5. Identifying erosion/sediment control and soil stabilization needs in all areas.
6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats.
7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities.

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action.
9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction.
10. Ensuring restoration of contours and topsoil.
11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner.
12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices.
13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:
 - a. on a daily basis in areas of active construction or equipment operation;
 - b. a minimum of once a week in areas with no construction or equipment operation; and
 - c. within 24 hours of each 0.5-inch of rainfall.
14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts.
15. Keeping records of compliance with the environmental conditions of FERC's Orders, and the mitigation measures in the Transco application submitted to the FERC, and other federal or state environmental permits during active construction and restoration.
16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

17. Verifying that locations for disposal of excess construction materials for beneficial reuse comply with Section III.E.

III. PRE-CONSTRUCTION PLANNING

Transco will do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra workspace areas, additional temporary workspaces [ATWS] areas, pipe storage and contractor yards, borrow and disposal areas, and access roads) that would be needed for safe construction. Transco will ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.
2. Transco will expand required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.
3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.
2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within three years of the authorized construction.
3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.
4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the Project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.
2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities. Refer to the Transco Project-specific Invasive Species Management Plan.
3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.
4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage

to nearby structures and to prevent debris from entering sensitive environmental resource areas. Refer to the Transco Project-specific Blasting Plan.

G. SPILL PREVENTION AND RESPONSE PROCEDURES

Transco has filed a Project-specific Spill Prevention and Response Procedures, as specified in Section IV of the staff's Procedures. A copy will be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials.

H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, Transco will avoid removal of mature trees and landscaping within the construction work areas unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean-up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. WINTER CONSTRUCTION PLANS

Transco has filed a Project-specific Winter Construction Plan.

The plan addresses:

1. Winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, and topsoil stripping).
2. Stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions).
3. Final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance will be limited to the construction right-of-way, extra workspace areas, ATWS areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any Project-related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, and drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.
2. **The Transco construction rights-of-way widths in upland locations for this Project will include:**
 - a. **90 feet for the Regional Energy Lateral; and**
 - b. **100 feet for the Effort Loop.**

Transco will provide extra workspaces and ATWS areas outside the construction rights-of-way for full construction right-of-way topsoil segregation and to ensure safe construction where required by topographic conditions (e.g., side-slopes) or soil limitations. Extra workspace and ATWS areas may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

Project use of extra workspace and ATWS areas outside authorized work areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. **Transco will request variances (per Section I.A) for these additional areas and will report the requested and approved variances in its weekly construction reports to FERC.** The following materials will be included in the reports:

- a. the location of each additional area by milepost and reference to previously filed alignment sheets showing the additional areas;

- b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and
- c. a statement that landowner approval has been obtained and is available in project files.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, Transco will prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:
 - a. cultivated or rotated croplands, and managed pastures;
 - b. residential areas;
 - c. hayfields; and
 - d. other areas at the landowner's or land managing agency's request.
2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.
3. Where topsoil segregation is required:
 - a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and
 - b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.
4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.
5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.
6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.
2. Probe all drainage tile systems within the area of disturbance to check for damage.
3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.
4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction. Refer to the Transco Project-specific Traffic Management Plan.
2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.
3. Minimize the use of tracked equipment on public roadways. Remove soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair damages to roadway surfaces, shoulders, and bar ditches.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

- a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.
- b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than five percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing in Pennsylvania (closer spacing shall be used if necessary):

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.
- d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

- a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.
- b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

- a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.
 - b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than five percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.
 - c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.
4. Mulch
- a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.
 - b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.
 - c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:
 - (1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in Section V.A.1; or

- (2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.
- d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.
- e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).
- f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.
- g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.
- h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions **(such as higher than average precipitation) or other construction conditions (such as tie-ins and associated travel lanes)** prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup. **Temporary stabilization will be completed in accordance with state permits, and soils will be allowed**

to dry following higher than average precipitation before being returned to the trench. To minimize the number of tie-ins, Transco will utilize field bends where practicable and minimize the number of hydrostatic test sections. Open trench will be protected with safety fence.

Transco has filed with the Secretary for the review and written approval of the Director, a Winter Construction Plan (as specified in Section III.I). Refer to the Transco Project-specific Winter Construction Plan.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in Section IV.F. and inspected and maintained as specified in Sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.
3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.
4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.
5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.
6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.
7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

- a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.
- b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.
- c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.
- d. At a minimum, install a trench breaker at the base of slopes greater than five percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Transco Procedures.
- e. Trench breakers will be installed in wetlands to prevent water from traveling along the trench and altering micro-watersheds within the wetlands.

2. Permanent Slope Breakers

- a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.
- b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.
- d. **Unless restricted by state permitting**, slope breakers may extend slightly (about four feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate pre-construction conditions. Use penetrometers or other appropriate devices to conduct tests.
2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.
3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

- a. Transco will ensure successful revegetation of soils disturbed by Project-related activities, except as noted in Section V.D.1.b.
- b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top two inches of soil as soon as practicable after application.

3. Seeding Requirements

- a. Prepare a seedbed in disturbed areas to a depth of three to four inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.
- b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or at the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.
- c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in Section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

- d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within six working days of final grading, weather and soil conditions permitting, subject to the specifications in Section V.D.3.a through V.D.3.c.
- e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.
- f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).
- g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

- a. signs;
- b. fences with locking gates;
- c. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and
- d. conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.
2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.
4. Restoration will be considered successful when the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per Section V.A.6), revegetation is successful, and proper drainage has been restored.
5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands will not be done more frequently than every three years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case will routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.
6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. REPORTING

1. Transco will maintain records that identify by milepost:
 - a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
 - b. acreage treated;
 - c. dates of backfilling and seeding;
 - d. names of landowners requesting special seeding treatment and a description of the follow-up actions;
 - e. the location of subsurface drainage repairs or improvements made during restoration; and
 - f. problem areas and how they were addressed.
2. Transco will file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by Section VII.A.1; problem areas, including those identified by the landowner; and corrective actions taken for at LEAST 2 YEARS FOLLOWING CONSTRUCTION.

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Transcontinental Gas Pipe Line Company, LLC

**Transco Project-Specific Wetland and Waterbody Construction
and Mitigation Procedures**

Regional Energy Access Expansion

March 2021

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I. APPLICABILITY

- A. The intent of these Procedures is to identify baseline mitigation measures for minimizing the extent and duration of the Transcontinental Gas Pipe Line Company, LLC (Transco) Regional Energy Access Expansion (Project) related disturbance on wetlands and waterbodies. Transco will specify in its applications for a new Federal Energy Regulatory Commission (FERC) authorization, and in prior notice and advance notice filings, any individual measures in these Procedures it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe alternative measures they would use. Transco will also explain how those alternative measures will achieve a comparable level of mitigation. Deviations from the FERC Procedures proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco may request further changes as variances to the measures in the Transco Procedures. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of these Procedures is infeasible or unworkable based on Project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on non-wetland areas are addressed in the Transco Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).

B. Definitions

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
 - a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;

- b. “intermediate waterbody” includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water’s edge at the time of crossing; and
 - c. “major waterbody” includes all waterbodies greater than 100 feet wide at the water’s edge at the time of crossing.
2. “Wetland” includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

II. PRE-CONSTRUCTION FILING

- A. The following information will be filed with the Secretary of FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:
 1. site-specific justifications for additional temporary workspace (ATWS) areas that would be closer than 50 feet from a waterbody or wetland; and
 2. site-specific justifications for the use of a construction right-of-way greater than 75 feet wide in wetlands.
- B. The following information will be filed with the Secretary prior to the beginning of construction:
 1. Spill Prevention and Response Procedures specified in Section IV.A;
 2. a schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. Transco will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;
 3. plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in Section V.B.6.d;
 4. site-specific plans for major waterbody crossings, described in Section V.B.9;
 5. a wetland delineation report as described in Section VI.A.1, and
 6. the hydrostatic testing information specified in Section VII.B.3.

III. ENVIRONMENTAL INSPECTORS

- A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the Project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.
- B. The Environmental Inspector's responsibilities are outlined in the Transco Plan.

IV. PRE-CONSTRUCTION PLANNING

- A. Transco has filed a Project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy will be filed with the Secretary prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials.
 - 1. Transco and its contractors will structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. Transco and its contractors must, at a minimum, ensure that:
 - a. all employees handling fuels and other hazardous materials are properly trained;
 - b. all equipment is in good operating order and inspected on a regular basis;
 - c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;
 - d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector determines there is no reasonable alternative, and that Transco and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

- e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;
 - f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines there is no reasonable alternative, and Transco and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;
 - g. pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and
 - h. bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.
2. Transco and its contractors will structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, Transco and its contractors will:
- a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;
 - b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;
 - c. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U.S. Coast Guard and the National Response Center) that must be notified of a spill; and

- d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in FERC's Orders.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (USACE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.
2. Provide written notification to authorities responsible for potable surface water supply intakes located within three miles downstream of the crossing at least one-week before beginning work in the waterbody, or as otherwise specified by that authority.
3. Apply for state-issued waterbody crossing permits and obtain individual or generic Section 401 water quality certification or waiver.
4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

B. INSTALLATION

1. Time Window for Construction

In-stream construction time windows are based on agency approved permits. As permitted by state agencies, in-stream work, except that required to install or remove equipment bridges, will occur during the following time windows:

- a. **PA Trout Stocked Waters – June 16 through February 28;**
- b. **PA Wild Trout Waters – January 1 through September 30; and**
- c. **PA Class A Wild Trout Waters – April 2 through September 30.**

Transco may request at specific identified locations to perform in-stream work outside of specific state agency windows at individual waterbodies, as approved by state agencies prior to construction.

2. Extra Work Areas

- a. Locate all extra work areas (such as staging areas) and ATWS areas (such as spoil storage areas and full right-of-way topsoil) at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

In select areas, Transco will need to locate ATWS within 50 feet of a stream in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco will file with the Secretary for review and written approval by the Director, site-specific justification for each ATWS area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justifications will specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.

- b. Limit the size of ATWS areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

- a. Comply with the USACE, or its delegated agency, permit terms and conditions;
- b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit;
- c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact;
- d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings;

- e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses;
 - f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete; and
 - g. Crossing of waterbodies when they are dry or frozen and not flowing may proceed using standard upland construction techniques in accordance with the Project-specific Plan, provided the Environmental Inspector verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, Transco must comply with all applicable Procedure requirements for “waterbodies” as defined in Section I.B.1.
4. Spoil Pile Placement and Control
- a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water’s edge or in ATWS areas as described in Section V.B.2.
 - b. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.
5. Equipment Bridges
- a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment
 - b. Construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:
 - (1) equipment pads and culvert(s);
 - (2) equipment pads or railroad car bridges without culverts;
 - (3) clean rock fill and culvert(s); and

(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

- c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.
- d. Design and maintain equipment bridges to prevent soil from entering the waterbody.
- e. Remove temporary equipment bridges as soon as practicable after permanent seeding.
- f. If there will be more than one-month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.
- g. Obtain necessary approval from the USACE, or the appropriate state agency for permanent bridges.

6. Dry-Ditch Crossing Methods

- a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state designated as either coldwater or significant coolwater or warmwater fisheries, or federally designated as critical habitat.
- b. Dam and Pump
 - (1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

- (2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:
 - (i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
 - (ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
 - (iii) screen pump intakes to minimize entrainment of fish;
 - (iv) prevent streambed scour at pump discharge; and
 - (v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

- (1) install flume pipe after blasting (if necessary), but before trenching;
- (2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);
- (3) properly align flume pipe(s) to prevent bank erosion and streambed scour;
- (4) do not remove flume pipe during trenching, pipe laying, or backfilling activities, or initial streambed restoration efforts.; and
- (5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the streambed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, Transco will file with the Secretary for the review and written approval by the Director, a plan that includes:

- (1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
- (2) justification that disturbed areas are limited to the minimum needed to construct the crossing;
- (3) identification of aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;
- (4) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and
- (5) a contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- a. except for blasting and other rock breaking measures, complete in-stream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Stream banks and unconsolidated streambeds may require additional restoration after this period.
- b. limit use of equipment operating in the waterbody to that needed to construct the crossing.
- c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in Section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, Transco will cross intermediate waterbodies using the open-cut crossing method, with the following restrictions:

- a. complete in-stream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;
- b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and
- c. all other construction equipment must cross on an equipment bridge as specified in Section V.B.5.

9. Crossings of Major Waterbodies

Before construction, Transco will file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing. This plan will be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the waterbody or adjacent upland.

Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Transco Plan; however, Transco will implement the following specific measures at stream crossings:

- a. Install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be

re-installed after construction has stopped for the day and/or when heavy precipitation is imminent.

- b. Where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody.
- c. Use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into a waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper one-foot of trench backfill in all waterbodies that contain coldwater fisheries.
2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing in-stream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.
3. Return all waterbody banks to pre-construction contours or to a stable angle of repose as approved by the Environmental Inspector.
4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank re-contouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.
5. Application of riprap for bank stabilization must comply with USACE, or its delegated agency, permit terms and conditions.

6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.
7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.
8. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than five percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan.

In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.
9. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.
2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.
3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

VI. WETLAND CROSSINGS

A. GENERAL

1. Transco will conduct wetland delineations using the current federal methodology and will file wetland delineation reports with the Secretary before construction.

This report will identify:

- a. by milepost all wetlands that would be affected;
- b. the National Wetlands Inventory (NWI) classification for each wetland;
- c. the crossing length of each wetland in feet; and
- d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.
3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally-delineated wetland be expanded beyond 75 feet. Early in the planning process Transco will identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.
4. Wetland boundaries and buffers will be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of Sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of Sections V and VI cannot be met, Transco will file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan will address at a minimum:
 - a. spoil control;
 - b. equipment bridges;
 - c. restoration of waterbody banks and wetland hydrology;
 - d. timing of the waterbody crossing;
 - e. method of crossing; and
 - f. size and location of all extra work areas.
6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads
 - a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.
 - b. Transco will file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area and ATWS with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification will specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

In select areas, Transco will need to locate ATWS within 50 feet of a wetland in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco will file with the

Secretary for review and written approval by the Director, site-specific justification for additional workspace within 50 feet of wetlands. The justifications specify the conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

- c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).
- d. In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
- e. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland.

2. Crossing Procedures

- a. Comply with the USACE, or its delegated agency, permit terms and conditions.
- b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
- c. Use “push-pull” or “float” techniques to place the pipe in the trench where water and other site conditions allow.
- d. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.

- e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.
- f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal. Transco may burn woody debris in wetlands, if approved by the USACE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.
- g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.
- h. Segregate the top one-foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.
- i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.
- j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.
- k. Remove all Project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in

Section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

- a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.
- b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.
- c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.
2. Restore pre-construction wetland contours to maintain the original wetland hydrology.
3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than five percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Project-Specific Plan. In

some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.
5. Transco will consult with the appropriate federal or state agencies to develop a Project-specific wetland restoration plan. The restoration plan will include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Refer to the Project-specific Invasive Species Management Plan.
6. Until a Project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).
7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.
8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in Section VII.A.4 of the Transco Plan.

D. POST-CONSTRUCTION MAINTENANCE AND REPORTING

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.
2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.

3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.
4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.
5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:
 - a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);
 - b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;
 - c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and
 - d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.
6. Within three years after construction, Transco will file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in Section VI.D.5, above.

For any wetland where revegetation is not successful at the end of three years after construction, Transco will develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required;

2. Apply for National Pollutant Discharge Elimination System or state-issued discharge permits, as required; and
3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.
2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address secondary containment and the refueling of these pumps in the Project-specific Spill Prevention and Response Procedures. Refer to the Transco Project-specific Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials.
3. Transco will file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to minimize the potential for entrainment of fish;
2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission;
3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users; and
4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive stream flow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally-listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission.

APPENDIX B

CONSTRUCTION SPILL PREVENTION AND RESPONSE PROCEDURES FOR OIL AND HAZARDOUS MATERIALS

Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials

03.00.002-OG-A

Revision 01

Effective Date 01/23/2020



Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials

REGIONAL ENERGY ACCESS EXPANSION PROJECT

March 2021

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Direct Pipe® Monitoring, Inadvertent Return Response, and Contingency Plan

Abbreviations and Acronyms

CI	Chief Inspector
OM	Operations Manager
dt/day	Dekatherms per day
EC	Emergency Coordinator
LEPC	Local Emergency Planning Committee
Mdt/d	Thousand dekatherms per day
MLV	Mainline valve
MP	Milepost
OD	Outside diameter
PPE	Personal protective equipment
Project	Project Name
SOC	Security Operations Center
SPCC	Spill Prevention Control and Countermeasure
TBD	To be determined

SECTION 1 - GENERAL INFORMATION

1.1. Project Location and Description

Transco, indirectly owned by The Williams Companies, Inc. (Williams), is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) under Section 7(c) of the Natural Gas Act and Part 157 of the Commission's regulations, to construct, own, operate, and maintain the proposed Project facilities.

The Project is an expansion of Transco's existing natural gas transmission system that will enable Transco to provide an incremental 829,400 dekatherms per day (Dth/d) of year-round firm transportation capacity from the Marcellus Shale production area in northeastern Pennsylvania (PA) to multiple delivery points along Transco's Leidy Line in PA, Transco's mainline at the Station 210 Zone 6 Pooling Point¹ in Mercer County, New Jersey (NJ) and multiple delivery points in Transco's Zone 6 in NJ, PA, and Maryland (MD). The Project will consist of the following components:

- Approximately 22.3 miles of 30-inch-diameter pipeline partially collocated with Transco's Leidy Line A from milepost (MP) 0.00 to MP 22.32 in Luzerne County, PA (Regional Energy Lateral);
- Approximately 13.8 miles of 42-inch-diameter pipeline collocated with Transco's Leidy Line System from MP 43.72 to MP 57.50 in Monroe County, PA (Effort Loop);
- New gas-fired turbine driven compressor station identified as Compressor Station 201 with 11,107 nominal horsepower (HP) at International Organization of Standardization (ISO) conditions in Gloucester County, NJ;
- Addition of two gas-fired turbine driven compressor units with 31,800 nominal HP at ISO conditions at existing Compressor Station 505 in Somerset County, NJ, to accommodate the abandonment and replacement of approximately 16,000 HP from eight existing internal combustion engine-driven compressor units and increase the certificated station compression by 15,800 HP;
- Addition of two gas-fired turbine driven compressor units with 63,742 nominal HP at ISO conditions and modification of three existing compressors at existing Compressor Station 515 in Luzerne County, PA to support the Project and to

¹ A pooling point defines the aggregation of gas from multiple physical and/or virtual receipt points to a single physical or virtual point, and the disaggregation of gas from a single physical or virtual point to multiple physical and/or virtual delivery points.

accommodate the abandonment and replacement of approximately 17,000 HP from five existing gas-fired reciprocating engine driven compressors and increase the certificated station compression by 46,742 HP;

- Uprate and rewheel two existing electric motor-driven compressor units at existing Compressor Station 195 in York County, PA to increase the certificated station compression by 5,000 HP and accommodate the abandonment of two existing gas-fired reciprocating engine driven compressors, which total approximately 8,000 HP;
- Modifications at existing Compressor Station 200 in Chester County, PA;
- Uprate one existing electric motor-driven compressor unit at Compressor Station 207 in Middlesex County, NJ to increase the certificated station compression by 4,100 HP;
- Modifications to three (3) existing pipeline tie-ins in PA (Hildebrandt Tie-in, Lower Demunds REL Tie-in, and Carverton Tie-in);
- Addition of regulation controls at an existing valve setting on Transco's Mainline "A" in Bucks County, PA (Mainline A Regulator);
- Modifications at the existing Delaware River Regulator in Northampton County, PA;
- Modifications at the existing Centerville Regulator in Somerset County, NJ;
- Modifications to the existing valves and piping at the Princeton Junction (Station 210 Pooling Point) in Mercer County, NJ;
- Modifications to three (3) existing delivery meter stations in NJ (Camden M&R Station, Lawnside M&R Station, and Mt. Laurel M&R Station);
- Modifications to one (1) existing delivery meter station in MD (Beaver Dam M&R Station);
- Contractual changes (no modifications) at ten (10) existing delivery meter stations in PA and NJ (Algonquin-Centerville Meter Station, Post Road Meter Station, New Village Meter Station, Spruce Run Meter Station, Marcus Hook Meter Station, Ivyland Meter Station, Repaupo Meter Station, Morgan Meter Station, Lower Mud Run Meter Station, and Chesterfield Meter Station);

- Additional ancillary facilities, such as mainline valves (MLVs), cathodic protection, communication facilities, and internal inspection device (e.g., pig) launchers and receivers in PA; and
- Existing, improved, and new access roads and contractor yards/staging areas in PA, NJ, and MD.

Subject to FERC's certification of the Project and receipt of the necessary permits and authorizations, Transco anticipates construction of the Project would commence in third quarter 2022 to meet a proposed in-service date of December 1, 2023.

1.2. Definitions:

Oil is defined in the SPCC regulations as oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil and oily mixtures.

Hazardous Material as defined by the DOT includes:

- Hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter. Hazardous Materials typically found on construction projects include, but are not limited to, petroleum oils, hydraulic fluids, engine coolants (ethylene glycol), x-ray film developer, chemical additives, pipe coatings, used abrasive blasting media, etc. Hazardous Substance is defined in DOT 49 CFR 171.8 and EPA 40 CFR 302.4 and OSHA 29 CFR 1910.120.

Hazardous Materials as specified in contracts means:

- Any substance, materials, and chemicals defined or included in the definition of "hazardous substances," hazardous materials," "toxic substances," "solid wastes," "pollutants," "contaminants," or similar identification, under any Environmental Law.
- Any other chemical, material, or substance, exposure to which is prohibited, limited or regulated by any governmental Authority; or 3) any regulated constituents or substances in concentrations or levels that exceed numeric or risk-based standards established under Environmental Laws.

Hazardous Substance as defined in 49 CFR 171.8 is material, including its mixtures and solutions, that:

- Is listed in the appendix A to §172.101
- Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the appendix A to §172.101 of this subchapter; and
- When in a mixture or solution is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material (except for radionuclides, Under 40 CFR 302.4 (CERCLA), hazardous substances are designated as:
- Listed hazardous substances. The elements and compounds and hazardous wastes appearing in table 302.4 are designated as hazardous substances under section 102(a) of the Act.

- Unlisted hazardous substances. A solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), is a hazardous substance under section 101(14) of the Act if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24.

Under 29 CFR 1910.120, the term "hazardous substance" encompasses those substances defined as hazardous by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT).

1.3. Contractor Responsibility:

The Contractor shall be familiar with this Construction Spill Plan and its contents prior to commencing any construction-related activities. The Plan will be followed to prevent any spills that may occur during the project and to mitigate any spills that do occur.

Company representatives assigned to this project include:

Operations Manager (OM):	<i>Insert name here</i>
Chief Inspector (CI):	<i>Insert name here</i>
Environmental Specialist (Permitting):	<i>Insert name here</i>
Environmental Specialist (Compliance):	<i>Insert name here</i>

SECTION 2 - SPILL PLAN REQUIREMENTS

Contractor shall determine the approximate quantities of oil or oil-like substances (including fuels) and any hazardous materials or substances that will be present or stored at the work site(s) to assist Company’s Environmental Inspector in identifying the appropriate spill plan that shall be applicable for the Work. For Section 2.2 and 2.3 the quantities carried by fuel trucks that are on site temporarily to refuel equipment shall not be included in Contractor’s calculation of the amount of oil or oil-like substances stored at any facility/site.

2.1. Company Construction Spill Plan for Oil and Hazardous Materials

If during the course of Work, any amount of oil or oil-like substances or hazardous materials will be present or stored at any facility/site, or any disturbance of a wetlands or waterbody, Contractor shall comply with and complete the remaining sections and requirements of this document (i.e., Construction Spill Plan). Contractor’s field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the applicable/designated plan. Contractor shall provide Company with additional information to keep the plan current.

2.2. U.S. Environmental Protection Agency Tier I Qualified Facility Spill Prevention, Control, and Countermeasure (SPCC) Plan

If during the course of Work, greater than 1,320 gallons of oil or oil-like substances but less than 10,000 gallons with no containers greater than 5,000 gallons in capacity will be present or stored at any facility/site, Contractor shall comply with 2.1 above and complete the remaining sections

and requirements of this document PLUS comply with and complete the requirements of the “U.S. Environmental Protection Agency Tier I Qualified Facility SPCC Plan,” attached to this section, or develop a full SPCC Plan. Contractor’s field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the plan. Contractor shall provide Company with additional information to keep the plan current.

2.3. U.S. Environmental Protection Agency Full SPCC Plan

If during the course of Work, 5,000 gallons or more of oil or oil-like substances contained in a single container, or a total of 10,000 gallons or more, will be present or stored at any facility/site, Contractor shall comply with 2.1 above and complete the remaining section of this document PLUS comply with and complete the requirements of a full U.S. Environmental Protection Agency SPCC Plan, which must be reviewed and approved by a professional engineer. Contractor’s field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the plan. Contractor shall provide Company with additional information to keep the plan current.

SECTION 3 - DRAINAGE PATTERNS AND SPILL PREVENTION PRACTICES

3.1. Drainage Patterns

Drainage patterns across the Project are dendritic or tree shaped. This pattern develops in a variety of structural and lithological environments such as in the mountainous and hilly areas. The evolution of dendritic pattern is guided by the lithological characteristics mainly the permeability of underlying rocks, the amount and regime of rainfall and resultant surface runoff and the time factor. Typically, surface runoff will sheet flow across level surfaces and will infiltrate into soil and to some degree underlying rocks until permeability and lithological characteristics prevent such infiltration at which point surface to groundwater will discharge downslope in the form of seeps or provide base flow to streams. Surface runoff will channelize as slopes increase or topography funnels flow paths at which time energy will increase and accelerated erosion will begin to form dendritic patterns.

Responsibility: Chief Inspector

Construction and Operations personnel will be familiar with drainage patterns for the project and be prepared to implement measures to control any release.

3.2. Spill Prevention Practices

The Contractor shall take the following precautions to ensure that an oil or hazardous materials spill does not occur:

A. Containers/Pumps/Concrete Coating

1. All containers shall be stored on level ground at least 100 feet from any waterway, wetland, or designated municipal watershed area or as prescribed by a project specific permit. All containers should be located within temporary containment.

2. Temporary containment will include, but not be limited to, temporary hay bale berms with plastic sheets underlining the entire contained area. and it is recommended that these areas be inspected daily or after any significant precipitation event.
3. Containment areas shall be capable of containing 110% of the volume of the single largest container of hazardous material being stored plus sufficient freeboard to hold the 25 year/24 hour storm.
4. All container storage areas shall be routinely inspected for integrity purposes. If hazardous wastes are being stored a weekly inspection must be documented.
5. Leaking and/or deteriorated containers shall be replaced as soon as the condition is first detected with clean-up measures immediately taking place.
6. No incompatible materials shall be stored in the same containment area.
7. No container storage areas shall be left unsecured during non-work hours.
8. Accumulated rainwater in the containment areas must be inspected prior to release to the ground; it must be free of sheens or other hazardous materials.
9. Pumps operating within 100 feet of a waterbody or wetland boundary shall utilize the appropriate agricultural or industrial grade containers/materials as a secondary containment system to prevent spills.
10. Concrete coating operations shall not be performed within 100 feet of a wetland or waterbody unless the location is an existing industrial site designated for such use. If no reasonable alternatives exist, consult with the EI and Company Environmental Lead for other options.

B. Tanks

1. The Contractor shall operate only those tanks that meet the requirements and specifications of applicable regulations and that are surrounded with temporary containment as described above.
2. Self-supporting tanks shall be constructed of materials compatible with its contents.
3. All tanks shall be routinely inspected for integrity purposes.
4. Vehicle mounted tanks shall be equipped with flame/spark arrestors on vents to ensure that self-ignition does not occur.
5. Tanks will not be used to store incompatible materials in sequence unless first thoroughly decontaminated.
6. Any tank utilized for storing different products between construction locations will be thoroughly decontaminated prior to refilling.

C. Unloading/Loading Areas

1. If it is necessary during the project, re-fueling and transferring of liquids shall only occur in pre-designated locations that are on level ground and at least 100 feet from any waterway. Where conditions require construction equipment (e.g., Bobcat/front-end loader/excavator) to be re-fueled within 100 feet of any waterway, or as prescribed by a project specific permit, the above requirements shall also apply and will be strictly enforced. This activity must be continuously manned (minimum of two attendants plus a Company Inspector) to ensure that overfilling, leaks, or spills do not occur. In addition, all this equipment must be surrounded by temporary containment as described above.
2. All service vehicles used to transport fuel must travel only on approved access roads and workspace and be equipped with an appropriate number of fire extinguishers and an oil spill response kit as identified in Table 2 of Appendix A.

D. Inadvertent Return Contingency Plan

1. See Appendix C

SECTION 4 - EMERGENCY RESPONSE PROCEDURES

This section provides a generic description of emergency response procedures to be performed to address oil and hazardous materials spills at the job site. Each response will vary depending upon the nature and extent of the incident. However, the general procedures outlined below will be followed.

4.1. Contractor Responsibilities

1. The Contractor must designate both an Emergency Coordinator (EC) and an Alternate EC for the project.
2. The Contractor is responsible for appropriately addressing all spills that occur directly as a result of construction-related activities.
3. For all spills the internal notification requirements of this Plan as well as WIMS 11.05.00.01 – Incident Notification and Reporting need to be followed. For spills (spills that take less than a shovel-full of dirt to clean-up), no internal notification requirements of this Plan need to be followed. However, this does not relieve the Contractor from appropriately remediating the area and reporting the spill in the daily report.
4. The Contractor shall supply the necessary manpower, PPE, and spill response equipment to appropriately address all spills that directly occur as a result of construction-related activities.
5. Ensure that all emergency spill response equipment and PPE is well-stocked and in good condition. Replace used materials when necessary.
6. If the situation warrants it, the Contractor, in consultation with the CI, shall immediately notify any local emergency spill response contractors for assistance.
7. The Contractor shall be responsible for hiring a Company approved emergency spill response contractor if the nature of the incident requires it.
8. The Contractor is responsible for immediately notifying the CI, EI or Operations Manager of any spills. The Contractor is responsible immediately reporting all spills to the CI (or OM) who will immediately contact Security Operations Center (SOC) at **855-945-5762** per 11.05.00.01 – Incident Notification and Reporting. Table 2 (of Appendix A) includes a list of emergency contacts.

4.2. Company Responsibilities

1. The Company shall be responsible for ensuring that the Contractor adequately follows the procedures outlined in this Plan at all times.
2. The Company shall be responsible for all verbal and written external notifications made to any regulatory agency or any local emergency responders.

4.3. Emergency Contacts

Table 1 (Appendix A) provides a list of Company and Contractor emergency contacts.

4.4. Duties of Chief Inspector or Operations Manager

The duties of the CI, EI or OM for reportable spills include the following:

1. Determine the source, character, amount, and extent of the spill.
2. Assess the potential hazards to the job site, environment, and surrounding community and contact the Construction Employee Safety Representative if any hazards are detected.
3. Evacuate the area if necessary.
4. Report the spill in accordance with the internal notification procedures outlined in Section 5.1 and the external notification procedures outlined in Section 5.2.
5. Commit manpower and equipment for minor incidents that can be reasonably remediated by the Contractor.
6. Oversee Contractor's spill response efforts to contain and control all spills to ensure they adequately follow the procedures outlined in this Plan.
7. Document the Contractor's response effort, including taking photographs wherever possible.
8. Generate a Concern Report, or request that the SOC generate a Concern Report.

SECTION 5 - EMERGENCY SPILL RESPONSE AND PERSONAL PROTECTIVE EQUIPMENT

Table 2 (Appendix A) provides a list of the minimally required Emergency Spill Response Equipment and Personal Protective Equipment (PPE) for this project.

SECTION 6 - SPILL NOTIFICATION PROCEDURES

6.1. Internal Notifications

1. All spills are to be immediately reported to the CI, EI or OM who will immediately contact SOC per [11.05.00.01 – Incident Notification and Reporting](#). Table I (Appendix A) includes a list of emergency contacts.
2. The person reporting the spill/release should review Appendix B for a list of minimum information requirements needed for reporting to the SOC.
3. The SOC is responsible for generating a Concern Report and notifying the appropriate Environmental Specialist.
4. The Environmental Specialist will review the Concern Report and “escalate” or “close” the concern as appropriate.
5. The SOC is responsible for notifying Manager, Environmental Services, as specified in [11.05.00.01 – Incident Notification and Reporting](#). Included as Appendix A is Table 1, which is a list of Company and Contractor emergency contact numbers.

6.2. External Notifications

1. The SOC is responsible for immediately notifying the National Response Center (NRC), and other regulatory agencies, as specified in [11.05.00.01 – Incident Notification and Reporting](#).
2. The CI, EI and or OM will consult with the appropriate Company Lead Environmental Specialist and determine who will be responsible for any necessary first-response notifications to an emergency spill response team to help contain the spill. If the spill occurs offshore, refer to the Offshore Spill Response Plan (OSRP). The CI (or OM) is responsible

for any necessary first-response notifications to an emergency spill response team for assistance containing the spill. If the spill occurs offshore, refer to the Offshore Spill Response Plan (OSRP).

3. After all required immediate notifications are made by the SOC, Manager, Environmental Services will make any necessary subsequent verbal and written notifications to regulatory agencies.
4. If a spill poses a threat to human health or the environment, the SOC, shall coordinate with the EH&S Representative for the affected area to immediately contact the Local Emergency Planning Committee (LEPC). When determining if the LEPC should be contacted or not, any gas release to the atmosphere must be taken into consideration. Note: Linear Projects may extend through multiple LEPC jurisdictions. As a result, all jurisdictions must be listed below.

The appropriate LEPC is:

Name:	<i>Enter</i>
Organization:	<i>Enter</i>
Phone Number:	<i>Enter</i>

6.3. Emergency Spill Response Contractors

The Company has arrangements with several emergency spill response contractors to address emergency responses beyond the capabilities of the Contractor.

If necessary, the following firms could be utilized for this project:

Company:	<i>Enter</i>
Name:	<i>Enter</i>
Location:	<i>Enter</i>
Phone Number:	<i>Enter</i>

Company:	<i>Enter</i>
Name:	<i>Enter</i>
Location:	<i>Enter</i>
Phone Number:	<i>Enter</i>

6.4. Local Emergency Responders

The Contractor or the CI (or OM) may call the following local emergency responders should their assistance be required:

Service	Telephone Number
Emergency Medical Services	<i>Enter</i>
Hospital	<i>Enter</i>
Fire	<i>Enter</i>
Police	<i>Enter</i>

Note: Linear Projects may extend through multiple Emergency Responder areas. Contractor must ensure all jurisdictions are listed. Use attachments as needed.

SECTION 7 – CLEAN-UP PROCEDURES

The following section outlines specific procedures to be followed when addressing spills:

7.1. Spills

1. Small spills and leaks must be remediated as soon as feasible. Use absorbent pads wherever possible.
2. Restrict spills to the containment area, if possible, by stopping or diverting flow.
3. If the spill exceeds the containment structure's capacity, immediately construct additional containment using sandbags or fill material. Every effort must be made to prevent the spills from entering a water body.
4. If a spill reaches a water body, immediately place oil booms downstream in order to contain the material. As soon as possible, remove the floating layer with absorbent pads.
5. After all recoverable oil has been collected and drummed, place all contaminated PPE, spill clean-up equipment, and any impacted soil into appropriate containers.
6. For significant quantities of impacted soils, construct temporary waste piles using plastic sheets. This material should subsequently be transferred into lined roll-off boxes as soon as feasible.
7. The Company Lead Environmental Specialist will coordinate all waste characterization, profiling, and disposal activities.

7.2. Equipment Cleaning/Storage

1. Upon completion of remedial activities, the Contractor shall be responsible for decontaminating the used emergency response equipment as well as the PPE.
2. The Contractor shall be responsible for replacing any spent emergency response equipment and PPE prior to resuming construction-related activities.
3. Decontamination rinse fluids shall be collected and containerized. The Environmental Specialist will coordinate waste characterization and disposal activities.
4. Reusable PPE shall be tested and inventoried prior to being placed back into service.

7.3. Waste Disposal

The Contractor may be responsible for waste management and waste disposal or any waste generated as the result of a spill (review contract language and project specifics). However, the Contractor's Environmental Representative will coordinate with the Williams Environmental Specialist for all waste characterization, profiling, and disposal activities. The Williams Environmental Specialist should refer to 03.00.00.03 – Waste Management, as needed.

Appendix A

Table 1: List of Emergency Contacts

Name	Job Description	Phone Number (24-hr)
Security Operations Center (SOC)	24-hour Call Center	855-945-5762
Chief Inspector	<i>Insert name here</i>	<i>Enter number</i>
Operations Manager	<i>Insert name here</i>	<i>Enter number</i>
Environmental Specialist	<i>Insert name here</i>	<i>Enter number</i>
Contractor	Job Description	Phone Number
Emergency Coordinator	<i>Insert name here</i>	<i>Enter number</i>
Alternate Emergency Coordinator	<i>Insert name here</i>	<i>Enter number</i>
Regulatory Agencies	Name	Phone Number
	National Response Center	800/424-8802
	State Emergency Response Commission (SERC)	<i>Enter number</i>
	<i>Insert jurisdictional agency here (LEPC, FD, PD, Sheriff, etc.)</i>	<i>Enter number</i>

Table 2: Emergency Spill Response and Personal Protective Equipment

Modify this list as necessary for site conditions. *Minimum requirements are shown with an **.

Equipment	Quantity	Location
Chemical spill kit	1	adjacent to workspace
Oil spill kit	1	adjacent to workspace

SPILL RESPONSE EQUIPMENT:
1, 55-gallon open-head drum *
Blank drum labels *
2 shovels *
1 oil boom (10' x 3") * / 2 oil booms recommended
10 oil pillows (18" x 18") *
10 oil socks (48" x 3") *
25 oil mats/pads (24" x 24") *
1 box garden-sized, 6-mil, disposal polyethylene bags (w/ ties) *
1 bag loose chemical pulp 3 chemical pillows (18" x 18")
3 chemical socks (48" x 3") 10 chemical mats/pads (24" x 24")

PERSONAL PROTECTIVE EQUIPMENT:
The inventory of PPE should include enough for at least 4 responders reacting to a significant leak/spill.
4 pairs of oil-proof gloves *
Splash goggles
half-face respirators (w/ cartridges for benzene)
Tyvek suits
waterproof/ chemical resistant hip-waders

Appendix B

Spill/Release Reporting Checklist

Call SOC for any Spill. Gather the following information when reporting spills/releases to the SOC:	Notes	
Name, title, company and phone number of person reporting incident		
Spill/release location, project, facility, right-of-way (state, county, city, township, range, address, coordinates, nearest crossroads)		
Date of spill/release		
Time of spill/release		
Was material released as a liquid, solid, or gas?		
Description of material released (oil, hydraulic fluid, glycol, condensate, etc.)		
Estimated amount (volume or weight) of material spilled/released (Specify Unit – gal, ft ³ , lbs., etc.)		
Has spill/release been stopped?		
Duration of spill/release (date and time release was stopped)		
Affected media (land, water, air, secondary containment, building, etc.)		
Has affected area of spill/release been cleaned up?		
Duration of spill/release cleanup activities		
Estimated volume and/or weight of cleaned up material. Specify type of material removed such as soil, concrete, pads, and unit of measure (gal, ft ³ , lbs., etc.)		
Containment of cleaned up material (drum, tank, roll off) and location (spill site, contractor yard, station)		
Brief description of cause of spill/release		
Complete Environmental Concern Report – Contact SOC		
Contacts:	SOC (Required)	
	Supervisor	
	Pipeline Control	
	Environmental Specialist	
Additional Notes:		

Revision History

Rev Date	Rev #	Request #	Section #	Description
01/23/2020	00	N/A	N/A	New WIMS Operating Guideline attachment.
3/18/2021	01	N/A	N/A	Regional Energy Access Expansion Project

Attachment C

Direct Pipe® Monitoring, Inadvertent Return Response and Contingency Plan



Transcontinental Gas Pipe Line Company, LLC

**Direct Pipe® Monitoring,
Inadvertent Return Response, and Contingency Plan**

Regional Energy Access Expansion

March 2021

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List of Acronyms and Abbreviations

cfs	Cubic feet per second
CI	Chief Inspector
Commission	Federal Energy Regulatory Commission
Contractor	Direct Pipe® Contractor
DP	Direct Pipe®
Dth/d	Dekatherms per day
EI	Environmental Inspector
FERC or Commission	Federal Energy Regulatory Commission
HDD	Horizontal Directional Drill
Plan	Direct Pipe® Monitoring, Inadvertent Return Response, and Contingency Plan
HP	Horsepower
IR	Inadvertent Return
ISO	International Organization for Standardization
Mdt/d	Thousand Dekatherms Per Day
MLV	Mainline Valve
MP	Milepost
M&R	Meter and Regulating
NSF/ANSI	NSF/American National Standards Institute
NTU	Nephelometric Turbidity Units
OD	Outside Diameter
Project	Regional Energy Access Expansion
Protocol	Drilling Fluids Management Protocol
ROW	Right-of-Way
SDS	Safety Data Sheets
State Agency	State Agency
Transco	Transcontinental Gas Pipe Line Company, LLC
Williams	The Williams Companies, Inc.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Transco, indirectly owned by The Williams Companies, Inc. (Williams), is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) under Section 7(c) of the Natural Gas Act and Part 157 of the Commission's regulations, to construct, own, operate, and maintain the proposed Project facilities.

The Project is an expansion of Transco's existing natural gas transmission system that will enable Transco to provide an incremental 829,400 dekatherms per day (Dth/d) of year-round firm transportation capacity from the Marcellus Shale production area in northeastern Pennsylvania (PA) to multiple delivery points along Transco's Leidy Line in PA, Transco's mainline at the Station 210 Zone 6 Pooling Point¹ in Mercer County, New Jersey (NJ) and multiple delivery points in Transco's Zone 6 in NJ, PA, and Maryland (MD). The Project will consist of the following components:

- Approximately 22.3 miles of 30-inch-diameter pipeline partially collocated with Transco's Leidy Line A from milepost (MP) 0.00 to MP 22.32 in Luzerne County, PA (Regional Energy Lateral);
- Approximately 13.8 miles of 42-inch-diameter pipeline collocated with Transco's Leidy Line System from MP 43.72 to MP 57.50 in Monroe County, PA (Effort Loop);
- New gas-fired turbine driven compressor station identified as Compressor Station 201 with 11,107 nominal horsepower (HP) at International Organization of Standardization (ISO) conditions in Gloucester County, NJ;
- Addition of two gas-fired turbine driven compressor units with 31,800 nominal HP at ISO conditions at existing Compressor Station 505 in Somerset County, NJ, to accommodate the abandonment and replacement of approximately 16,000 HP from eight existing internal combustion engine-driven compressor units and increase the certificated station compression by 15,800 HP;
- Addition of two gas-fired turbine driven compressor units with 63,742 nominal HP at ISO conditions and modification of three existing compressors at existing

¹ A pooling point defines the aggregation of gas from multiple physical and/or virtual receipt points to a single physical or virtual point, and the disaggregation of gas from a single physical or virtual point to multiple physical and/or virtual delivery points.

Compressor Station 515 in Luzerne County, PA to support the Project and to accommodate the abandonment and replacement of approximately 17,000 HP from five existing gas-fired reciprocating engine driven compressors and increase the certificated station compression by 46,742 HP;

- Uprate and rewheel two existing electric motor-driven compressor units at existing Compressor Station 195 in York County, PA to increase the certificated station compression by 5,000 HP and accommodate the abandonment of two existing gas-fired reciprocating engine driven compressors, which total approximately 8,000 HP;
- Modifications at existing Compressor Station 200 in Chester County, PA;
- Uprate one existing electric motor-driven compressor unit at Compressor Station 207 in Middlesex County, NJ to increase the certificated station compression by 4,100 HP;
- Modifications to three (3) existing pipeline tie-ins in PA (Hildebrandt Tie-in, Lower Demunds REL Tie-in, and Carverton Tie-in);
- Addition of regulation controls at an existing valve setting on Transco's Mainline "A" in Bucks County, PA (Mainline A Regulator);
- Modifications at the existing Delaware River Regulator in Northampton County, PA;
- Modifications at the existing Centerville Regulator in Somerset County, NJ;
- Modifications to the existing valves and piping at the Princeton Junction (Station 210 Pooling Point) in Mercer County, NJ;
- Modifications to three (3) existing delivery meter stations in NJ (Camden M&R Station, Lawnside M&R Station, and Mt. Laurel M&R Station);
- Modifications to one (1) existing delivery meter station in MD (Beaver Dam M&R Station);
- Contractual changes (no modifications) at ten (10) existing delivery meter stations in PA and NJ (Algonquin-Centerville Meter Station, Post Road Meter Station, New Village Meter Station, Spruce Run Meter Station, Marcus Hook Meter Station, Ivyland Meter Station, Repaupo Meter Station, Morgan Meter Station, Lower Mud

Run Meter Station, and Chesterfield Meter Station);

- Additional ancillary facilities, such as mainline valves (MLVs), cathodic protection, communication facilities, and internal inspection device (e.g., pig) launchers and receivers in PA; and
- Existing, improved, and new access roads and contractor yards/staging areas in PA, NJ, and MD.

Transco is proposing to use the Direct Pipe® (DP) construction method to cross the Susquehanna River as part of the Project. As part of the FERC's *Guidance for Horizontal Directional Drill Monitoring, Inadvertent Return Response, and Contingency Plans*, FERC defines an HDD as any type of trenchless construction method, including horizontal directional drilling and proprietary technologies, that utilizes drilling fluids under pressure. Although Transco is not proposing an HDD, Direct Pipe® technology would fit under this definition because it is a trenchless method that utilizes drilling fluid under pressure.

Transco has conducted geotechnical studies at the proposed DP crossing to evaluate the risks inherent in using the DP crossing method and has determined that the proposed crossing is feasible with a high likelihood of success. Transco has developed this DP Monitoring, Inadvertent Return Response, and Contingency Plan (Plan) to establish procedures for monitoring and managing risks throughout the installation, and to allow for a quick and organized response in the event of an inadvertent release during the DP process. The specific objectives of this Plan include:

- Defining the DP process and how to identify when it has failed and should be abandoned;
- Identifying the procedures that will be followed if a DP must be abandoned;
- Minimizing the potential for an inadvertent release of drilling fluids;
- Identifying the timely detection of an inadvertent release of drilling fluids;
- Providing for environmental protection of waterbodies and associated habitats, in the event an inadvertent release occurs;
- Establishing response procedures to address containment and clean-up of an inadvertent release of fluids; and
- Providing for notifying the appropriate parties and regulatory agencies in the event of an inadvertent release of fluids.

Transco will ensure that the DP Contractor(s) (Contractor) complies with the methods outlined herein during construction, restoration, and operation of the Project. Contractor

personnel will be trained on the requirements of this Plan during mandatory pre-construction environmental training. Compliance will be documented in the field by Environmental Inspectors (EI) in weekly construction inspection reports, which will be submitted to FERC for review and comment. This Plan is subject to revision based on new data or on agency recommendations.

Preparing for a successful DP crossing, one that minimizes impacts to sensitive resources and the surrounding communities, means that the Project team has:

- Identified the appropriate resources to oversee the installation and provided clear direction on roles and responsibilities.
- Trained its personnel on how to properly monitor conditions of the installation so that they may recognize both normal and abnormal operating conditions.
- Trained its employees on how to respond to abnormal operating conditions, to take corrective or mitigating actions before a warning sign escalates into something more concerning.
- Trained its employees on how to respond to an inadvertent return, so they may understand direct actions that need to be taken in the field to mitigate the impact, and so they may know how to report such an incident.

1.2 DIRECT PIPE® PROCESS

The DP installation method is a single-pass trenchless pipe installation method that is a registered trademark of the trenchless technology system developed by Herrenknecht AG, Germany. It combines the benefits of microtunneling and HDD techniques. Relative to a traditional HDD installation, this technology minimizes the likelihood of hydraulic fracture and inadvertent release of drilling fluids because lower annular fluid pressures are required. This method uses simultaneous borehole excavation and pipe installation in a single pass process which reduces the risk of hole collapse.

DP is a remotely-controlled, guided, steerable, pipe installation process that provides continuous support to the excavation face. The process involves pushing pipe (casing or product pipe), behind a micro-tunneling boring machine (MTBM) from a pipe thruster positioned in a launch pit. A key element of DP is the ability to continuously support and control the tunnel face by applying mechanical force from the pipe thruster as well as slurry fluid pressure to the tunnel face that balances soil and groundwater pressures. A cutter wheel at the leading end of the MTBM excavates material as a pressurized slurry system removes the cuttings through a dedicated discharge line located inside of the pipe. Since the slurry returns through dedicated discharge

lines inside the pipe, the risk of inadvertent returns is reduced. The DP process does not require routine personnel entry into the tunnel; however, entry may be required for survey verification or repair/maintenance activities.

1.3 DIRECT PIPE® CROSSING INFORMATION

The following tables summarize basic information for the DP location associated with the project. Please note there is not a Wetland Crossings table as there are no wetlands being crossed with the DP.

- **Table 1:** Provides information pertaining to the proposed **DP crossing** location including the crossing name, pipeline diameter, location (DP launching and receiving milepost), total length; and subsurface material.
- **Table 2:** Provides information pertaining to the proposed **waterbody crossings** including a unique feature identification, stream flow rate, DP launching and receiving stationing, elevation difference, depth of cover, and horizontal setback from the DP launching and receiving exit locations.
- **Table 3:** As recommended by the FERC Guidance, this table contains an abbreviated list of **potential unique conditions** or features that may increase the risk of DP failure or potential resource impacts. Subsurface mines were the only example of unique conditions that was encountered at this DP site. The subsurface mines were anticipated to cause significant problems for the HDD construction method, but this DP has been designed with safe separation above any potential mining activity.

**Table 1
Proposed DP Locations**

Crossing Name	Pipeline Diameter (inches)	Approx. Entry Milepost	Approx. Exit Milepost	Total Length (feet)	Subsurface Material
Project Component Name					
Susquehanna River	30	13.72	13.47	1,297	Clay, Sand, Silt, and Gravel

**Table 2
DP Waterbody Crossings**

Waterbody ID (Name)	Estimated Range of Stream Flow During Crossing (cfs)	Entry Station ¹	Exit Station ^a	Entry/Exit Elevation Difference (feet)	Depth of Cover ^b (feet)	Horizontal Setback Distance (Entry/Exit, feet) ^c
DP ID						
Susquehanna River	855 to 8,846	0+00	12+97	6.7 feet	~25 – 45 feet	Entry - ~270 feet Exit - ~273 feet
^a Stationing as shown on Direct Pipe® Design Drawing. E&S stationing has not yet been developed. ^b Vertical separation between the bed of the waterbody and the DP profile ^c Distance from the closest edge of the sensitive resource being crossed to the DP entry and exit locations						

**Table 3
Unique Conditions or Features within Proximity to DP**

Unique Condition	Description and Mitigation
DP ID: Susquehanna River	
Subsurface mines	Subsurface coal mining was observed in the desktop geology review, with coal seams identified in some of the geotechnical borings completed. These mines were considered problematic for the HDD method at this site. This DP has been designed within the alluvial soils overlying the bedrock with safe clearance above the potential coal seams/voids.

2 PERSONNEL AND RESPONSIBILITIES

2.1 GENERAL / SHARED RESPONSIBILITIES

Transco and the Contractor will employ qualified personnel prior to the start of DP operations that have responsibilities in their field. The project team have overall responsibility for implementing this Plan and ensuring compliance. Additionally, compliance with this Plan and all Project permits as noted in Resource Report 1, is the responsibility of all personnel on this Project, including the Contractor.

Shared responsibilities include:

- Verify that a copy of this Plan is available on-site and accessible to all construction personnel.
- Verify that all workers are properly trained and familiar with all aspects of the DP activity and with the implementation of the Plan, prior to and during tunneling operations.
- Verify that all DP equipment is in working order, including annular pressure monitoring equipment.
- Monitoring the DP alignment for IRs and other signs of environmental impact.
- Maintain constant communication with project team leadership and Contractor personnel if an IR is suspected.
- In the event of an IR, coordinate corrective actions and the cleanup response and notify regulatory agencies timely. Verify all waste materials are properly containerized, labelled, and removed from the site to an approved facility.
- Confirm that drilling mud/spoils/cuttings associated with the crossings are managed and disposed of at an approved facility if contaminated soil is encountered.
- Recognize that all personnel on site have the authority to stop work. Stop work may be utilized as response protocols require, or it may be utilized in the event this Plan is not being followed.

2.2 SPECIFIC OVERALL ROLES AND RESPONSIBILITIES

The Contractor will be responsible for conducting all DP operations in accordance with all Project permits, the engineering/geotechnical design, best management practices, industry standards, and this plan. Transco's project team will monitor and record DP operations and

ensure compliance with all applicable permit conditions. Specific overall roles and responsibilities for personnel are:

Project Manager (PM) – The Project Manager is the leader of the project team and has the accountability for all aspects of the Project.

Trenchless Engineer – Transco will designate an engineer responsible for the trenchless design and engineering review of the DP throughout the entire project life cycle.

Construction Manager (CM) – Individual who has direct oversight over the inspection workforce, contractor, and all construction activities associated with the Project.

Spread Chief Inspector (CI) – Transco will designate a CI for the Regional Energy Lateral project scope item. The CI will have overall authority for construction activities that occur on the Regional Energy Lateral, including the DP installation.

Trenchless Inspector – The Trenchless Inspector's primary responsibility is to observe and document all DP site activities occurring during each shift. The Trenchless Inspector will be familiar with this Plan, the Contractor's drill plan, the Project specifications, and all permit conditions. The Trenchless Inspector shall ensure the Contractor follows all items as described in this plan. Should the Trenchless Inspector observe a deviation or out of compliance condition, the CI, CM, and EI shall be notified immediately.

Environmental Inspector (EI) – One EI will be assigned during active construction. The EI will have peer status with all other activity inspectors and will report directly to the Transco CI who has overall authority on the Construction Right-of-Way (ROW). Some larger projects will have a Lead EI. In this case, the Lead EI will report directly to the CI. The EI will have the authority to stop activities that violate the environmental conditions of the FERC Certificate (as applicable), other federal and state permits, or landowner requirements and to order corrective action.

Environmental Compliance Manager (ECM) – The ECM works closely with the Environmental Project Lead to provide guidance to and ensure consistency from the EIs. The ECM also coordinates with EIs on the documentation of field conditions or concerns and pushes that information to the Environmental Project Lead.

Environmental Project Lead – The Environmental Project Lead is the project lead for permitting and environmental compliance efforts. This person is typically the point of contact between the Company and regulatory agencies.

General Contractor Superintendent – The General Contractor Superintendent will be the senior field representative of the Contractor. This Superintendent has responsibility for the entire construction spread, including the DP installation.

DP Superintendent – The DP Superintendent will be the senior on-site representative of the Contractor and will have the overall responsibility for implementing this Plan on behalf of the Contractor. The DP Superintendent will report directly to the General Contractor Superintendent. The DP Superintendent will be familiar with all aspects of the DP activities, the contents of the Plan, and the conditions of approval under which the activity is permitted to take place. The DP Superintendent will make a copy of this Plan available at the drill site and will distribute it to the appropriate construction personnel. The DP Superintendent will ensure that workers are properly trained and familiar with the necessary procedures for response to an IR.

DP Operator – The DP Operator will be responsible for operating the DP equipment and pumps, monitoring circulation back to the DP launching location and monitoring annular pressures during tunneling. In the event of loss of circulation or abnormal annular pressure readings, the DP Operator must communicate the event to the DP Foreman, Superintendent, and Contractor field crews, as well as the onsite Trenchless Inspector and EI. The DP Operator is responsible for stoppage or changes to the DP program in the event of observed or anticipated IR.

DP Contractor Personnel – During DP installation, field crews will be responsible for monitoring the DP alignment along with the Transco field representatives. Field crews, in coordination with the EI, will be responsible for timely notifications and responses to observed releases in accordance with this Plan.

3 PRE-CONSTRUCTION ACTIVITIES

3.1 TRAINING

Prior to DP site set-up, and consistent with the FERC guidelines, site-specific implementation, environmental, and safety training will be conducted for all Transco and Contractor personnel. This training will address all applicable environmental impact avoidance and minimization measures that will be implemented during tunneling. Each person involved in DP operations will be familiar with the locations of IR containment equipment and materials, and the specific procedures for handling IRs. Training will be conducted for any new personnel added to the Project after DP activities have commenced. Documentation of those who received training will be maintained as described in Section 4. The site-specific training will include, but not be limited to:

- safety and environmental training specific to the DP installation;
- site-specific geotechnical and design conditions;
- the locations of sensitive environmental resources;
- the location, operation, inventory, and condition of IR response equipment and materials;
- provisions of this Plan and site-specific permit and monitoring requirements;
- site-specific IR monitoring requirements;
- DP procedures for IR prevention;
- protocols for detecting, communicating, and reporting IRs or related conditions;
and
- IR response procedures for mitigating impacts and recovery operations.

3.2 SITE INSPECTION

Transco will inspect each DP path prior to the start of DP activities. The DP path as it crosses underneath the river will be monitored from the river banks. If site-specific conditions impede the ability to conduct visual inspection along the DP alignment, modifications to the proposed inspection routine will be developed and communicated to the Contractor, project team and EI. If previously unidentified conditions or features are discovered that necessitate a modification to the approved Plan, Transco will coordinate with FERC to obtain the necessary variances prior to implementation.

3.3 LANDOWNER NOTIFICATION PROCEDURES

Transco has developed communication procedures to ensure proper coordination with affected landowners and abutters. Day to day communication management will be conducted by the Land Department's Right of Way Agents. The Land Department will work with the project team to ensure accurate up-to-date information is available for distribution to the appropriate recipients. The specific landowner notification procedures include, but are not limited to:

- Transco will notify affected landowners in writing prior to the start of DP activities. This notice will include:
 - A description of the proposed work, including any nighttime work needed;
 - The name and phone number of Transco Representatives that the landowner can contact if there are any questions or concerns regarding the proposed work;
 - A toll-free phone number to contact Transco that can be used as an alternative to contacting the Right of Way Agents; and
 - A toll-free phone number to contact FERC if the landowner believes that Transco has not resolved their concerns.
- In the event of IR during the DP activities – Transco will reach out to affected landowners to discuss the IR event and any necessary remediation activities on their property.
- Transco will provide appropriate updates to landowners throughout the DP activities, and will provide notifications upon DP completion.

3.4 AGENCY NOTIFICATION PROCEDURES

Transco will notify FERC and applicable state agencies of the proposed construction start date prior to commencing DP operations. All correspondence relating to the commencement of drilling operations, during installation procedures, and completion of activity will be retained for Project record and will be provided to the project team.

Additionally, notifications related to IR events will be made as detailed in Section 7 herein.

4 DOCUMENTATION

A copy of this Plan will be available and accessible to all construction personnel. Documentation detailed in Table 4 below will be maintained by parties noted in the right-most column. If requested, this information will be provided to FERC and other federal and state agencies with applicable regulatory jurisdiction.

**Table 4
Documentation Maintained**

Procedure	Documentation	Personnel Responsible for Maintaining Documentation
Employee Training	<ul style="list-style-type: none"> • All personnel on this Project will be trained for environmental compliance, including IR management. • Record of employee training detailing when training was conducted, material covered, and employees in attendance. 	<ul style="list-style-type: none"> • ECM • CM
DP Visual and Pedestrian Monitoring	<ul style="list-style-type: none"> • Environmental and Construction Inspectors will document within daily reports IR monitoring and the finding of these inspections. • An IR Tracking Log will be maintained. 	<ul style="list-style-type: none"> • DP Contractor • EI • Trenchless Inspector
DP Instrument Logs	<ul style="list-style-type: none"> • Tunneling progression • MTBM performance information and thrusting loads • Slurry fluid discharge rate, pressure, and volume. • Lubrication fluid volumes. • Down-hole annular pressure monitoring. • Navigation/guidance system survey information 	<ul style="list-style-type: none"> • DP Contractor
Slurry Fluid and Lubrication Fluid Composition	<ul style="list-style-type: none"> • Use of drilling fluid additives, including the quantity, timing, and location of use. • Monitoring logs of slurry fluid and lubrication fluid physical properties throughout tunneling activities. • Laboratory results of sampled drilling fluid/source water for any inorganic and organic environmental contaminants. 	<ul style="list-style-type: none"> • DP Contractor
Public and Agency Inquiries/Comments	<ul style="list-style-type: none"> • A record of communication with the public and agencies that has occurred during DP activities. • This record will include inquiries and comments, as well as response actions. 	<ul style="list-style-type: none"> • ECM • Land Representatives • CM (support as necessary)

A summary of DP-specific information will be included in the applicable construction status reports provided to FERC. This information may include overall status, a summary of visual and

pedestrian monitoring activities, issues encountered (including any IRs) and response actions, and complaints and how they were addressed.

4.1 PROJECT ORGANIZATIONAL CHARTS

Project specific organizational charts that include contact information are found in Appendix A.

5 DRILLING FLUID MANAGEMENT

The DP process utilizes drilling fluids to facilitate the associated operations. There are two separate drilling fluid systems in this operation - the engineered drilling fluid (or slurry fluid) and the lubrication fluid. Both the slurry fluid and the lubrication fluid can be comprised of water and bentonite clay. Bentonite clay is an absorbent aluminum phyllosilicate clay consisting mostly of sodium montmorillonite. It is a naturally occurring clay, extremely hydrophilic, and expands when wet absorbing several times its dry mass in water. Exact mixtures of fluids and additives for the slurry fluid and the lubrication fluid will be included within the Drilling Fluids Management Plan which will be developed by the Contractor and their Mud Engineer and evaluated by Transco. This section describes how the drilling fluid will be managed throughout the installation process including proper disposal techniques of excess drilling fluids and associated materials.

5.1 GENERAL

A Drilling Fluids Management Protocol (Protocol) will be developed by the Project team or Contractor well ahead of DP activities. The Plan shall include and consider the following criteria:

- an assessment of federal and state regulations that could apply to the generation and management of the DP fluids;
- identification of any additives that would be mixed with the drilling fluid (besides bentonite and water). Include Safety Data Sheets for these additives as an attachment;
- only pre-approved, non-petrochemical-based, non-hazardous additives that comply with permit requirements and environmental regulations should be utilized;
- proposed additives shall conform with NSF International/American National Standards Institute (NSF/ANSI) 60 Drinking Water Treatment Chemicals – Health Effects compliant;
- if drilling fluid is sourced from an off-site location (transported from another drill site) or if the water supply is a non-municipal source, the drilling fluid/water source should be tested for environmental contaminants prior to use, and documentation of consultation with local and state agencies regarding the results of such tests be provided. For this crossing, Transco plans to withdraw water from the Susquehanna River, and Transco is consulting with SRBC to acquire the necessary permits to do so;
- identify whether or not potential pollutants reside in the subsurface zone through

which the DP will pass (e.g., does soil and/or groundwater contamination exist). Based on Transco's site evaluation and subsurface explorations, there is no contamination expected;

- a process and description for how the DP fluids will be collected and stored (e.g., will it be placed into portable tanks, roll-off containers, a constructed berm/pit with liner, tankers, etc.). This will vary significantly based on volume, location, environmental conditions, space, etc.;
- a sampling plan for conducting any needed analytical for waste characterization or pre-construction sampling (ahead of excavation);
- a plan for any treatment or solidification of the slurry prior to disposal, if warranted;
- a plan for management and disposal of inadvertent returns, spills, or leaks; and
- an assessment and determination of the facility(ies) at which the material will ultimately be managed for disposal.

5.2 COMPOSITION

The composition of drillings fluids and its engineering properties will be formulated to be suitable for the given subsurface conditions encountered. There are two types of drilling fluid used during the DP process. The lubrication fluid and the engineered drilling fluid (or slurry fluid). They are described below.

Lubrication Fluid

- Stabilize the borehole against collapse, and counterbalance the earth and groundwater pressure along the length of the drive;
- Create a filter cake to prevent fluid loss to the formation;
- Reduce the friction between the pipe and the tunnel.

Slurry Fluid

- Support the excavation face;
- Lubricate, cool, and clean the cutter head;
- Mix with and transport spoils through the slurry return line to the separation plant at the ground surface for recycling or disposal.

5.3 ADDITIVES

A list of proposed drilling fluid additives will be provided in Appendix C with the Implementation Plan, after a contractor has been selected. These additives will include

information that describe Human Health Standards and are in compliance with NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals – Health Effects). Transco will work with FERC and the applicable state agencies, should additional drilling fluid products be proposed.

5.4 HYDRAULIC FRACTURE ANALYSIS AND GEOTECHNICAL CONDITIONS

The hydraulic feature analyses are discussed in greater detail within the DP Design Report provided in Appendix B.

5.5 ANALYTICAL DATA

Instrument logs will be monitored to ensure function and progression with tunneling progression, drilling fluid discharge rate and pressure, and downhole annular pressure monitoring.

5.6 SAFETY DATA SHEETS (SDS)

A list of proposed drilling fluids SDS will be provided in Appendix C closer to construction when a contractor has been selected.

5.7 DISPOSAL

Drilling fluid and cuttings disposal will comply with the stipulations outlined in the Drilling Fluids Management Plan.

5.8 TRACKING LOGS

Daily Activity – Construction Inspectors will document daily the condition of the worksite which will include a visual check of all equipment that is a part of the drilling fluid management effort. This will be recorded on daily reports.

Disposal – The contractor will complete disposal in accordance with the Drilling Fluids Management Plan. All documentation relating to disposal will be kept on-site, tallied for accuracy, and later stored within the Plan, specifically Appendix D for Project record.

6 DIRECT PIPE® OPERATIONAL CONDITIONS AND RESPONSE ACTIONS

The DP construction method was chosen for this crossing because of the reduced risk of inadvertent returns. To further minimize the potential environmental impact associated with a loss or release of DP slurry or lubrication fluids, Transco and its Contractor will employ best efforts to maintain full circulation of fluids through the slurry lines and recycle the fluid to the extent practical. Transco and its Contractor will utilize real-time annular pressure monitoring with the use of a down-hole annular pressure tool throughout tunneling operations, to help prevent hydraulic fracture and IR. The annular pressure readings will be recorded and evaluated relative to calculated and expected annular drilling fluid pressure ranges. The Contractor will also measure slurry fluid circulation rates and pressures, will closely monitor the DP slurry returns to ensure that fluids are circulating to the return pits. Additionally, the lubrication fluid volume that is introduced at the launch seal and from the MTBM will be monitored relative to the tunneling rate.

Monitoring of the DP alignment for an IR is an integral component of this plan and the success of any DP. Monitoring frequency will vary depending upon a multitude of factors and characterized by the operating conditions listed below. For the purposes of this plan and the DP operations there are three operating conditions:

- Normal Tunneling (Full Slurry Fluid Circulation);
- Loss of Slurry Fluid Circulation or lubrication fluid; and
- Inadvertent Returns

The following sections describe drilling and monitoring procedures for each operational condition.

6.1 CONDITION 1: NORMAL TUNNELING (FULL DRILLING FLUID CIRCULATION)

When DP operations are in progress and full slurry fluid circulation is being maintained within the DP slurry lines with no loss of lubrication fluid, the following monitoring protocol shall be implemented:

- The presence of slurry fluid returns within the DP slurry lines will be periodically monitored and documented.
- Land-based areas along the alignment will be periodically walked and visually inspected for signs of inadvertent fluid returns as well as surface heaving and settlement.
- The river will be visually inspected from the banks for a visible fluid plume.

- Slurry and lubrication fluid products present at the jobsite shall be documented.
- Slurry and lubrication fluid properties will be tested, monitored, and recorded during drilling operations.
- Slurry and lubrication fluid pump rates and pump durations will be recorded.
- Monitor lubrication fluid tank levels.
- During tunneling operations, downhole annular pressures will be recorded and evaluated relative to calculated and anticipated annular drilling fluid pressure range.
- If the downhole annular pressure begins to deviate outside of the calculated and anticipated annular drilling fluid pressure range, the Contractor will evaluate tunneling conditions and take necessary and reasonable steps to bring the annular drilling fluid pressure back within the expected range.

6.2 CONDITION 2: LOSS OF SLURRY FLUID CIRCULATION OR LOSS OF LUBRICATION FLUID

When DP operations are in progress, some minor losses of fluid can be expected as part of the process during normal tunneling operations. When fluid circulation is lost or significantly diminished (“loss of circulation”), or if lubrication fluid volume is lost, all protocol identified in Condition 1 above will be followed, and additionally, the following monitoring protocol will be implemented:

- The EI will be notified of lost or significantly diminished slurry fluid returns or loss in lubrication fluid volume.
- The EI, Trenchless Inspector, and Contractor will then immediately perform a walkthrough inspection along the drill alignment looking for inadvertent returns. Visual inspection frequency will be increased along the alignment as well as other areas of high risk for inadvertent returns. Inspections will include attention to sensitive environmental resources.
- Pump rates and pump durations will be recorded to estimate the lost circulation volumes.
- The Contractor will take reasonable steps to restore circulation, and the Trenchless Inspector will document steps. The slurry and/or lubrication fluid properties will be evaluated and modified in consultation with the mud engineer/technician as it relates to the subsurface formation being encountered.

- If fluid loss is stopped, the EI, Trenchless Inspector, and Contractor will resume the monitoring protocol associated with Condition 1.
- If fluid loss continues, the EI will increase the frequency of visual inspection along the drilled path alignment as appropriate. Pump rates and pump durations will be recorded along with lubrication tank losses to estimate the lost fluid volumes. Site-specific parameters will be evaluated and additional reasonable steps to restore circulation will be taken.

6.3 CONDITION 3: INADVERTENT RETURNS

During DP activities it is typical for drilling fluid to surface near the upland launching and receiving points, where there is less overburden to counteract the fluid pressures. Such returns are both normal and anticipated and are therefore not considered “inadvertent returns”. The DP entry and exit locations and the workspace have been designed to minimize the impact of such returns. At these locations, containment measures will be in place to prevent migration outside of the workspace and to protect adjacent resources.

If an inadvertent return of fluids is detected, Transco and the DP Contractor will respond as detailed in Section 7 below.

7 RESPONDING TO INADVERTENT RETURNS

7.1 MATERIALS AND EQUIPMENT

DP personnel will be required to have containment materials readily accessible and on site throughout the DP process. Since drilling fluid seepage can be easily controlled on land where it has the greatest potential of occurring, containment items will be stored within the drilling sites. The Contractor will also have heavy equipment such as tracked excavators, a rubber-tired excavator, or a skid steer that may be utilized to control and clean up drilling fluid seepage.

The following materials and equipment will be maintained at the DP site in sufficient quantities to contain any inadvertent releases of drilling fluid:

- Straw or hay bales;
- Wood stakes, t-post, or rebar to secure bales;
- Buckets, wheel barrows, and/or 55-gallon drums;
- Plastic sheeting or geotextile fabric;
- Silt fence;
- Sand bags;
- Sledge hammers;
- Shovels and push brooms;
- Storage tanks; and
- Leak-free hose(s) and portable pump(s).

The following materials and equipment will be maintained at a nearby location in sufficient quantities to contain any inadvertent releases of drilling fluid:

- Vacuum truck(s);
- Light tower(s) with appropriate secondary containments as applicable;
- Rubber-Tired/Tracked excavator or skid steer;
- A boat with appropriate personal safety equipment; and
- Floating turbidity curtain for use in large waterbodies.

7.2 RESPONSE PROTOCOL

Although the DP construction method has a low risk of inadvertent returns at the crossing location, Transco is prepared for the risk, and the actions taken to respond to an IR will be dependent on but not limited to the location of the IR, the site-specific geologic conditions, and

the volume of drilling fluid lost. The sections below describe the situational conditions that will regulate how cleanup or remedial activities should be executed. Note: Coordination with the Transco Land Department will be required for each instance of IR for notification purposes.

7.3 UPLAND

The limits of disturbance at the DP entry and exit locations have been designed to account for anticipated returns. If drilling fluid is identified in an upland area within the certificated workspace for the Project, then the following protocol will be followed:

- Notification will be made to the Trenchless Inspector, EI and ECM.
- Containment and cleanup will be executed by the Contractor who will work to ensure appropriate actions are taken to reduce, eliminate, or control the return. This work will be overseen by the Trenchless Inspector and the EI.
- Work stoppage will be determined by the project team through evaluation of the event. Items to consider include but are not limited to:
 - potential impacts to public health and safety;
 - potential impacts to sensitive resources; and
 - drilling complications resulting from the IR.
- If work stoppage is deemed necessary, Transco will proceed as detailed in Section 7.2.2 below.
- Drilling fluid may be recovered, recycled, and reused to the best extent practicable. All drilling fluid that cannot be reused will be disposed of in accordance with Section 6.0 Drilling Fluid Management.
- Transco will consult with applicable agencies and the landowner to determine if any final remediation or cleanup will be necessary.
- Documentation pertaining to the release will be kept in accordance with Section 5.0. Additional information including status updates will be provided by the project team, as necessary.

7.4 IN WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES

If an IR is identified in a wetland, waterbody, or otherwise affects a sensitive resource, the following protocol will be followed:

- Notification will be made to the Trenchless Inspector, EI, Spread CI and ECM.
- DP operations will be shut down and the Trenchless Inspector and EI will:

- Oversee containment and cleanup efforts conducted by the Contractor.
 - Assess possible impacts to public health and safety.
 - Assess impacts to sensitive resources.
 - Quantify the IR volumes.
 - Consult with the contractor on conditions contributing to the IR.
 - Consult with the contractor on drilling complications resulting from the IR.
 - Consult with the contractor on corrective actions to limit the likelihood of a continued IR after a restart.
- The ECM or Environmental Project Lead will make notifications to the applicable agencies and relay details of the IR as well as containment measures and corrective actions.
 - The IR area will continue to be monitored during the daily inspection performed by the Trenchless Inspector or EI.
 - DP restart conditions must include but are not limited to:
 - The IR has been contained to the satisfaction of the EI and TI;
 - The ECM or Environmental Project Lead Prior has made notification to applicable agencies;
 - Implementation of corrective actions as discussed with applicable agencies.
 - Upon completion of the tunneling operations, Transco will consult with applicable agencies to determine if any final remediation or cleanup will be necessary.
 - Documentation pertaining to the release will be executed in accordance with Section 5.0. Additional information including status updates will be provided by the project team, as necessary.

7.5 OUTSIDE OF CERTIFICATED WORKSPACES

If there is an IR in an outside of certificated workspaces, all protocol identified in Section 7.2.1 or 7.2.2 above will be followed, as applicable to affected resources. Additionally, Transco will work to acquire access to areas outside of the certificated workspace as follows:

- A Transco land agent will consult with the landowner to gain access to the affected area for containment and cleanup efforts.
- Transco's Environmental Project Lead or ECM will seek approvals from agencies for additional workspace and will submit a variance to FERC requesting workspace to allow for remediation of the IR.

- If fluid losses have an immediate threat to public health and safety or sensitive resources, and if Transco has received permission from the landowner to access off ROW areas, Transco will begin containment and cleanup efforts immediately to limit impacts while agency approvals may be pending.
- Timely receipt of landowner approval and variances will be critical to the success of containment efforts.

7.6 POTABLE WATER SUPPLY

Transco has not identified any wells or public water supplies within 1,000 ft of the proposed DP crossing, and therefore no impacts are expected. However, in the unlikely event that DP installation temporarily affects the water quality or yield of a private or public well/spring, Transco will provide alternative water sources or other compensation to the well owner(s). In the unlikely event that a well/spring is permanently affected due to construction activities, Transco will repair, replace, or provide alternative sources of potable water.

8 RESTORATION

Areas affected by IRs will be restored to pre-existing conditions and contours to the extent practicable in accordance with the FERC Plan and Procedures and applicable permits. Upland areas will be restored through typical right-of-way restoration procedures, such as grading, seeding, and temporary and permanent erosion control devices, as necessary. Similarly, wetlands and waterbodies will be restored to the extent practicable.

Transco will continue to monitor for post-construction restoration issues, track issues identified, and correct these issues during this post-construction phase of the Project.

9 CONTINGENCY PLANNING

9.1 DIRECT PIPE® COMPONENTS AND LIMITATIONS

The DP method is one pass trenchless pipe installation method consisting of two integral parts:

- Pipe Thruster
- Microtunneling Boring Machine (MTBM)

This section briefly describes the integral parts of the DP process and describes some potential causes of failure associated with the method.

9.1.1 Pipe Thruster

The pipe thruster is the structural component housing hydraulic cylinders used to grip and push the MTBM machine, product pipe or casing forward. The pipe thruster serves to distribute jacking loads to the installed pipe and reaction loads to the pipe thruster foundation system. The Pipe Thruster Structural foundation transfers and distributes the thrust loads from the Pipe Thruster to the surrounding soil and/or rock. The foundation may be incorporated into the launching pit design. The pipe thruster foundation shall be designed to withstand the anticipated jacking force and safely transmit the applied jacking forces to the soil and rock in the vicinity of the entry pit without excessive deflection or displacement.

9.1.2 Microtunneling Boring Machine (MTBM)

Remote-controlled, guided slurry shield that provides continuous support to the excavation face. The MTBM is operated from a control module located on the ground surface and the excavation process is achieved by a rotating cutter wheel. Excavated tunnel cuttings enter a slurry/crushing chamber where they are mixed with fluid (typically water mixed with bentonite or other additives) to form a slurry. Pumps transport the slurry to the surface where a separation plant removes the solids from the slurry. The recycled slurry is then returned to the tunnel face in a closed loop system of pumps and hoses.

9.1.3 Direct Pipe® Limitations and Potential Causes of Failure

A mechanical failure occurs if there is a major mechanical breakdown of one or more pieces of equipment involved in the DP operation. If the tunneling process remains idle for an extended time, the material in the hole can seize the pipe string in place and prevent further movement such that the pipe may not continue to move in either direction. If this occurs, the

contractor will be required to change the alignment of the crossing to miss the abandoned hole and start the tunneling process from the beginning.

DP installation also may be considered a failure if after either repairing or replacing the broken equipment or vital piece of ancillary equipment, the pipeline cannot be thrust or pulled.

Another potential failure is the buckling of the pipe during installation. This could happen if the thrust force applied to the pipe during tunneling operations yields the pipe. If this happens, an attempt will be made to extract the pipe. If that is not possible, the site will be evaluated to see if a rescue shaft would be possible to retrieve the MTBM.

Encountering of subsurface obstructions or voids is another potential cause of failure. If a large boulder or other subsurface obstruction is encountered, it could impede the progress of the DP leading to a potential failure. If the obstruction is shallow enough and beneath an accessible location, it may be possible to excavate the obstruction. But if it is inaccessible, the DP may need to be redesigned to avoid the obstruction. If a void is encountered, depending on the size, the MTBM could lose the ability to steer and if damaged, the pipe behind it could become damaged.

9.2 ALTERNATE CROSSING MEASURES

During the design phase of the Project, Transco conducted geotechnical studies at the proposed DP crossing to design a crossing that minimized risk exposure. Should the DP technology fail during construction as discussed in Section 9.1, Transco would consider shifting the alignment within the proposed workspace and attempt to re-perform the DP crossing. If alignment shifts do not yield a successful DP, an evaluation of the failed attempt will be performed to determine the appropriate contingency methods to complete the crossing.

Transco will contact the applicable permitting agencies to notify them of the status of the project and provide details of the evaluation of the failure that has occurred. Transco will then consult with the agency regarding the appropriate contingency method to complete the crossing, and obtain any permits required.

9.3 ABANDONMENT

If for any reason a DP hole must be abandoned, the Contractor will fill the entirety of the abandoned hole with a cement grout to completely seal it off. The top 5 feet of the abandoned hole will be filled with compacted soil to allow vegetation to reestablish.

The grout mixture used to abandon a borehole will consist of either a cement grout or cement/bentonite grout mixture that can be pumped downhole through the slurry lines used to

tunnel the hole. The grout mix (e.g., water/cement/bentonite ratios) will be designed generally for each DP location based on the geologic formation(s) along the abandoned portion of the hole. Additional modifiers, such as those used in structural concrete, may be used to modify the flowability and/or set time of the grout. To grout the abandoned hole, the Contractor will extract all tooling (i.e., MTBM, product/casing pipe) from the hole, while pumping the grout mixture as the MTBM is extracted from the hole. The rate at which the MTBM is extracted during grouting operations will be regulated to match the rate of grout placement.

10 REFERENCES

Federal Energy Regulatory Commission (FERC). 2019. Guidance for Horizontal Directional Drill Monitoring, Inadvertent Return Response, and Contingency Plans. October 2019. Available at: <https://www.ferc.gov/natural-gas/environmental-overview/guidance-horizontal-directional-drill-monitoring-inadvertent-return-response-and-contingency-plans>. Accessed October 2020.



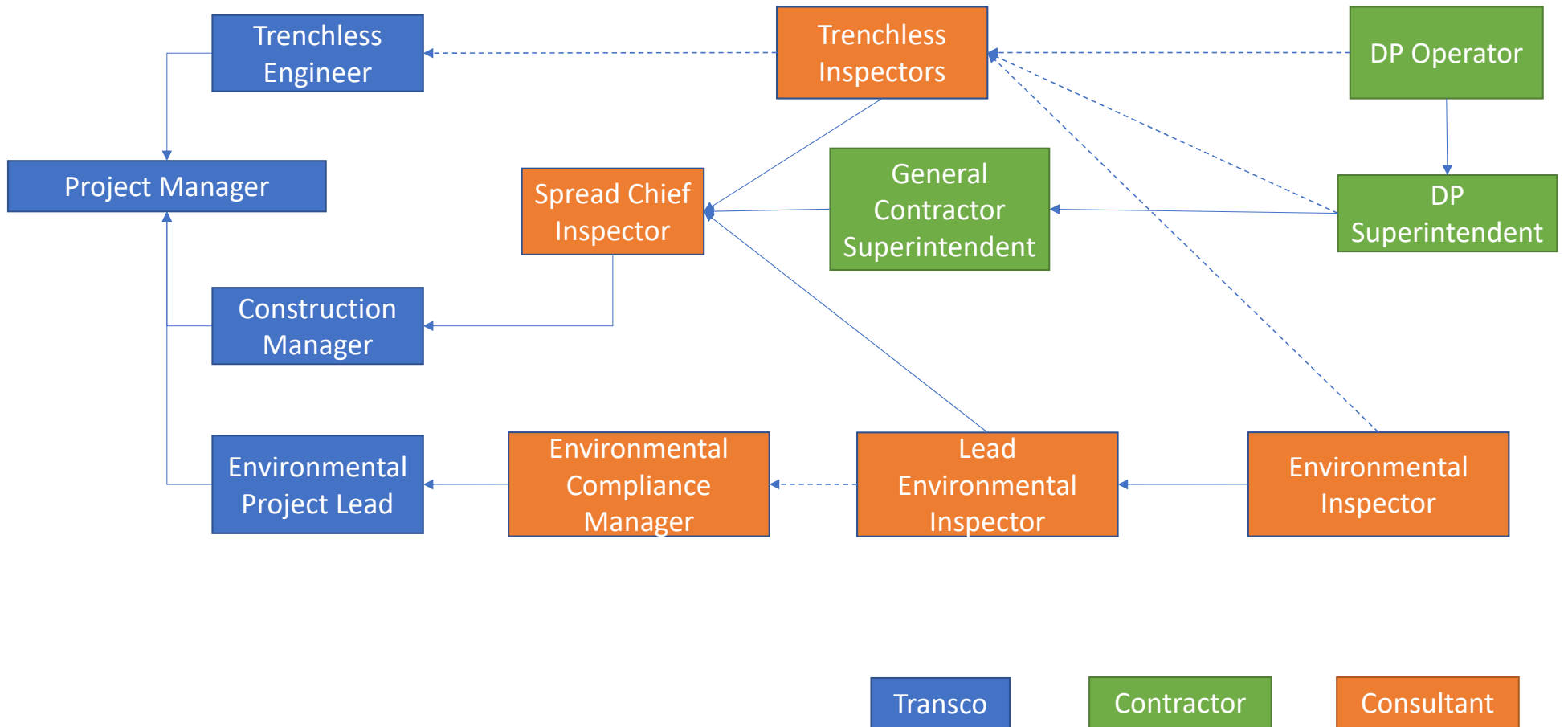
Transcontinental Gas Pipe Line Company, LLC

**Direct Pipe® Monitoring,
Inadvertent Return Response, and Contingency Plan
Appendix A Direct Pipe® Organizational Chart**

Regional Energy Access Expansion

March 2021

Regional Energy Access Expansion
Direct Pipe Oversight Team





Transcontinental Gas Pipe Line Company, LLC

**Direct Pipe® Monitoring,
Inadvertent Return Response, and Contingency Plan**

Appendix B Direct Pipe® Design Reports

Regional Energy Access Expansion

March 2021

The design reports have been redacted from the 401 Application and will be included with the Joint Permit Application.



Transcontinental Gas Pipe Line Company, LLC

**Direct Pipe® Monitoring,
Inadvertent Return Response, and Contingency Plan
Appendix C Drilling Fluids List and SDS**

Regional Energy Access Expansion

March 2021

The drilling fluids list and safety data sheets
will be included with the plan once a
contractor is selected.



Transcontinental Gas Pipe Line Company, LLC

**Direct Pipe® Monitoring,
Inadvertent Return Response, and Contingency Plan
Appendix D Disposal Tracking Log**

Regional Energy Access Expansion

March 2021

The Disposal Tracking Log will be managed and updated during construction.