Inadvertent Release Plan for Horizontal Directional Drilling

1. Horizontal Directional Drill

Horizontal Directional Drilling (HDD) is an alternative to conventional trenched methods and can reduce project impacts if it is done correctly. The Contractor shall take steps to prevent a release of drilling fluid or inadvertent return (IR) by assessing the risk prior to drilling practices, including front-end engineering and design to evaluate the feasibility of a proposed HDD. For the purposes of this document, the term Horizontal Directional Drill and HDD activities refers to any part of the drill process from start to finish including the pilot hole, reaming, back-reaming, and pipe pullback.

1.1 Preparation for HDD Activities

Prior to the start of HDD activities, proper planning should be completed to prepare for an immediate and efficient response should a release of drilling fluid or IR occur. Contractor personnel should participate in planning discussions to review the site and identify areas that may be impacted in the event an IR occurs, such as storm drain inlets, swales, culverts, or other adjacent, on-site, and offsite waterbody or wetland features. Sufficient equipment and materials necessary for IR response must be available on the project site and staged for immediate access along the drill path throughout HDD activities to ensure proper containment and clean up. At a minimum, the following response, containment, and clean up materials must include a vacuum truck onsite (or on call and in close proximity to site) and additional hose, compost/mulch filter sock, sand bags, and personnel to assist with response activities.

1.2 Drilling Fluid Additives

Prior to the use of any drilling fluid additives, the additive must be approved by the NiSource Environmental Group. Proposed drilling fluid additives must meet the requirements of the NSF/ANSI 60 Drinking Water Treatment Chemicals list. Additives determined likely to have a negative impact if released to the environment, either by a regulatory agency in a particular state or region or by the NiSource Environmental Group, will be restricted from use under wetlands, waterbodies or other sensitive areas.

1.3 HDD Inadvertent Return Avoidance and Contingency Plan

1.3.1 Drilling Fluid Monitoring Protocol

Drilling crews and contractor inspection personnel, which are the contractor's resources, shall be responsible for monitoring and detection of any inadvertent releases along the path of the HDD and under all streams, wetlands, or other water-bodies. The most obvious signs of a release are the visible pooling of drilling mud on the surface, a sudden decrease in mud volume returns at the entry site, or loss in drilling mud pump pressure. Drilling and inspection personnel shall monitor the path of the HDD, along with the actual drilling fluid volumes from the pumps and return flow from the borehole.

The HDD rig operator shall record the pertinent drilling conditions and continuously observe and monitor the HDD alignment for evidence of an inadvertent release. The following precautionary measures shall be implemented to avoid the potential for an inadvertent return, in the appropriate combinations, by the contractor if annular pressures are abnormally high or fluid loss is apparent and that a release may have occurred:

- Contractor's on-site personnel will immediately notify Company representative of any significant loss of drilling fluid returns at the rig or entry pit during pilot phase. Drill crews are to stop work and communicate with NRP and Engineering to find a solution to minimize the risk of a potential IR and maintain return flow;
- Dispatch experienced contractor personnel to monitor the area of the drill path;
- Decrease pump pressure;
- Decrease penetration rate;
- Temporarily cease drilling operations and shut down the pump;
- Restart pump and swab the hole to assist in sealing the release;
- With Company written approval, consider modifying the drilling fluid with a change in viscosity and/or circulation additive;
- HDD rig operator will take a sample of the drilling fluid and hold for future analysis;
- HDD operator will take steps to restore drilling fluid circulation in accordance with the HDD Plan; and
- If drilling fluid circulation is not regained, drilling may continue while inspection personnel continue to monitor for any inadvertent releases.

1.3.2 Corrective Action for an Inadvertent Release

Once surface seepage of drilling fluid is detected, the drilling crew shall take immediate corrective action. The only pressure causing the seepage to occur is the pressure from the drilling pumps. Therefore, the most immediate corrective action is to decrease the pump pressure. As soon as surface seepage is detected, the pumps should only be stopped temporarily until the response process has been initiated. Once the containment and clean-up process has begun, the drilling activities may, with Environmental Group approval, immediately resume.

In the event of an inadvertent release to the surface, the following actions shall be taken:

In general, the contractor shall:

- Contain any drilling fluid that has surfaced;
- Promptly notify Environmental Group representative and Project Manager;
- Reduce or stop circulation pressure and evaluate the circumstances leading to the release; and
- Immediately implement appropriate containment measures.
- The HDD contractor will be required to have the necessary containment and clean-up equipment on-site, at the boring location and readily available for use. At a minimum, a combination of some or all of the following material and equipment should be on site and in ample supply depending on the extent of sensitive areas:

- Compost filter socks (Required)
- Sand bags (Required)
- Vacuum truck and hoses (Required)
- Shovels (Required)
- Push brooms (Required)
- Spill sorbent pads and booms
- Straw bales (certified weed-free)
- Wood stakes
- Silt fence
- Plastic sheeting
- Corrugated plastic pipe
- Centrifugal, trash and sump pumps
- Rubber tired or wide track back hoe
- Bobcat (if needed)
- Storage tanks (if needed)
- Floating turbidity curtain (may be considered for use on large streams)
- Timber (enough to cross 50% of the wetland length need to be readily available)

Inadvertent Release in an Upland Area

If an inadvertent release occurs on the ground surface at an upland location that is inaccessible, the contractor shall:

- Ensure all reasonable measures within the limitations of current technology have been taken to re-establish circulation;
- Continue drilling utilizing a minimal amount of drilling fluid as required to penetrate the formation and/or to maintain a successful pull back; and

- Ensure the release does not migrate into a sensitive environmental area.
- After the HDD installation is complete, perform clean up per the "clean up" section of this document.

If an inadvertent release occurs in an accessible upland location, the contractor shall:

- Evaluate the amount of release to determine if containment structures are warranted and if they will effectively contain the release;
- Promptly implement the appropriate containment measures to contain and recover the release;
- If the release cannot be contained, the operator must suspend drilling operations until appropriate containment is in place; and
- Remove the fluids using either a vacuum truck or by pumping to a location where a vacuum truck is accessible.
- After the HDD installation is complete, perform clean up per the "clean up" section of this document.

Inadvertent Release in Stream, Wetland or Waterbody

If an inadvertent release occurs in an accessible waterbody or wetland location the contractor shall:

- Temporarily suspend the HDD operations and do not resume until NiSource's Natural Resource Permitting (NRP) Representative reviews and approves that the inadvertent release contingency plan has been implemented accordingly.
- Immediately notify the NRP Representative
- Allow the NRP Representative or EI to appropriately quantify the return, document its location, photograph the return, and assess the potential impact to the resource(s),
- With the assistance of the on-site Environmental Inspector or NRP Representative, evaluate the amount of release to determine if containment structures are warranted and if they will effectively contain the release;
- Under the guidance of the on-site EI or NRP Representative, promptly implement appropriate containment measures to contain and recover the release;
- Efforts to contain and recover may result in further disturbance by equipment and personnel and possibly offset the benefit gained in the removal of the release;
- If the amount of release is too small to allow the practical collection from the affected area, the release may be diluted with fresh water or allowed to dry and dissipate naturally;
- Remove the release with a vacuum truck or by pumping to a location where a vacuum truck is accessible;
- In certain situations, a release point can serve as a relief hole where the release is isolated to a specific area and contained. Relief holes are typically used to relieve excess pressure down hole to further reduce the risks of additional inadvertent release. This may include installing pressure relief wells to minimize the impacts of an uncontrolled release. NRP must approve any proposed relief holes and/ or relief wells in streams or wetlands. NRP approval of the location and all conditions necessary to construct relief holes will ensure the proper management of drilling fluids is maintained and environmental impacts are minimized, ensuring that any drill fluid entering these locations will be removed immediately and not allowed to accumulate.

- If the Inadvertent release contingency plan is being deployed accordingly with actions being taken to properly contain and remove the initial release as well as additional releases at this location once the bore continues, the HDD process can resume only with NRP approval.
- NiSource's NRP Representative will notify the appropriate regulating agencies.
    - Ohio EPA's Spill Hotline (1-800-282-9378)
- In the event of any of the following conditions, the HDD process cannot resume without approval from the USACE, state agency, and if applicable, the land management agency where the release is taking place:
    - The release cannot be immediately contained,
    - Is within high quality aquatic resources or stream,
    - Impacts government managed lands.
- After the HDD is complete, perform clean up per the "clean up" section of this document.

If an inadvertent release occurs in an inaccessible waterbody (such as a large stream or river) or wetland location the contractor shall:

- STOP work.
- Immediately notify the NRP Representative and wait for guidance from the Environmental Group before proceeding with bore activities;
- The NRP Representative will attempt to obtain direction from the appropriate regulating agencies to proceed under a specified plan.
- Once further guidance from NRP has been received, proceed as directed.

1.3.3 Containment of Drilling Fluid Release

Immediately following detection of an inadvertent release, the containment and clean-up operations shall take place. For releases on land, the contractor shall use straw bales, silt fence or compost filter sock, sand bags, and earth berms to prevent fluid from migrating or flowing from the immediate area. If the volume released is too small for containment measures or, if the release occurs in an environmentally sensitive area where the release containments may cause additional damage, the method of removal will be determined by the NRP Representative.

If there is a threat to a sensitive resource or to public safety, HDD drilling activities shall cease immediately until a plan to proceed is agreed upon.

In cases where the inadvertent release is within open water or flooded wetlands, it may be impractical or impossible to contain and remove the release. The contractor should attempt to remove the surface release using a wand (i.e. a perforated plastic pipe attached to a suction hose). Methods and measures taken in these instances shall be at the direction of the NRP Representative.

Clean-Up

Clean-up shall commence after the release is contained. Clean-up shall include removal of all visible drilling fluids located in the accessible area. Removal methods will vary based on the volume of the release and site conditions. Removal may include vacuum trucks, loader and track hoe buckets, small pumps, shovels and buckets. If the release occurs in a sensitive area, the

method of removal will be determined by the Company representative. Mechanized equipment shall not enter any sensitive area without the NRP representative first receiving prior approval from a permitting agency, with the exception of an event that poses a threat to public health or safety.

Potential for secondary impacts from the clean-up activities shall be evaluated and weighed against the proposed cleanup activities. The following clean-up measures are considered appropriate:

- Releases will be cleaned up by hand using shovels, buckets, and soft bristled brooms to minimize damage to existing vegetation;
- Fresh water washes may be employed if deemed beneficial and feasible by NRP Representative;
- Containment structures will be pumped out and the ground surface scraped to minimize loss of topsoil or damage to adjacent vegetation;
- Small collection pumps may be necessary to remove released fluids;
- Vacuum trucks may be used to collect and remove drilling fluids as needed;
- Recovered materials will be collected in appropriately labeled containers for temporary storage prior to removal from site;
- Recovered drilling fluid will be recycled or disposed of at an approved upland location or disposal facility. No recovered drilling fluid will be disposed of in streams, aquatic resources or storm drains;

All containment structures will be removed.

1.4 Disposal of Drilling Fluid

Disposal of drilling fluid will follow the guidance outlined in Section 4, Spoils Management.

2. Spoils Management

The contractor is responsible for the proper management of spoils from the project site in accordance with federal, state and local regulations. There are various requirements for managing spoils material in different states, and the contractor is expected to understand and follow those requirements.

If the contractor manages spoils on-site, the contractor is responsible to ensure the on-site management process meets all federal, state, and local requirements. Additionally, if the contractor removes spoils from a site, the contractor is responsible for ensuring the disposal site, and, where applicable, the transporter, meets all federal, state, and local requirements.

NiSource will require project-specific information regarding where any spoils might be disposed of and may investigate those contractor-selected spoils management sites for compliance with federal, state, and local requirements. NiSource may disapprove a site based on its failure to meet a federal, state, or local requirement, but NiSource does not certify compliance or provide approval for any contractor-selected spoils management site.

If unanticipated soil conditions are encountered, in which the excavation material may appear to be impacted (i.e. suspicious appearance or smell), the contractor is required to call the NiSource

Environmental Response hotline at (219) 648-4434 immediately before proceeding with work. The NiSource Environmental Group will determine how to manage the impacted spoils to ensure that the contractor follows all federal, state, and local requirements.