

**Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000**

**Implementation Plan
February 2018 Supplement**

**Attachment IP-23b
(updated February 15, 2018)**



**HORIZONTAL DIRECTIONAL DRILLING (HDD)
CONTINGENCY PLAN
PITTSYLVANIA COUNTY, VIRGINIA**

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February 2018 updates in yellow

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ACRONYMS AND DEFINITIONS

FERC	Federal Energy Regulatory Commission
HDD	Horizontal Directional Drilling
IR	inadvertent release
MVP	Mountain Valley Pipeline, LLC
Project	Mountain Valley Pipeline Project

PROJECT NARRATIVE

Horizontal Directional Drilling (HDD) is a trenchless excavation method that is accomplished in three phases. The first phase consists of drilling a small diameter pilot hole along a designed directional path. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe. The third phase consists of pulling the pipe into the enlarged hole. HDD is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment. A properly executed HDD crossing will allow for the pipeline to be installed in a minimally invasive manner.

HDD is proposed for the Mountain Valley Pipeline (MVP) Project crossing of the Pigg River in Pittsylvania County, Virginia.

The inadvertent release (IR) of drilling lubricant is a potential concern when HDD methods are utilized. The HDD procedure for this crossing will utilize Bentonite for Drilling Lubricant. In general, IRs can occur as a result of existing rock fractures, low density soils, or unconsolidated geology. There is a potential for inadvertent returns to directly impact surface and ground waters via existing or enhanced fracture zones or if there is a release upland which flows over ground into wetlands or streams.

In accordance with MVP's Water Resources Identification and Testing Plan, private water resources (wells and springs) were identified within 150 feet in non-karst areas, and within 500 feet in karst areas, of MVP work spaces. Private water supply resources were identified during route alignment civil surveys along the Project corridor, as well as through desktop review and field observation (where property access was granted). Where necessary, additional desktop review procedures were used to identify private wells and springs. Landowner notification letters have also been sent to request approval for testing of private water supplies.

Specifically regarding the Pigg River HDD, one existing private water well supply was located and sampled to date adjacent to the Pigg River HDD. There are no public water supplies in the vicinity of the Pigg River HDD crossing.

As noted in the Final Environmental Impact Statement issued by the FERC on June 23, 2017, no public water supplies are located within 3 miles of the proposed Pigg River HDD activities near Project milepost 290.0.

PURPOSE

The purpose of this Contingency Plan is to:

- Minimize the potential for an IR associated with horizontal directional drilling activities.
- Provide for the timely detection of an IR.
- Protect areas that are considered environmentally sensitive (streams, wetlands, other biological resources, cultural resources).
- Provide an organized, timely, and "minimum-impact" response in the event of an IR.
- Provide that all appropriate notifications are made to the Virginia Department of Environmental Quality and other appropriate regulatory agencies, and that documentation is completed.
- Provide an alternative crossing method if the HDD is deemed unsuccessful.

PREPARATION

Prior to implementation of the HDD, MVP and the contractor shall identify the potential for inadvertent releases at the HDD location. The review shall include a visual review of entry and exit points, and entire HDD drill path. The contractor shall review the RK&K Geotechnical HDD Data Report Pigg River Pipeline Crossing (October 16, 2016) reports, which may include descriptions of subsurface conditions, laboratory testing, design recommendations, and construction recommendations.

In addition, private water supplies within 150 feet, if identified, will be protected by implementing the following measures:

- The drilling contractor shall review the site conditions prior to the start of work.
- Construction limits will be clearly marked.
- Barriers (18" Fabric Filter Fence or Compost Filter Sock, as per the on-site inspector) will be erected between the bore site and nearby sensitive resources prior to drilling.
- On-site briefings will be conducted for the workers to identify and locate sensitive resources at the site.
- Provide that all field personnel understand their responsibility for timely reporting of IR's.
- Maintaining necessary response equipment on-site and in good working order.

The primary areas of concern for IR's occur at the entrance and exit points where the drilling equipment is generally at their shallowest depths. The likelihood of an IR decreases as the depth of the pipe increases.

To minimize the potential extent of impacts from an IR, HDD operations will be continuously monitored to look for observable IR conditions or lowered pressure readings on the drilling equipment. Early detection is essential to minimizing the area of potential impact.

There are no known active, inactive, or abandoned oil or gas wells within 500 feet of the HDD alignment (Virginia Department of Mines, Minerals and Energy. 2017. Division of Gas and Oil Data Information System. Available at: <https://www.dmme.virginia.gov/dgo inquiry/frmmain.aspx>).

The contractor will install an above ground wire tracking system such as "Tru-Track" or similar. A small path will be hand cut to allow the wire system to be in contact with the ground.

TRAINING

Prior to the start of construction, the Site Supervisor/Foreman shall ensure that the crew members receive training on the following:

- The provisions of this Contingency Plan.
- Inspection procedures for IR prevention and containment equipment materials.
- Contractor/crew obligation to immediately stop the drilling operation upon first evidence of the occurrence of an IR and to immediately report any IRs to EQT's Environmental Inspector and Environmental Coordinator.
- Contractor/crew member responsibilities in the event of an IR.
- Operation of release prevention and control equipment and the location of release control materials, as necessary and appropriate.
- Protocols for communication with agency representatives who might be on site during the clean-up effort.
- Copies of this contingency plan and the contractor's site specific contingency plan will be maintained at the HDD entry and exit sites in a visible and accessible location at all times.

EQUIPMENT

The Site Supervisor shall verify that:

- All equipment and vehicles are inspected and maintained daily to prevent leaks of hazardous materials.
- Spill kits and spill containment materials are available on-site at all times and that the equipment is in good working order.
- Equipment required to contain and clean up an IR is available at the bore sites during drilling activities.

*Note: It is the drilling contractor's responsibility to provide any IR containment materials that are necessary to respond to the release of drill fluids. The materials listed in this contingency plan are not to be considered inclusive and may require additional equipment depending on site conditions.

DRILLING PROCEDURES

Drilling pressures shall be closely monitored so they do not exceed those needed to penetrate the formation. Pressure levels shall be monitored continuously by the operator. Pressure levels shall be set at a minimum level to reduce the risk of IRs. During the pilot bore, maintain the drilled annulus. Cutters and reamers will be pulled back into previously drilled sections after each joint of pipe is added.

Entry and exit pits shall be enclosed by 18" Fabric Filter Fence or Compost Filter Sock and straw bales. A spill kit shall be on-site and used if an IR occurs. Except as noted below, a vacuum truck shall be readily available on-site prior to and during all drilling operations. Per Mountain Valley's Spill Prevention, Control, and Countermeasure plan, containment materials (straw, fabric filter fence, sand bags, spill kits, boom and turbidity curtain, etc.) shall be staged on-site at a location where they are readily available and easily mobilized for immediate use in the event of an IR. Filter Fence or Filter Sock will be installed between the bore sites and the edge of water sources prior to drilling.

*NOTE: If the site of the IR is not able to be accessed by a vacuum truck, a pump with sufficient power to convey the released drill fluid to a containment area will be used instead. Along with the pump, an adequate amount of hose, several filter bags, straw bales, sand bags, and 18" Fabric Filter Fence (or Compost Filter Sock) will be kept on site to create a containment area on site.

Once the drill rig is in place and drilling begins, the drill operator shall stop work immediately whenever the pressure in the drill rig drops or there is a lack of returns in the entrance pit. At this time the Site Supervisor/Foreman shall be informed of the potential IR. The Site Supervisor/Foreman and the drill rig operator(s) shall work to coordinate the likely location of the IR. The location shall be recorded and notes made on the location and measures taken to address the concern. Measures will then be taken according to the type of IR (i.e. Terrestrial or Aquatic) as listed below. The Site Supervisor/Foreman will then begin notifying the appropriate parties as listed in the "Contacts" section of this document.

For the Pigg River HDD, the water for drilling is expected to be sourced from the City of Gretna's water department. Water containing mud, silt, drilling fluid, or other materials from equipment washing or other activities, shall not be allowed to enter a lake, flowing stream, or any other water source. The bentonite used in the drilling process shall be either disposed of at an approved disposal facility or recycled in an approved manner. Other construction materials and wastes shall be recycled, or disposed of, as appropriate.

TERRESTRIAL IR PROCEDURES

- Stop work immediately.
- The bore stem will be pulled back to relieve pressure on the IR.
- Isolate the area with hay bales, sand bags, filter sock, or silt fencing to surround and contain the drilling mud.
- Determine and document the following to the extent reasonably possible:
 - o Quantity (gallons) of material released
 - o Distance (feet) to the nearest waterbody
 - o Name of the waterbody affected, if any
- Immediately contact the appropriate parties as listed in the “Required Notifications” section at the end of this document.
- A mobile vacuum truck (or pump if in an inaccessible area) will be used to pump the drilling mud from the contained area and into either a return pit or (if using a pump) into a filter bag surrounded by 18” Fabric Filter Fence or Compost Filter Sock.
- Once excess drilling mud is removed, the area will be seeded and/or replanted using species similar to those in the adjacent area, or allowed to re-grow from existing vegetation.
- When there is no visible indication of flow at the IR location, the IR will be considered stabilized.

After the IR is stabilized, document the IR from discovery through post-cleanup conditions with photographs and prepare an IR incident report describing time, place, actions taken to remediate IR, and measures implemented to prevent recurrence. The incident report will be provided to the MVP Environmental Coordinator within 24 hours of the occurrence.

AQUATIC (UNDER WATER) IR PROCEDURES

- Stop work immediately.
- The bore stem will be pulled back to relieve pressure on the IR.
- Isolate the area with hay bales, sand bags (cofferdam), plastic sheeting, filter sock, silt fence or other appropriate containment structure to surround and contain the IR;
- Immediately contact the appropriate parties as listed in the “Required Notifications” section at the end of this document.
- Utilize clean water pumps to establish a pump around to convey upstream flow around the IR;
- Turbidity curtains may be deployed (depending on site conditions at time of IR);
- Determine and document the following to the extent reasonably possible:
 - o Quantity (gallons) of the IR
 - o Quantity (gallons) that was released to the waterbody
 - o Distance (feet) the material traveled down the waterbody
 - o Name of the affected waterbody
- A mobile vacuum truck (or pump if in an inaccessible area) will be used to pump the drilling mud from the contained area and into either a return pit or (if using a pump) into a filter bag surrounded by 18” Fabric Filter Fence or Compost Filter Sock.
- Drilling mud will be collected and typically recycled through the drilling mud reclaimer, reused or disposed of at a licensed disposal facility.
- When there is no visible indication of flow at the IR location, the IR will be considered stabilized.

After the IR is stabilized, document the IR from discovery through post-cleanup conditions with photographs and prepare an IR incident report describing time, place, actions taken to remediate IR, and measures implemented to prevent recurrence. The incident report will be provided to the MVP Environmental Coordinator within 24 hours of the occurrence.

POTENTIAL PRIVATE WATER SUPPLY IMPACTS

If an IR impacts a private drinking water supply, MVP will supply temporary drinking water supply in accordance with MVP's Water Resources Identification and Testing Plan (Water Resources Plan) immediately after the problem is discovered. The temporary water would be supplied until testing confirms that the water quality of the water supply returns to baseline. Additional long-term measures will be employed in accordance with the Water Resources Plan if necessary, including the installation of permanent treatment, connection to a secondary water source, or establishment of a new on-site source.

ABANDONMENT AND ALTERNATIVE CROSSINGS

MVP will provide on-site inspection during the HDD process to maintain adequate daily progress reports, as-built information, and other applicable construction documentation that will describe the events leading up to an HDD failure. HDD failures include: Pilot hole failure, reaming failure, pull back failure or uncontrollable inadvertent returns. The failure data will be evaluated by MVP and the HDD contractor to determine the next course of action. If the HDD installation is unsuccessful and MVP determines abandonment of the HDD is necessary, MVP's proposed alternative is to use the contingency plan. The contingency plan includes implementation of an open cut dry ditch crossing method. This alternative crossing method would require FERC and other environmental permitting approvals.

REQUIRED NOTIFICATIONS

In the event of an IR, the following parties are to be notified IMMEDIATELY:

MVP Environmental Department:

Mr. Brian Clauto

Senior Environmental Coordinator
724-873-3465 (office)
412-295-4184 (cell)

Ms. Megan Stahl

Environmental Permitting - Supervisor
412-553-7783 (office)
412-737-2587 (cell)

Mr. John Centofanti

Corporate Director - Environmental Affairs
412-395-3305 (office)
412-417-3729 (cell)

Agencies:

Mr. Paul Friedman

FERC Project Manager
(202) 502-8059 (office)

Ms. Gertrude Fernandez Johnson

FERC Compliance Manger
(202) 502-6692 (office)

Virginia Department of Environmental Quality

- after hours, weekends, holidays
 - 800-468-8892 (from VA only)
 - 804-674-2400
- 804-698-4000 (DEQ Central Office during normal business hours)

Include the following information:

- Time the spill was first identified
- Description of where the spill occurred – Project MP/Station
- Latitude and Longitude of spill
- Size of spill and control measures in place
- Name of affected water resource (if known/applicable)
- Photographs of spill area and corrective measures – when available. (Do not wait to notify MVP until pictures are available. Photo documentation should begin immediately upon detection and continued throughout the duration of the cleanup).

The MVP Environmental Department will contact State and/or Federal environmental agencies (if applicable) for notification requirements in the event of an IR.

REFERENCES

This Contingency Plan was adapted from the following websites:

<http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/cfodocs/greencore.Par.0871.File.dat/P ODappH.pdf>

<https://www.csx.com/index.cfm/library/files/customers/property-real-estate/permitting/sample-fraction-mitigation-plan/>

http://www.energy.ca.gov/sitingcases/smud/documents/applicants_files/Data_Response_Set-1Q/APPENDIX_C_FRAC_OUT_PLAN3.PDF