Best Practices Plan for Horizontal Directional Drill Operations

Drill Procedures and Monitoring; Inadvertent Return Monitoring, Response and Cleanup; and Contingency Plan Implementation

Schuylkill River HDD Project

Chester and Montgomery Counties, Pennsylvania

Texas Eastern Transmission, LP

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1.0 INTRODUCTION

Texas Eastern Transmission, LP, (Texas Eastern) is using their blanket authorization from the Federal Energy Regulatory Commission (FERC) pursuant to Section 157 of the Natural Gas Act (NGA) to construct and operate the Schuylkill River HDD Project (Project) located in Chester and Montgomery Counties, Pennsylvania. The Horizontal Directional Drill (HDD) pipeline installation method is proposed for the Project. Texas Eastern has developed this Best Practices Plan for HDD Operations (Plan) for planning and personnel involved in HDD operations. While the HDD pipe installation method is a proven technology, use of an HDD has potential adverse implications for its success to avoid and minimize impacts to sensitive environmental resources and may not be successful due to unknown subsurface obstructions or geological conditions. The HDD procedures listed in this Plan describe some of the items in FERC's *"Guidance for Horizontal Directional Drill Monitoring, Inadvertent Return Response, and Contingency Plans"* (FERC HDD Guidance [FERC2019]). The components of the FERC HDD Guidance in this Plan include personnel training, responsibilities, work processes and procedures; stakeholder notification procedures; monitoring and reporting procedures; response procedures for inadvertent returns (IR) of drilling fluid; and contingency plans if the HDD is determined to be unsuccessful. In addition to this Plan, Texas Eastern will implement Permit Conditions from the Pennsylvania Department of Environmental Protection (PADEP) Water Obstruction and Encroachment Permit ("Chapter 105 Permit") and U.S. Army Corps of Engineers permit.

This Plan is to be used in conjunction with the Project's HDD Design Report that was developed during the planning and design stages of the Project. The HDD Design Report details known geological conditions, pipe bend specifications, and feasibility determinations.

HDD activities during construction will be managed in accordance with this Plan and will be kept on-site during construction, available to and implemented by the responsible parties and personnel described in Section 2.2.1 below. Section 1.1 describes the typical HDD installation method procedures. These procedures may be modified to adjust to site-specific conditions.

1.1 General HDD Installation Method Procedures

The HDD pipe installation method is a trenchless method that avoids disturbance to the earth's surface along the majority of its length. HDD is typically used in areas where trenching is not feasible due to availability of workspace, avoidance of subsurface utilities, roadways and railroads, and sensitive resources. An HDD always involves establishing Construction ROW staging areas at both ends of the HDD. Equipment and operations within the Construction ROW include the drilling equipment, control cab, tool storage trailers, power generators, bentonite storage, bentonite slurry mixing equipment, slurry pump,

cuttings separation equipment, cuttings return/settlement pit, water trucks and water storage, slurry containment pit, cuttings return/settlement pit, cuttings separation and slurry reclamation equipment, drill string pipe storage, and the heavy construction equipment necessary to support the operation.

The HDD process commences with the drilling of a pilot hole into the ground beneath the obstruction or sensitive resource and then enlarging the hole with one or more passes using reamer tools and swab passes until the hole is the necessary diameter to facilitate the pull-back (i.e., installation) of the pipe. Conditions can be present where the HDD contractor chooses an underground intersect drilling and reaming operation (HDD Intersect). An HDD Intersect is conducted by placing drilling equipment at both drill extents and drilling toward one another until the drill heads meet. The drill pipe then forms a continuous connection between the two drills. Once this connection occurs, reaming equipment can be both pushed and pulled simultaneously to reduce pipe stress.

Throughout the drilling and reaming process, a pressurized slurry drilling fluid is circulated through the equipment to lubricate the equipment; support the hole's structure and minimize the potential for collapse; and to remove earthen material cuttings from the hole. Once the reaming and swab passes are complete, prefabricated pipe segments (i.e., pipe stings) are pulled through the hole to complete the installation. Additional welding between segments is required to connect the pipe segments and complete a continuous pipeline.

IRs occur when the slurry drilling fluid inadvertently migrates to the surface or subsurface cavities through rock fractures and fissures. The slurry drilling fluid is a mixture of primarily water and bentonite clay. Water used for the HDD operation is typically sourced from a local water purveyor and is potable. Surface water extractions for HDD operation are tested to ensure no contaminates are present. If contaminates are present, the water source will not be used or could be treated prior to use. Bentonite clay is classified as non-toxic to the aquatic environment and is a non-hazardous substance. Additives may be mixed into the drilling fluid as needed depending on the anomaly they are proposed to solve. IR drilling fluids typically contain a lower concentration of bentonite clay than what was originally mixed as the movement of the drilling fluid is filtered as its passes through the earthen material before its surface release.

2.0 BEST AVAILABLE DRILLING PRACTICES

Texas Eastern proposes to use one HDD to install the new section of pipeline. This HDD was designed using known geological conditions, pipe bend specifications, and avoidance measures required by permitting entities. Texas Eastern has developed an HDD Design Report that details this information. The HDD plan and profile drawings are located within the HDD Design Report. Details regarding the HDD are presented below.

Schuylkill River HDD

The Schuylkill River HDD proposed length is approximately 1,111 feet and extends between stations 1+00 and 12+66 on the proposed realignment of the existing Line 1 pipeline in Upper Providence Township and Spring City Borough, east and west of the Schuylkill River. The proposed HDD is designed to avoid impacts to the Schuylkill River. The HDD process is anticipated have a duration of approximately 35 days.

HDD Tie-in Connections

The two ends of the HDD will tie into the existing Line 1 using short sections of conventional trenched pipeline construction methods on the east and west side of the Schuylkill River. Temporary workspace areas at the location of the western tie-in will provide adequate Construction ROW for pipe staging, stringing and pullback.

2.1 Pre-Construction Activities

2.1.1 Personnel

Texas Eastern and its HDD contractor will employ qualified personnel prior to the start of HDD operations that have responsibilities in their field. These personnel and responsibilities include the following:

Chief Inspector – Texas Eastern will designate a Chief Inspector (CI) for the Project. The CI will have overall authority for construction activities that occur on the Project, including the HDD.

Environmental Inspector – One Environmental Inspector (EI) will be assigned during active construction or restoration. The EI will have peer status with all other activity inspectors and will report directly to the Texas Eastern Construction Chief who has overall authority on the Construction ROW. The EI will have the authority to stop activities that violate the environmental conditions of the FERC Certificate (if applicable), other federal and state permits, or landowner requirements and to order corrective action.

HDD Superintendent – The HDD Superintendent will be the senior on-site representative of the HDD

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

HDD Operator – The HDD Operator will be responsible for operating the drilling equipment and mud pumps, monitoring circulation back to the entry and exit locations, and monitoring annular pressures during pilot- hole drilling. In the event of loss of circulation or higher than expected annular pressures, the HDD Operator must communicate the event to the HDD Superintendent and HDD contractor field crews, as well as the on-site Texas Eastern inspection staff. The HDD Operator is responsible for stoppage or changes to the drilling program in the event of observed or anticipated IR.

HDD Contractor Personnel – During HDD installation, field crews will be responsible for monitoring the HDD alignment along with the Texas Eastern's 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. The EI ultimately must sign-off on the action plan for mitigating the release.

2.1.2 Training

Consistent with the FERC guidelines, environmental training will be given to Project personnel and to contractor personnel whose activities may impact the environment during pipeline and aboveground facilities construction. The level of training will be commensurate with the type of duties of the personnel. All construction personnel will be given the appropriate level of environmental training. The training will be given prior to the start of construction and throughout the construction process, as needed. The training program will cover the FERC Plan and Procedures, job-specific permit conditions, company policies, cultural resource procedures, threatened and endangered species restrictions, the Project Erosion and Sediment Control Plan (E&SCP), the Spill Prevention Control and Countermeasure and Preparedness, Prevention, and Contingency Plan (SPCC and PPC Plan), and any other pertinent information related to the job. In addition to the EIs, all other construction personnel are expected to play an important role in maintaining strict compliance with all permit conditions to protect the environment during construction.

2.1.3 Site Inspection

The HDD contractor and Texas Eastern representatives will conduct a site visit prior to movement of equipment into the workspace to assess the current conditions and document any changes or discrepancies

observed that are not presented on the construction plans. The site visit will take place to observe locations where access is restricted and to ensure access and notification requirements are understood. Observations of new obstructions in the drill and monitoring path will be assessed and a resolution of the issues will be conducted with the appropriate Project representatives including ROW agents as needed. Any required modifications will be incorporated into the Plan prior to the start of HDD operations, and variances for federal and state and local permit modifications will be obtained as applicable. Updated documents will be provided to the involved personnel, and environmental training updates will take place as needed.

2.1.4 Notification Procedures

Agency Notification

Applicable PADEP resource management divisions, the Chester and Montgomery County Conservation Districts, Spring City Township and Upper Providence Township will be notified in advance of relative activities according to permit requirements.

Land Owner Notification

Texas Eastern will notify landowners in writing prior to the start of construction. This notice will include:

- A description of the proposed work;
- The name and phone number of the Texas Eastern ROW Agent that the landowner can contact if there are any questions or concerns regarding the proposed work;
- A toll-free phone number to contact Texas Eastern can be used as an alternative to contacting the ROW Agent; and
- A toll-free phone number to contact FERC in the event that the landowner believes that Texas Eastern has not resolved their concerns.

3.0 HDD MONITORING AND MITIGATION PROCEDURES.

3.1 HDD Process and Procedures

HDD activities can be characterized by three operating conditions:

- Normal Drilling (full drilling fluid circulation);
- Loss of Drilling Fluid Circulation; and
- Inadvertent Returns.

Monitoring procedures for each operational condition, response actions that could be taken in the event of significant or complete loss of drilling fluid circulation, and confirmation of an IR are described below. Prior to HDD pipeline installation operations, site-specific HDD operation procedures will be prepared by the HDD contractor. If deviations from operations described here-in occur, this Plan will be updated and provided to each Project representative described below that is involved with HDD operations.

3.2 Drilling Fluids

The HDD pipeline installation process uses drilling fluids to facilitate many of the HDD operations. Drilling fluid is a slurry composed of water and bentonite clay (typically 95 percent water) intended to maintain hole stability, lubricate the drilling head, remove cuttings and reduce soil friction. Bentonite clay (sodium montmorillonite) is a naturally occurring clay which is extremely hydrophilic and can absorb up to ten times its weight in water. Bentonite is non-toxic to the aquatic environment and is a non-hazardous substance. At this time, Texas Eastern anticipates using municipal water as the source of drilling water for the Project. The HDD contractor will be responsible for obtaining the required water volumes. The composition of the drilling fluids and its engineering properties would be formulated to be suitable for the given subsurface conditions encountered to ensure a successful HDD installation. The drilling fluid is formulated to:

- Stabilize the bore hole against collapse, stabilize formations, and prevent fluid loss;
- Lubricate, cool, and clean the tooling cutters and cool guidance electronics;
- Transport cuttings by suspension to enable flow to the surface at entry/exit points for recycling;
- Produce lubrication for drill string and downhole assembly while drilling, thereby reducing friction forces from the formation and pull loads;
- Produce hydrostatic fluid pressure in the bore hole to offset ground formation/groundwater pressure; and
- Drive downhole drill motor for rock drilling.

The HDD contractor will maintain fluid performance through sampling, testing, and recording the fluid properties during drilling operations. The HDD contractor also analyzes, adjusts, and maintains the fluids as necessary to afford the most efficient drilling fluid rheology (i.e., deformation and flow of matter) to adapt to various geological conditions. Depending on subsurface conditions encountered, lost circulation materials (LCMs) and special polymers would also be introduced in the drilling fluid mixture. Lost circulation materials would be used during IR events and/or in certain cases when drilling fluid circulation is diminishing. An LCM could be used in an attempt to seal around the borehole and prevent drilling fluid from escaping into the formation and allow for the reestablishment of drilling fluid returns to the entry and/or exit pits if voids are encountered. A drilling fluid specialist would be employed by the HDD contractor to determine the fluid properties required to prevent an IR from occurring or to maintain hole stability for successful completion of the HDD. The HDD contractor will describe the frequency of this monitoring and the documentation that will be maintained.

3.2.1 Drilling Fluid Additive Lists

In accordance with 25 Pa. Code Chapter 78a, Section 68a(f), drilling fluid additives other than bentonite and water shall be approved by PADEP prior to use. Approved horizontal directional drilling fluid additives will be listed on the Department's web site.
https://www.dep.pa.gov/Business/Energy/OilandGasPrograms/OilandGasMgmt/IndustryResources/InformationResources/Pages/default.aspx#:~:text=HDD%20additives%20which%20are%20certified%20for%20conformance%20with,manner%20indicated%20in%20the%20certification%20of%20the%20additive.
Use of a preapproved horizontal directional drilling fluid additive does not require separate PADEP approval.

Once the HDD contractor has selected additives that will be needed for the Project, the additive must be listed in the *Table I – Material and Waste Inventory of the SPCC and PPC Plan*. Material Safety Data Sheets (MSDS) must be added to *Appendix B of the SPCC and PPC Plan* prior to the additive's use.

3.2.2 Drilling Fluid Disposal

Drilling fluid disposal will comply with the FERC's Upland Erosion Control, Revegetation and Maintenance Plan (FERC Plan) at section III.E and applicable federal, state and local requirements. Drilling fluid would be tested to determine potential contaminates if suspected. Drilling fluid could be reused at other locations if feasible or disposed of at an applicable commercial facility. In accordance with 25 Pa. Code Chapter 78a, Section 68a(k), HDD fluid returns and drilling fluid discharges shall be managed in accordance with Subpart D, Article IX (relating to residual waste management).

3.3 HDD Working Procedures

Prior to drilling operations, site-specific HDD procedures will be prepared by the HDD contractor and submitted to Texas Eastern for review and approval. Procedures for potential loss of circulation, annular pressure or release mitigation and hole collapse are presented below.

3.3.1 Loss of Circulation, Annular Pressure or Release Mitigation

If a drilling fluid discharge within a jurisdictional wetland or waterbody is discovered, the discharge shall be *immediately* reported to PADEP, and an emergency permit under § 105.64 (relating to emergency permits) may be required, if necessary for emergency response or remedial activities to be conducted (refer to contacts listed in Attachment A). If loss of circulation of drilling fluid occurs or drilling pressure is lost, the loss of circulation shall be *immediately* reported to PADEP, the EI and/or Texas Eastern Construction Inspector shall immediately investigate the drilling pathway and surrounding area for an inadvertent return. If an inadvertent return is discovered, drilling shall immediately cease (refer to Section 4.0 of this Plan for additional information). If an IR is not discovered, the driller has the following options (or any combination of these options):

- Decrease pump pressure;
- Decrease penetration rate;
- Temporarily cease drilling operations and shut down mud pump;
- Re-start pump and stroke bore hole to restore circulation ("swab" the hole);
- Introduce additional flow along the borehole using "weeper" subs; and
- Modify the drilling fluid with a change in viscosity and/or lost circulation additives.

3.3.2 Hole Collapse

In general, hole collapse is a phenomenon that occurs in loose, cohesionless soils when the positive pressure exerted by drilling fluid is not enough to provide stabilization, resulting in loose debris caving into the drilled hole. In most cases however, this is not detrimental, since the reamed hole need not be fully open for installation by HDD to be successful. In many cases, the agitation of the reaming tool, coupled with the injection of drilling fluid reduces the shear stress of the material to such a degree that the pipe can be pulled through it. In some cases, however, particularly when there is significant coarse granular material (i.e., gravel, cobbles, boulders), additional reaming passes would be performed to clean out the debris, or a temporary steel surface casing could be installed to stabilize the hole and serve as an open conduit for HDD operations.

It is anticipated that the subsurface conditions are amenable to HDD installation. In the event of collapse,

the areas will either be re-reamed as necessary to open the hole, or temporary surface casing could be installed so that HDD operations can be conducted through the open casing.

3.4 HDD Contingency Plans

In the unlikely event the proposed HDD is unsuccessful on the first attempt, the contractor will perform additional attempts by adjusting the drills depth and horizontal configuration to minimize contact with problematic formational zones encountered. The drilling data collected during each attempt will be utilized to create a new alignment. Potential alignment changes assume that each attempt can be performed within the existing Construction ROW and will not breach landowner agreements. If the additional attempts require new Construction ROW, Texas Eastern will request landowner approval and applicable state and federal clearances and authorizations. If each attempt proves unsuccessful and an HDD method is determined not to be feasible, alternative construction methods and alternative route alignment would be required. A permit modification from PADEP will be required prior to commencing an alternate crossing method.

3.5 Monitoring During HDD Activities

Company personnel detailed in Section 2.1.1 will be dispatched to monitor the area in the vicinity of the drilled path for potential IRs. If IRs are observed on the ground surface along portions of the alignment that are accessible, containment and recovery operations will be completed in accordance with the procedures discussed in Section 4.0. Monitoring and reporting actions during the HDD operation will be as follows:

- Visually monitor the ground surface and waters of the Commonwealth that are located within the vicinity of the HDD while drilling operations are occurring (i.e., the Schuylkill River and nearby wetlands). This monitoring shall include walking, wading, and use of a boat, as necessary, to effectively observe and monitor for the return of materials associated with HDD activities to the surface or to waters of the Commonwealth.
    - Refer to Section 3.6 regarding accessibility and safety considerations during monitoring.
- If the HDD Operator observes an increase in annular fluid pressure or loss of circulation, the Operator will notify the HDD Superintendent and field crews of the event and approximate position of the tooling;
- Where practical, a member of the field crew will visually inspect the ground surface near the position of the cutting head;
- If an inadvertent release is observed:
    - Field crew will notify the HDD Operator;
    - The HDD Operator will immediately cease pumping of the drilling fluid and notify the HDD

Superintendent and CI;

- The CI will notify and coordinate a response with the EI (see Section 4.0); and
- The EI will notify the Enbridge Environment Lead whowill notify appropriate permit authorities, as necessary, and provide information regarding the proposed IR response, proposed mitigation and cleanup, and potential impacts.

- The CI will prepare a report that summarizes the incident.

Texas Eastern will notify landowners of the IR if their land incurs potential impacts.

3.6 Monitoring Obstructions and Access Procedures

The Schuylkill River is a potential monitoring obstruction along the HDD path. Monitoring of the drill path shall be completed from the riverbanks, using binoculars, as needed, to complete a visual assessment of the entire river width. Safety must be considered in and near the watercourse before pedestrian monitoring for IRs can occur. Close coordination with and notification to site supervisors and safety personnel is required during pedestrian monitoring events. This typically involves monitoring of recent and forecasted precipitation and current and anticipated flow conditions to determine if it is safe to be within proximity to the waterbody at a given time. Proximity limitations will be placed by the site supervisor that must be adhered to during the pedestrian monitoring event. The banks of the Schuylkill River will be the safest position from which to monitor the HDD path. Beyond the Schuylkill River, the remainder of the HDD route is easily accessible from the proposed workspace and public roadways.

3.7 Documentation and Record Keeping

Documentation will be maintained during HDD activities. This documentation will include the items listed in Table 3.7-1 below.

Table 3.7-1
Documentation to be Maintained for Schuylkill River Project HDD Activities

Procedure	Documentation
Employee Training	Record of employee training detailing when training was conducted, material covered, and employees in attendance. Refer to Section 2.1.2 for additional information on training.
HDD Visual and Pedestrian Monitoring	The personnel monitoring the HDD alignment, location along the HDD alignment visually inspected, time of the examination, and observations of the personnel shall be logged following each inspection.

Procedure	Documentation
HDD Instrument Logs	The HDD contractor shall maintain instrumentation logs that document pilot hole progression, drill string axial and torsional loads, drilling fluid discharge rate and pressure, and down-hole annular pressure monitoring during drilling of the pilot hole (or provide alternative monitoring methods and/or best drilling practices to ensure that the drilled and bored [reamed] holes do not become plugged with drill cuttings leading to hydrofracture and IR.
Drilling Fluid Composition	Use of loss control materials and other drilling fluid additives, including the quantity, timing, and location of use.
	Monitoring logs of drilling fluid physical properties throughout drilling activities (e.g., fluid weight, viscosity, sand content, additives, and pH).
	A clear description of the intent to reuse drilling fluid between HDD locations, as well as documented consultation with local and state agencies for such reuse. Laboratory results of sampled drilling fluid/source water for any inorganic and organic environmental contaminants should also be retained.
Public and Agency Inquiries/Comments	A record of communication with the public and agencies that has occurred during HDD activities. This record shall include inquiries and comments, as well as response actions.

4.0 RESPONSE TO INADVERTENT RETURNS

Typically, IRs are detected near the drill entry or exit points when the pilot bore is at shallow depths, above bedrock, and/or is in permeable/porous soils. For these reasons, equipment and materials required to contain an IR will be available at each HDD Construction ROW**.** A spill kit, sediment control devices, vacuum units, and adequate containers shall be readily available. If the site is not accessible by a vacuum truck, a pump with sufficient power to convey the released fluids must be available, including an adequate amount of hose, filter bags, straw bales, sand bags, silt fence, and compost filter sock.

An IR will be assessed by the HDD Superintendent, EI, and CI to determine an estimated volume and footprint. Section 4.1 details the response actions for an IR in an upland location, and Section 4.2 describes response actions for an IR in a wetland or waterbody location.

The HDD Superintendent will assess the drilling parameters (depth, annular pressures, fluid flow rate, and drill fluid characteristics) and incorporate appropriate strategies to mitigate the IR effectively at operation control. At the IR, containment could be achieved by excavating a small sump pit and surrounding the IR with hay bales, silt fence, and/or sandbags. Once contained, the drilling fluid would be collected by vehicle vacuum trucks or pumped back to the mud recycle unit for reuse or other methods. Personnel and equipment access to the IR could affect the methods used for containment and disposal. The site-specific response will follow the guidelines presented below.

4.1 Upland Location Inadvertent Return Response

- If an inadvertent return is discovered, drilling shall immediately cease.
- If an inadvertent return is within a jurisdictional wetland or waterbody, Texas Eastern will notify the PADEP immediately. Contacts are provided in Attachment A.
- Evaluate the IR location, volume, footprint and determine if HDD operation measures and proposed containment measures will effectively mitigate IR impacts.
- Implement the proposed mitigation measures.
- Remove the drilling fluid as needed to not overwhelm the containment structure and dispose or reuse the drilling fluids as applicable.
- Perform final clean-up (see Section 5.0).

4.2 Wetland/Waterbody Location Inadvertent Return Response

The Schuylkill River HDD crosses one waterbody and is adjacent to wetlands. There is a potential for an IR to occur in or near wetlands or waterbodies outside of the proposed Construction ROW. In the event of

an IR in a jurisdictional wetland or waterbody:

- If an inadvertent return is discovered, drilling shall immediately cease.
- Texas Eastern will notify the PADEP immediately. Contacts are provided in Attachment A.
- In the event of an inadvertent return or release of sediment into a body of water, PFBC Bureau of Law Enforcement Regional Office must be notified within 24 hours.
- Texas Eastern will notify any other applicable agencies.

The following steps will be taken if an IR has the potential to impact a wetland or waterbody:

- Inadvertent returns that impact or discharge to streams, floodways, or wetlands during the HDD operations shall be remediated in compliance with the Preparedness Prevention Control Plans (PPC Plans) including the HDD Contingency Plan (i.e., this Plan). If clean-up operations differ from the submitted plans, prior approval from the PADEP will be necessary.
- Evaluate the IR location, volume, footprint and determine if HDD operation measures and proposed containment measures will effectively mitigate IR impacts. If the release is within 100 feet of a wetland or waterbody or upslope at a greater distance, install silt fence and/or hay bales downslope of the IT between the IR and the wetland or waterbody.
- Implement the proposed mitigation measures. If the proposed IR containment and recovery measures have the potential to result in cumulative disturbance to the resource, alternative measures will be implemented on a case-by-case basis that minimize the overall disturbance and will include suspension of equipment use activities. An example of this would be an IR with minimal fluid release.
- Remove the drilling fluid as needed to not overwhelm the containment structure and dispose or reuse the drilling fluids as applicable.
- Perform final clean-up (see Section 5.0).

5.0 CLEAN-UP

Site-specific clean-up measures will be developed and implemented by the CI and HDD Superintendent, in accordance with the SPCC and PPC Plan, for approval by the EI after an IR is observed. Potential secondary impacts caused by clean-up activities will be evaluated, and cumulative adverse impacts will be mitigated to the extent practicable. The following measures and activities will be implemented during IR cleanup:

- Drilling fluid will be removed from the containment structures. The recovered drilling fluid would be recycled or disposed of at an approved commercial facility. No recovered drilling fluid will be disposed of in wetlands, waterbodies, or storm drains;
- Containment structures and access paths will be removed and the ground surface prepared for stabilization measures. Soil stabilization will be consistent with the surrounding area. Where vegetation is present seeding and mulching will occur. If gravel or pavement is present these materials will be replaced.

6.0 NEXT STEPS

If an inadvertent return occurs within regulated waters of the Commonwealth, the HDD shall only resume after:

a. A Registered Professional Geologist or Registered Professional Engineer inspects and evaluates the site for the likelihood of another inadvertent return; and

b. The permittee consults with and receives written approval from PADEP.

In addition, as noted above, for those HDD sites that experience an inadvertent return and do not have an approved contingency crossing method, the permittee shall submit a permit modification to PADEP for review and approval prior to commencing an alternate crossing method.

7.0 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

Attachment A - Agency Contact List

Agency	Contact Name	Phone Number	Notes
U.S. Army Corps of Engineers Philadelphia District Regulatory Branch	Rachel Ward	215-656-6733	Contact for IRs that affect the Schuylkill River and/or wetland .
Pennsylvania Department of Environmental Protection Regional Permit Coordination Office	Mike Luciani	570.826.2597	Contact for IRs that affect the Schuylkill River and/or wetland
Pennsylvania Department of Environmental Protection Southeast Regional Office	24-hour Emergency Reporting	800-541-2050	24 hours per day – for afterhours notifications
Pennsylvania Fish and Boat Commission Southeast Regional Office	Law Enforcement Officer	(717) 626-0486	Contact for IRs or sediment release into the Schuylkill River