



**DIRECT BORE
INADVERTENT RETURN PLAN**

Submitted by:

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ACRONYMS AND DEFINITIONS

DB	Direct Bore
ECDs	Environmental Control Device
FERC	Federal Energy Regulatory Commission
IR	inadvertent return
Mountain Valley	Mountain Valley Pipeline, LLC
Project	Mountain Valley Pipeline Project
VSIR	Visual Site Inspection Report VSIR

PURPOSE

The purpose of this Inadvertent Return Plan is to:

- Minimize the potential for an inadvertent return (IR) associated with direct boring (DB) 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 West Virginia Department of Environmental Protection, Mountain Valley Pipeline, LLC (Mountain Valley), and other appropriate regulatory agencies, and that documentation is completed.

PREPARATION

Prior to implementation of the DB, Mountain Valley and the contractor shall identify the potential for inadvertent returns at the DB location. The review shall include a visual review of entry and exit points, and if accessible, stream bed composition (bedrock or alluvial deposits). The contractor shall review the available geotechnical reports, which may include descriptions of subsurface conditions, laboratory testing, design recommendations, and construction recommendations.

In addition, private water supplies within 150 feet, sensitive cultural and biological resources will be protected by implementing the following measures:

- The boring contractor shall review the site conditions prior to the start of work. The execution of DB operations and actions for detecting and controlling drilling fluid seepage are the responsibility of the boring contractor.
- Using approved drilling mud additives to promote sealing of the bore walls and decrease IR risk.
- Construction limits will be clearly marked.
- Environmental Control Devices (ECDs) will be erected between the bore site and nearby sensitive resources prior to drilling to prevent released material from reaching the resource.
- 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, DB 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.

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 Inadvertent Return 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 at the ground surface or within the water body and to immediately report any IRs to Mountain Valley's 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 cleanup effort.
- Copies of this inadvertent return plan and the contractor's site specific inadvertent return plan will be maintained at the bore site 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 for hydrocarbon leaks and spills are available on-site at all times and in good working order.
- Equipment required to contain and clean up an IR is available at the bore site during drilling activities.

*Note: It is the boring 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 inadvertent return plan are not to be considered inclusive and may require additional equipment depending on-site conditions.

BORING PROCEDURES

Drilling fluid 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 prevent IRs.

Entry and exit pits shall be enclosed by ECDs as appropriate. Safety fence will be utilized around bore pits to maximize worker safety. A spill kit shall be on-site and used if an IR occurs. Except as noted below, a vacuum truck and/or pumps shall be readily available on-site prior to and during all boring operations. 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 site and the edge of water sources prior to boring.

*NOTE: If a vacuum truck is not utilized, 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 bore rig is in place and boring begins, the operator shall continuously monitor drilling fluid pressure and return rate. Should drilling fluid pressure or return rate fluctuate, indicating the possibility of an IR, the bore operator will notify the site supervisor/foreman of a possible IR. At this time the Site Supervisor/Foreman shall be informed of the potential IR. The Site Supervisor/Foreman, Environmental Inspector (EI) and the bore rig operator(s) shall work to coordinate continuous visual inspections of the ground and surface waters to identify if any IRs have occurred. Continued monitoring will take place until either an IR is found, drilling fluid pressures and return rates stabilize and/or the bore is completed. If any IRs are located, the location shall be recorded, notes made on the location, and containment 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.

Water containing mud, silt, drilling fluid, or other pollutants 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 boring 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.

INADVERTENT RETURNS (IR) PROCEDURES

In the event of an IR, Mountain Valley's Project PM, Environmental Inspector, Chief (i.e. whoever is on-site) is required to IMMEDIATELY notify the Project's **Mountain Valley Environmental Coordinator (Mr. Matthew Hoover,)** with the following information: What occurred; Where it occurred (Terrestrial or Aquatic); When it occurred; Who was responsible; and Quantity released. Other individuals on-site are required to immediately, if safe to do so, contain the IR and begin cleaning up the material.

TERRESTRIAL IR PROCEDURES

- Stop pumping drilling fluids and evaluate.
- Contractor and Mountain Valley representative will determine what continued operations are necessary to protect the integrity of the bore hole during IR cleanup operations
- If necessary, 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:
 - Quantity (gallons) of material released
 - Distance (feet) to the nearest waterbody
 - Name of the waterbody affected, if any
- Contact the appropriate parties as listed in the "Required Notifications" section at the end of this document.
- A mobile vacuum truck (or pump) will be used to pump the drilling mud from the contained area and into either a return pit, the recirculation equipment, or hauled off and disposed of at an approved facility.
- Once excess drilling mud is removed, the area will be seeded and/or replanted using the approved seeding and restoration plans.
- When there is no visible indication of flow at the IR location or the IR is controlled during further boring operations, the IR will be considered stabilized. IRs are considered controlled when the IR location can be contained with no further environmental impact but may continue to show drilling fluid returns during the remaining boring operations.

After the IR is stabilized, document the IR from discovery through post-cleanup conditions with photographs and prepare a Visual Site Inspection Report (VSIR) describing time, place, actions taken to remediate IR, and measures implemented to prevent recurrence. The incident report will be provided to the Mountain Valley Environmental Coordinator within 24 hours of the occurrence.

AQUATIC (UNDER WATER) IR PROCEDURES

- Stop pumping drilling fluids and evaluate.
- Contractor and Mountain Valley representative will determine what continued operations are necessary to protect the integrity of the bore hole during IR cleanup operations .
- Contact the appropriate parties as listed in the "Required Notifications" section at the end of this document.
- If necessary, 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;
- If practicable, 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:
 - Quantity (gallons) of the IR
 - Quantity (gallons) that was released

- Distance (feet) the material traveled down stream
 - Name of affected waterbody
- A mobile vacuum truck (or pump) will be used to pump the drilling mud from the contained area and into either a return pit or (if using a pump) the recirculation equipment, or hauled off and disposed of at an approved facility.
 - If the IR affects an area that is vegetated, 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 or the IR is controlled during further drilling operations, the IR will be considered stabilized. IRs are considered controlled when the IR location can be contained with no further environmental impact but may continue to show drilling fluid returns during the remaining drilling operations. .

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 Mountain Valley Environmental Coordinator within 24 hours of the occurrence.

POTENTIAL PRIVATE WATER SUPPLY IMPACTS

If an IR impacts a private drinking water supply, Mountain Valley will supply temporary drinking water supply in accordance with Mountain Valley’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 is similar to pre-existing conditions. 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

If the bore is unsuccessful at any proposed location, Mountain Valley’s Direct Bore Contingency Plan will be implemented, which proposes to use an open-cut dry ditch methodology. A cofferdam structure would be used to create a safe workable area while the trench is excavated, pipe is installed, and the area is restored. Implementation of the DB Inadvertent Return Plan will require permitting approvals to be secured before action is taken.

REQUIRED NOTIFICATIONS

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

Mountain Valley Environmental Department:

Mr. Matthew Hoover

Senior Environmental Coordinator

If Mr. Hoover is unavailable, one of the following representatives can be contacted:

Ms. Megan Neylon

Environmental Permitting Supervisor

Ms. Hanna McCoy

Corporate Director – Environmental Affairs

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 Mountain Valley until pictures are available. Photo documentation should begin immediately upon detection and continued throughout the duration of the cleanup).

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

REFERENCES

This Inadvertent Return Plan was adapted from the following websites:

<http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/cfodocs/greencore.Par.0871.File.dat/PODappH.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/applicantsfiles/DataResponseSet-1Q/APPENDIXCFRACOUTPLAN3.PDF>