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January 16, 2018

Via Electronic Filing

Ms. Barcy McNeal
Administration/Docketing
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

**Re: Dominion Energy Ohio,
Case No. 17-2502-GA-BNR**

Dear Ms. McNeal:

On January 11, 2018, the Ohio Power Siting Board (“OPSB”) Staff issued a Report of Investigation approving the Letter of Notification subject to a number of conditions. Within this set of conditions, **Condition No. 6** requires Dominion Energy Ohio (“DEO”) to provide to Staff for review a frac-out contingency plan detailing monitoring, environmental specialist presence, containment measures, clean-up, and restoration.

In compliance with Staff Report **Condition No. 6**, and as agreed to by DEO in its Supplement filed on January 16, 2018, attached is a copy of DEO’s frac-out contingency plan (Attachment A).

Please do not hesitate to contact me if you have any questions.

Sincerely,

Sally W. Bloomfield

Attachment

Cc: Ashton Holderbaum (w/Attachment)
Andrew Conway (w/Attachment)

Introduction

The East Ohio Gas Company, d/b/a Dominion Energy Ohio (Dominion Energy) utilizes horizontal directional drilling (HDD) to install pipeline crossings on construction projects, depending on site specific conditions. HDD is a widely used trenchless construction method which accomplishes the installation of pipelines and buried utilities with minimal disturbance to the surface or streams and wetlands. However, HDD is not totally without impact. The primary environmental impact associated with HDD revolves around the use of drilling fluids. The purpose of this document is to present Dominion Energy's plan for minimizing environmental impact associated with drilling fluids that inadvertently escape to the ground surface (known as an inadvertent return). This document may require additional site specific information depending on the sensitivity of the project and requests from the permitting agencies.

If a site specific contingency plan is developed for a particular bore the plan should be submitted to the appropriate United States Army Corps of Engineers (USACE) District.

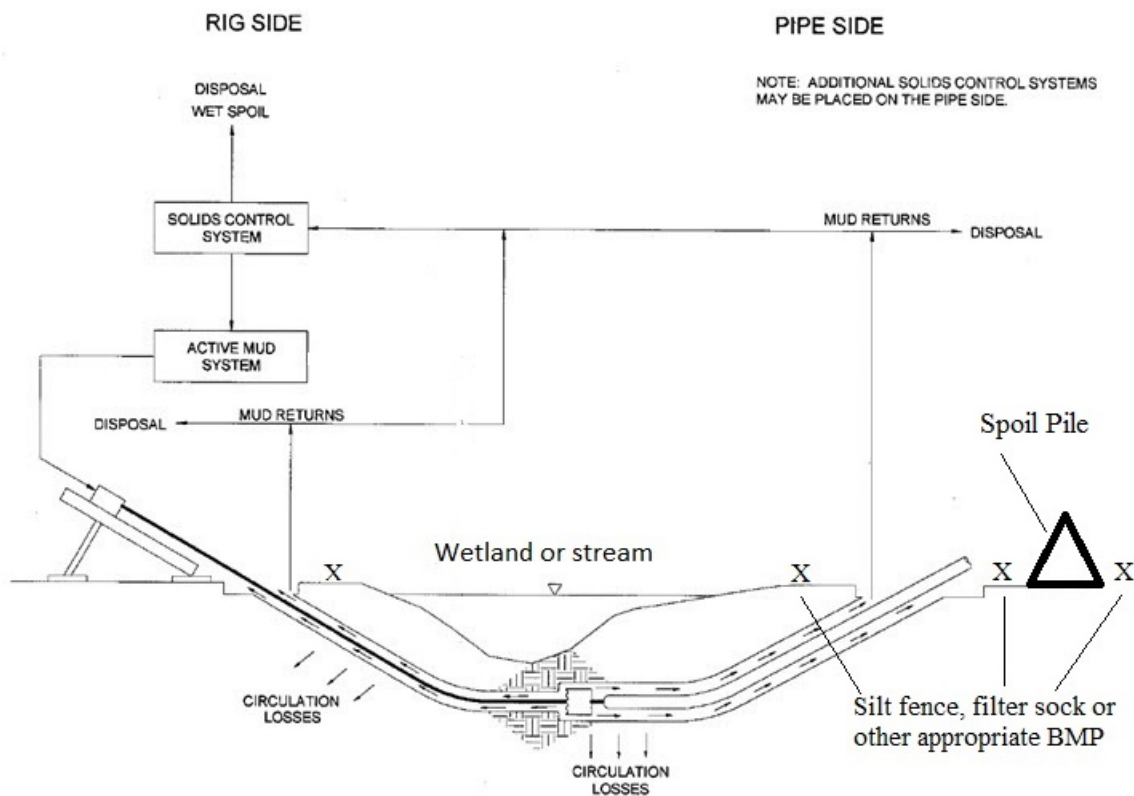
Background

An awareness of the function and composition of HDD drilling fluids (also referred to as drilling mud) is imperative in producing a permittable and constructible HDD crossing design. The principal functions of drilling fluid in HDD pipeline installation are listed below.

- **Transportation of Spoil.** Drilled spoil, consisting of excavated soil or rock cuttings, is suspended in the fluid and carried to the surface by the fluid stream flowing in the annulus between the bore hole and the pipe.
- **Cooling and Cleaning of Cutters.** Drilled spoils build-up on bit or reamer cutters is removed by high velocity fluid streams directed at the cutters. Cutters are also cooled by the fluid.
- **Reduction of Friction.** Friction between the pipe and the hole wall is reduced by the lubricating properties of the drilling fluid.
- **Hole Stabilization.** Stabilization of the drilled hole is accomplished by the drilling fluid building up a "wall cake" which seals pores and holds soil particles in place. This is critical in HDD pipeline installation as holes are often in soft soil formations and are uncased.
- **Transmission of Hydraulic Power.** Power required to turn a bit and mechanically drill a hole is transmitted to a downhole motor by the drilling fluid.
- **Hydraulic Excavation.** Soil is excavated by erosion from high velocity fluid streams directed from jet nozzles on bits or reaming tools.
- **Soil Modification.** Mixing of the drilling fluid with the soil along the drilled path facilitates installation of a pipeline by reducing the shear strength of the soil to a near fluid condition. The resulting soil mixture can then be displaced as a pipeline is pulled into it.

The major component of drilling fluid used in HDD pipeline installation is fresh water, typically obtained at the crossing location. In order for water to be fully functional, it is generally necessary to modify the properties by adding a viscosifier. The viscosifier used almost exclusively in HDD drilling fluids is naturally occurring bentonite clay, which is principally sodium montmorillonite. It is not listed as a hazardous material/substance as defined by the U.S. Environmental Protection Agency's EPCRA or CERCLA regulatory criteria. If the product becomes a waste, it does not meet the criteria of a hazardous waste, as defined by USEPA.

All stages of HDD involve circulating drilling fluid from equipment on the surface, through a drill pipe, and back to the surface through a drilled annulus. Drilling fluid returns collected at the entry and exit points are stored in a steel tank and processed through a solids control system which removes spoil from the drilling fluid allowing the fluid to be reused. The cleaned fluid is trucked back to the entrance point for reuse. The basic method used by the solids control system is mechanical separation using shakers, desanders, and desilters. The excess spoil and drilling fluid are transported to, and disposed of, at an approved permitted solid waste landfill. A typical HDD drilling fluid circuit is illustrated schematically below.



Drilling fluid expended downhole will flow in the path of least resistance. In the drilled annulus, the path of least resistance may be an existing fracture or fissure in the soil or rock substrate. When this happens, circulation can be lost or reduced. This is a common occurrence in the HDD process, but does not prevent completion. However, the environment may be impacted if the fluid inadvertently returns to the surface at a location on a waterway's banks or within a waterway or wetland.

Inadvertent Return Minimization

The risk of an inadvertent return can be mitigated through profile design and implementation of specific measures throughout the installation process.

The HDD profile is designed to minimize the potential for the release of drilling fluid in sensitive areas. Cohesive soils, such as clays, dense sands, and competent rock are considered ideal materials for containment of drilling fluids. Case by case analysis of the overburden will be conducted to determine the depth of the bore to provide a margin of safety against inadvertent returns in a sensitive area. In non-cohesive soils, such as gravel, a greater depth of cover will be used.

During the design phase, substrate test bores if required, should be minimum of twenty (20) feet from the HDD centerline where practical. The bore holes should be filled with concrete prior to the HDD process.

Key preventive measures implemented during installation are geared toward keeping the drill fluid contained in the borehole and prevent its escape to the surface. This is accomplished through monitoring and management of drill fluid pressures and drill fluid volumes. A key to containing and controlling an inadvertent return is early detection and quick response by the HDD crew.

Minimization of Environmental Impact

The most effective way to minimize environmental impact associated with HDD drilling fluids is to maintain fluid circulation to the extent practical. Maintenance of fluid circulation is the responsibility of the HDD contractor. Dominion Energy's construction specifications defining this responsibility are presented below.

CONTRACTOR shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, CONTRACTOR shall take steps to restore circulation.

However, it should be recognized that restoration of circulation may not be practical or possible and that environmental impact will be minimized by completing construction as soon as possible. Therefore, absent a threat to public health and safety, drilling operations will continue in the event of lost circulation if deemed to reduce the duration of construction operations.

Drilling fluid is easily contained by standard erosion and sediment control measures within upland areas. Within the boundaries of the worksite, drilling fluid is controlled through the use of pits at the crossing entry and exit points, and typical fluid handling equipment such as trash pumps.

The environmental impact of a release of drilling fluid into a water body is a temporary increase in local turbidity until drilling fluid dissipates with the current and settles to the bottom. In the

immediate vicinity of a release, benthic organisms may be smothered if sufficient quantities of bentonite settle upon them.

Response to an Inadvertent Return

The HDD contractor shall immediately notify the Construction Inspector (CI) and Environmental Inspector (EI) or Dominion Energy Environmental Compliance Coordinator (ECC) of any sudden losses in returns or any inadvertent return to the surface. If an inadvertent return is observed, the HDD contractor will take certain reasonable measures to eliminate, reduce, or control the release. The actions to be taken will depend on the location and time of release, site specific geologic conditions, and the volume of the release.

If a release occurs in an upland area, the HDD contractor will immediately take appropriate reasonable actions to reduce, eliminate, or control the release. The action shall include:

- Constructing a small pit or sandbag coffer around the release point, installing a section of silt-fence or compost filter sock to trap as much sediment as possible, and placing a pump hose in the pit to pump the drilling fluid back to the bore site
- Reducing drilling fluid pressures
- Thickening drilling fluid mixture
- Adding pre-approved loss circulation materials to the fluid mixture, such as wood fibers or shredded paper

The HDD contractor, in consultation with the CI and EI/ECC, will determine which methods are most appropriate to eliminate, reduce or control the release. Recovered drilling fluid will be recycled and reused to the extent that is practical. Waste drilling fluid will be disposed of in a permitted solid waste landfill in accordance with Dominion Energy protocols.

If an inadvertent return occurs on a stream's bank or within a stream or wetland, it will be the responsibility of the HDD contractor to contain and collect drilling fluid, and ultimately restore the disturbed area, as practical. Drilling operations will be temporarily suspended to allow contractor to set up a containment and collection system. Dominion Energy's construction specifications defining this responsibility are presented below.

If inadvertent return of drilling fluids occur, it shall be immediately contained with hand placed barriers (i.e. straw bales, sand bags, silt fences, etc.) and collected using pumps as practical. If the amount of the release is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the release exceeds that which can be contained with hand placed barriers, small collection sumps may be used. If the amount of the release exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes can be brought under control.

If an inadvertent return occurs in a **wetland, or in close proximity to a stream**, where there is imminent danger of the drilling fluid migrating into a stream, then drilling operations will cease

until HDD personnel, CI and EI/ECC have had an opportunity to examine the site and evaluate the threat to the waterbody. If an ECC has not been involved, Dominion Energy's local ECC shall be contacted immediately and will assist in the response and cleanup, as needed, and make all required and appropriate Agency notifications. The release shall be reported to the Ohio Environmental Protection Agency (Ohio EPA). Based on review of the information submitted, the action taken and the aquatic resource impacted, Ohio EPA will determine what the appropriate response/action will be on a case by case basis.

A plan for avoiding additional impacts, which may include some or all of the actions items listed below, will be implemented. Efforts will be made to minimize ground disturbance in wetlands while accessing the inadvertent return area by utilizing swamp mats and lightweight equipment, such as bobcats and pick-up trucks, and minimizing travel into and out of the wetland. The cutting of shrubs and trees will be minimized, as much as practical, in order to reach the inadvertent return area. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing additional impact to wetlands and streams. The release site(s) will be closely monitored for additional inadvertent return activity until the HDD work in the area is completed. For longer stretches of right-of-way (ROW) that are not within sight of the HDD personnel, the pipeline ROW will be walked on an hourly basis.

If an inadvertent return occurs in a **stream or river**, then drilling operation will cease until HDD personnel, CI and EI/ECC have had an opportunity to examine the site and evaluate the threat to the waterbody. The release shall be reported to the Ohio EPA. Based on review of the information submitted, the action taken and the aquatic resource impacted, Ohio EPA will determine what the appropriate response/action will be on a case by case basis.

A plan for avoiding additional impacts, which may include a pump or flume bypass with secondary containment, in addition to all of the action items listed above will be implemented. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing further impacts to wetlands and streams. The release site(s) should continue to be closely monitored for any additional further inadvertent return activity until the HDD work in the area is completed. For inadvertent return situations in streams and wetlands only, the EI/ECC may conduct stream monitoring/sampling such as pH and turbidity, comparing upstream conditions with downstream conditions. Also, the stream will be walked to verify the extent of drilling fluid sediment dispersal and settling.

One **exception to ceasing drilling operations** until containment is developed would be a release of drilling fluids during the pipe pullback process. Ceasing operations would pose significant risk of causing the pipe to be stuck and pullback not able to resume.

Containment and Clean-up Material and Equipment

The HDD contractor will be required to have the necessary containment and clean-up equipment onsite, readily available to use. At a minimum, the following material and equipment should be onsite in ample supply depending on the extent of sensitive areas:

- Spill absorbent pads and booms
- Compost filter socks
- Silt fence
- Wood stakes
- Sand bags
- Plastic sheeting
- Corrugated plastic pipe
- Shovels
- Push brooms
- Centrifugal, trash and sump pumps
- Vacuum trucks
- Rubber tired or wide track back hoe
- Bobcat
- Storage tanks
- Floating turbidity curtain

If necessary a local 24-hour outside emergency response company may be called for assistance.
EnviroServe – 1-800-642-1311

The following lists local Dominion Energy Environmental personnel.

- | | |
|--|--|
| • Dave Fredle (Construction ECC) | Office: (330) 664-2615
Cell: (330) 703-3603 |
| • Greg Eastridge (Environmental Specialist) | Office: (330) 664-2576
Cell: (330) 571-7855 |
| • Tara Buzzelli (Environmental Specialist) | Office: (330) 664-2579
Cell: (330) 604-8871 |
| • Steve Ryder (Environmental Projects Advisor) | Office: (330) 664-2531
Cell: (330) 813-8805 |

Agency Notifications

Typically, Dominion Energy's ECC will make the necessary calls to any regulatory agency.

- Ohio EPA Spill Hotline: 1-(800)-282-9378: Make call upon gathering of the information listed in Attachment A. (Not considered a spill; rather an unpermitted discharge)
- USACE – Refer to Attachment A of this document
- Other agencies that may have to be notified dependent upon permit approvals and site conditions include National Response Center 1-(800)-424-8802; Ohio Department of Natural Resources (ODNR); the United States Fish and Wildlife Service (USFWS); and Ohio Power Siting Board

Inadvertent Return Site Restoration

All areas impacted will be restored to pre-existing condition and contour. Impacted upland areas will be restored through normal right-of-way practices of seeding and mulching.

Restoration of wetlands will vary depending on the extent of disturbance to the upper soil layer and vegetation during the initial inadvertent return response. Recommendations will be sought first from the respective Ohio EPA office for restoration activities in any Category 3 wetland. Residual drilling mud will be washed off the vegetation as much as practical. Upon review of any submitted information to the Ohio EPA; it will be determined if further action is required.

Restoration of stream beds will be dependent upon its classification. Recommendations will be sought first from Ohio EPA for restoration activities in streams classified as Exceptional Warmwater Habitat, Seasonal Salmonid Stream or Coldwater Habitat. All other perennial, intermittent and ephemeral streams will have as much residual drilling mud pumped out as practical, so as not to disturb the original streambed. This may include a light wash of the streambed utilizing upstream water and collecting the wash water immediately downstream. Similar to an inadvertent return occurring in wetlands, upon review of any submitted information, Ohio EPA will review the restoration activities performed and determine if further action is warranted.

Attachment A

Coordination Procedures between the U.S Army Corps of Engineers (USACE) and East Ohio Gas (Dominion) for Inadvertent Return:

If specific inadvertent return contingency/corrective action plans have been developed for particular Horizontal Directional Drills (HDD), these should be provided to the appropriate USACE District prior to initiation of the HDD. Of particular importance is for Dominion to identify any potential corrective actions that may require USACE authorizations to implement the corrective actions (i.e. temporary access roads to facilitate containment/clean-up in areas regulated by the USACE).

Inadvertent Return Occurs:

The procedures outlined below shall be implemented when an inadvertent return occurs in an area regulated the USACE in the state of Ohio:

1. Identify the responsible USACE District (Buffalo, Huntington, Pittsburgh) based on the geographical location of the inadvertent return.
2. Immediately notify the point of contact at the responsible USACE District.
 - Mark Scalabrino (Buffalo): (716) 879-4327, mark.w.scalabrino@usace.army.mil
 - Mark Taylor (Huntington): 304-399-5610, mark.a.taylor@usace.army.mil
 - Nancy Mullen (Pittsburgh): 412-395-7155, nancy.j.mullen@usace.army.mil

*Notification shall occur via e-mail with potential phone contact as the situation warrants.

3. The notification shall include the following information:
 - USGS location map depicting the inadvertent return location.
 - Identify the regulated water of the U.S. and provide a brief description of that resource (i.e. stream/river name, forested wetland, etc.).
 - Characterize the scope of the inadvertent return. Identify the approximate quantity of material discharged and area impacted by that discharge.
 - Provide the date an inadvertent return occurred and status of the situation (i.e. stopped, on-going).
 - State corrective actions taken by Dominion to address the situation.
 - Representative photos of the area impacted by the inadvertent return and representative photos of the area after corrective/restoration efforts.
 - Identify the potential for any additional USACE authorizations required to perform corrective actions (i.e. temporary access road in areas regulated by the USACE).

Based on review of any information submitted, the action taken by Dominion, and the aquatic resource impacted, the responsible USACE District will determine what the appropriate USACE response/action will be on a case by case basis.

NOTE: The USACE may update this guidance at any time based on an assessment of the situations which are encountered and how they are handled by Dominion.

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Case No(s). 17-2502-GA-BLN

Summary: Correspondence of Dominion Energy Ohio in Compliance with Staff Report Condition No. 6 electronically filed by Teresa Orahod on behalf of Sally W. Bloomfield