Duke Energy Ohio
Case No. 20-1411-GA-BTX
Staff First Set Data Requests
Date Received: February 12, 2021

STAFF-DR-01-001

REQUEST:

Please provide a general Frac-out Contingency Plan for the project.

RESPONSE: A standard general template used to develop an Inadvertent Release (IR) is attached as STAFF-DR-01-001 Attachment. The final IR contingency plan will need to be developed further in coordination with the construction contractor once they have been identified and when the engineering has been advanced to the final design stage. A copy of the HDD location-specific plan will be filed in the project docket once it is developed closer to construction start.

PERSON RESPONSIBLE: Steve Lane

HORIZONTAL DIRECTION DRILLING (HDD) CONTINGENCY PLAN
DUKE ENERGY

HDD is a common method used to install underground utilities through heavily developed areas, roadways, waterways, steep slopes, and environmentally sensitive areas to minimize the surface disturbance that traditional open-cut trenching methods typically require. HDD construction generally limits disturbances along project corridors which may result in a smaller environmental footprint.

HDD operations have the potential to release drilling fluids into the surface and subsurface environments through nearby utilities, unconsolidated sediments, fractured bedrock and faulting or other local structural features. The drilling fluid typically will flow into the surrounding rock and sand and travel toward the ground surface. The drilling fluid, a bentonite slurry (other additives may be included as well), is used as a lubricant during the drilling of the bore hole, enabling the rock and soil cuttings from the drilling process to be carried back to a containment bay at the ground surface at the drilling site. It also builds a borehole mud cake or lining which can act as a seal to prevent migration of fluids either into or out of the borehole and enhance the stability and integrity of the bore hole. Bentonite is a non-toxic, naturally occurring clay commonly used for agricultural purposes such as decreasing water loss in ponds and soils. Other common additives include:

Additives	**Functions**
Polymers	Aids in maintaining borehole integrity; control of fluid loss; management of fluid viscosity; cuttings encapsulation; viscosifier, friction reduction and flocculant
Clay Inhibitors / Surfactants	Reduces swelling and sticking tendencies during drilling operations and down time; torque reduction
Drilling Detergents	Reduces surface tension and sticking tendency of clay cuttings; aids in prevention of bit balling and mud rings; torque reduction
Pyrophosphates	Dispersant; aids in thinning and reduction of flocculation in the drilling fluid; aids with bit balling
Soda Ash	Reduces hardness of make-up water; aids the yielding process

Note that there is no hydraulic fracturing of shale for oil or gas production associated with this method of directional drilling on the site. The HDD bores should be designed to provide sufficient depth below water crossings and/or wetlands to reduce the risk of drilling fluid releasing into such features.

While drilling, fluid seepage away from the borehole is most likely to occur near the bore entry and exit points where the drill head is shallow; although seepage can occur in any location along an HDD. This Horizontal Direction Drilling Contingency Plan (Plan) establishes operational procedures and responsibilities for the prevention, containment, reporting and cleanup of fluid loss incidents associated with an HDD project. Project drawings and specifications also provide details of the HDD portion of the project.

The contractor responsible for the work must adhere to this Plan during the HDD process. Although HDD Contingency Plans are not routinely reviewed or commented upon by regulatory

agencies during project review and approval processes, such plans are often requested by regulatory agencies when Inadvertent Releases (IRs) occur. Therefore, the Plan and IR reports may come under regulatory review during regulatory visits, inspections or IR response actions.

The specific objectives of this plan are to:

1. Minimize the potential for a drilling fluid release associated with HDD activities;
2. Protect environmentally sensitive areas;
3. Provide for the timely detection of drilling fluid releases;
4. Ensure an organized, timely, and efficient response in the event of a release of drilling fluid; and
5. Ensure appropriate notifications are made immediately to appropriate Duke Energy project and environmental support staff. Duke Energy will be responsible for notifications to appropriate regulatory agencies.

Pre-Construction Measures

Before any HDD commences, an environmental safety meeting will take place. This Plan will be discussed, questions answered and any potential conflicts reconciled. The Site Supervisor shall ensure a copy of this Plan is available (onsite) and accessible to all construction personnel. The Site Supervisor shall ensure all workers are properly trained and familiar with the necessary procedures for response to a drilling fluid release prior to commencement of drilling operations. Other best-management measures are listed below:

1. Anticipated drilling fluid mixtures descriptions are to be provided during the project review process, including all product Safety Data Sheets (SDSs) of commercial mud mixes and additives. All such SDSs shall be maintained at the project site.
2. Appropriate HDD drilling fluid spill response items (See Appendix A) shall be kept onsite and used if an IR of drilling fluid occurs.
3. Prior to construction, the work areas must be flagged and the environmental limits defined (wetland boundaries, setbacks, etc.). Erosion and sediment controls will be placed on downgradient sides of the drilling rig location and around the drilling fluid containment bays as a preventative measure against drilling fluids leaving the drill rig site. If the project has not necessitated the preparation of a formal Sediment & Erosion Control Plan, Best Management Plan (BMP) details for appropriate controls should be reviewed and considered from the Duke Energy Construction Stormwater Planning Manual (April 2017; Document GDLP-ENV-EVS-00006). Additional details regarding environmental sensitive areas and construction activities can be found in this document.

Fluid Loss Response and Measures

The response of the field crew to a drilling fluid loss shall be immediate and in accordance with procedures identified in this Plan. All appropriate emergency actions that do not pose additional threats to sensitive resources will be taken, as follows:

1. Containment bays will be in place at both the drill entry and exit points to prevent drilling fluid from leaving the drill rig site at the entry and exit points. Sufficient freeboard (two (2) feet) shall be maintained in all containment bays. Silt fences,

wattles, or other appropriate measures shall be placed along the downgradient boundaries of the drill rig site.

2. The viscosity, pressure and volume of drilling fluids will be closely observed by the drilling contractor during HDD activities to watch for indications of fluid loss or developing borehole conditions that could increase the likelihood of an Inadvertent Release.

3. Drilling operations will be halted by the drill rig operators immediately upon detection of a loss of circulation, a drop in drilling pressure or any other indicator of fluid loss. The loss of drilling fluid to the surface is typically greatest at shallow locations, typically near the entry and exit points of the HDD.

4. Characterization and documentation of any inadvertent release shall begin immediately. The Site Supervisor and Site Environmental Inspector shall be notified immediately. Once IR identification occurs, the Site Supervisor shall immediately notify Duke Energy Environmental support staff. Photographs, details of the release, location, volume released, receiving stream characteristics and other important information should be collected and reported immediately to the appropriate Duke Energy Environmental staff. Containment efforts in accordance with this Plan shall commence immediately but clean-up of drilling fluid IRs must wait until appropriate consultation and concurrence from Duke Energy Environmental support staff.

5. In the event of a loss of drilling fluid, the Site Supervisor and Site Environmental Inspector shall conduct an evaluation of the situation and direct recommended mitigation actions, based on the following guidelines of the severity of the fluid loss:

    a. If the loss of drilling fluid is minor, easily contained, has not reached the surface and is not threatening environmentally sensitive areas, drilling operations may resume after use of an approved leak stopping compound, redirection of the bore or alteration of drilling techniques as applicable based on site geological conditions and equipment or operator capabilities.

    b. If drilling fluid reaches the land surface, the area will be isolated with silt fence, wattles or similar measures to contain drilling fluid.

        i. A containment or relief bay may be installed on high ground to keep drilling fluid from reaching environmentally sensitive areas and removal will begin by vac-truck or hand tools.

        ii. In areas that cannot be reached by a vac-truck for drilling fluid removal, a tiered system of contained areas will relay drilling fluid to a location accessible by a vac-truck and removed.

        iii. If it is not possible to relay drilling fluid to a suitable location for removal by a vac-truck, drilling contractor workers will use hand tools and vacuums to remove the drilling fluid from contained areas.

        iv. Any material coming into contact with drilling fluids shall be removed to a depth where there are no visible signs of the spilled material, contained and properly disposed of, as required by Duke Energy policies. The drilling contractor shall be responsible for ensuring that the drilling fluid material is either properly disposed of at an approved

disposal facility or properly recycled in an approved manner. Contractor must provide Duke Energy with documented proof of disposal.

c. If drilling fluid reaches the surface in surface waters or wetlands, the following actions will be initiated.

   i. For low volume, low flowing streams, a coffer dam (or equivalent) for containment will be installed downstream.

   ii. Photographs, details of the release, location, volume released, receiving stream characteristics and other important information should be collected and reported immediately to the appropriate Duke Energy Environmental staff.

   iii. For higher volume, larger flowing streams, a coffer dam (or equivalent) may be installed both upstream and downstream. Consideration should be given to use of bypass pumping to ensure no flooding or potential loss of containment.

   iv. Removal of drilling fluid released to high-ground will begin by appropriate equipment or hand tools immediately. If the fluid loss is widespread, the Site Supervisor may discuss the use of a vac-truck with Duke Energy Environmental staff.

   v. Due to potential adverse environmental impacts, no released material located within streams or wetlands shall be removed without prior discussion with Duke Energy Environmental support staff.

   vi. Duke Energy Environmental support staff will be responsible for any regulatory notifications.

Response Close-out Procedures

When the IR has been contained and cleaned up, response closeout activities will be conducted at the direction of the Site Supervisor and Site Environmental Inspector and shall include the following:

1. The recovered drilling fluid will either be recycled or hauled to an approved facility for disposal. Contractor shall provide Duke Energy Environmental support staff with documented proof of disposal. No recovered drilling fluids or materials will be discharged into streams, wetlands, storm drains or any other environmentally sensitive areas;
2. All spilled drilling fluid excavation and clean-up high ground sites will be returned to pre-project contours using clean fill, appropriate seeding activities, as necessary. Clean up to areas within wetlands, streams or other sensitive environmental areas will be on a site specific basis in consultation with Duke Energy Environmental support staff and regulatory agencies, if appropriate; and
3. All containment measures (wattles, straw bales, silt fences, etc.) will not be removed until the site is properly stabilized and such removal is authorized by Duke Energy Environmental support staff.

In addition to the HDD IR Documentation Form (See Appendix B) the Site Supervisor and Site Environmental Inspector shall record narrative details of drilling fluid losses or IRs in their daily log. The narratives shall include any notes or details regarding containment, characterization, cleanup or stabilization activities not otherwise captured from the HDD IR Documentation Form.

Construction Re-start

For small releases which do not reach surface waters, wetlands or other environmentally sensitive areas, drilling may continue if the release is promptly contained and cleaned up, and at least one member of the clean-up crew remains at the drilling fluid loss location throughout the remainder of the drilling of the bore.

For all other releases which impact environmentally sensitive areas, construction activities will not restart without prior approval from Duke Energy Environmental staff. IRs into environmentally sensitive areas will require at least one member of the clean-up crew to remain at the drilling fluid loss location throughout the remainder of the drilling of the bore as well as having one member track with, or slightly behind, the drilling head to observe any signs of potential releases.

Bore Abandonment

Abandonment of the bore will only be considered when all efforts to control the drilling fluid loss within the existing HDD have failed or borehole conditions have deteriorated to the extent that completing the bore is infeasible. The borehole will be completely abandoned and a new location determined. Any borehole abandonment locations will be documented and shown on any as-built documents.

The following steps will be implemented during abandonment of the borehole:

1. Determine the new location for the HDD crossing.
2. Insert casing, as necessary to remove the pilot string.
3. Pump a thick grout plug into the borehole to securely seal the abandoned borehole.

Communications During an HDD Project

Communications for routine aspects of an HDD should be between the HDD Contractor Site Supervisor and Duke Energy/Piedmont Project Manager. During IRs, the Duke Energy Environmental Support staff should be incorporated into such dialogs for guidance and concurrence on IR response actions. The Duke Energy Environmental Field Support staff will provide IR details to the Duke Energy Water Subject Matter Expert (SME) for consultation and determinations regarding regulatory notifications and response activities. The Duke Energy Water SME will consult with appropriate Duke Energy management representatives regarding verbal and/or written regulatory notifications and guidance for any response actions. Design consultant should also be integrated into the activities to benefit from experience or educational opportunities to improve or enhance HDD design or construction aspects.

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Appendix A - HDD Drilling Fluid Spill Response Items

Containment, response, and clean-up equipment will be readily available at the HDD site to assure a timely response to IRs. Equipment may include, but is not limited to:

- shovels, push brooms, squeegees, trowels, pails and/or other appropriate hand tools
- hay or straw bales, wattles and wooden stakes
- silt fence, T-bar posts, post pounders
- plastic sheeting or geotextile fabric
- sediment/silt curtains, sand bags, absorbent booms or pads
- pumps with sufficient suction & lifting heads; control & check valves and leak-free hoses
- tanks for non-potable water and/or waste mixture storage
- extra radio, cellular phone(s), batteries, flashlights, lanterns
- wetland mats for worker foot-traffic into wetlands
- wetland mats for equipment
- earth moving equipment (backhoes, dozers, skid-steers, as appropriate)
- standby generator(s), light plant, lights and towers, electrical cords
- secondary containment for all on-site mobile equipment, fuel, lube or other chemical storage containers
- vacuum truck (or on 24-hour call)
- boat with oars or outboard motor (or on 24-hour call)
- SDS sheets for all on-site materials

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Appendix B - HDD Inadvertent Release Documentation

Project Name/Number:	
Location/Address (Narrative description if necessary, project drawing #, station #, lat/long, GPS coordinates, etc.): Include County of incident	
Project type: Resource Center or Major Project?	
Site Supervisor / Contractor / Cell Phone Number:	
Reported By / Cell Phone Number:	
Release Date (mm/dd/yyyy):	
Release Time (hhmm):	
Estimated Impacted Area (Dimensions - length, width (ft) & depth (in.):	
Characterization (fluid type) and Estimated Release Volume (gallons)	
Estimated Duration of Release (min.):	
Potential or Actual Environmental Impacts (wetlands, waterbody (stream name if known), drainageways, or other areas within 100 feet of water):	
Contained To Permitted ROW? (Yes/No)	
Assessibility Requirements (4x4, equipment or worker access mats, hose length, etc):	
Proposed method of drilling fluid / waste recovery:	
Proposed waste material storage or disposal plan:	
Proposed disposal site for waste material:	
Photo Documentation (provide pre-cleanup photos of IR, upgradient, downgradient views, impact areas)	