

Appendix K

Guardian's Horizontal Direction Drill Contingency Plan for Indavertent Release of Drilling Fluid

Guardian Pipeline Expansion and Extension Project
Resource Report 2 - Appendix 2D
Contingency Plan for Inadvertent Release of Drilling Fluid During
Horizontal Directional Drilled Waterbody Crossings

1.0 INTRODUCTION

This directional drill contingency plan provides specific procedures and steps to contain inadvertent releases of drilling mud for various waterbodies crossed using horizontal directional drilling techniques. While waterway crossings vary substantially in installation depth, current profile data indicates minimum depths of cover of over 30 feet. Pipe used for the crossing of the Rock River will be 30-inch O.D. x 0.500-inch wall, grade X-70. Pipe used for the crossing of the Fox River will be 20-inch O.D. x 0.375 inch wall, grade X-60.

Elements of this plan include:

- Monitoring and Sampling Procedures;
- Notification Procedures;
- Corrective Action and Cleanup; and
- Abandonment.

2.0 MONITORING AND SAMPLING PROCEDURES

The Environmental Inspector(s) and construction personnel will continuously monitor operations during drilling activities. Monitoring will include:

- Inspection along the drill path, including monitoring the waterbody for evidence of a release.
- Continuous examination of drilling fluid pressures and returns flows.
- The drilling operator will provide information regarding drilling conditions to the Environmental Inspector(s) during the course of drilling activities.

- In the case of an in-stream release, monitoring may include an inspection by boat to determine plume movement within the waterbody.
- If an in-stream release occurs, the Environmental Inspector(s) will collect drilling fluid returns at the borehole entry location for future analysis, as required.
- Monitoring will be documented by the Environmental Inspector(s). Guardian will keep photographs of release events on record.

3.0 NOTIFICATION PROCEDURES

If in the course of an inspection an inadvertent release is discovered, steps will be taken by construction personnel to contain the release as described below in the Corrective Action and Cleanup section (Section 4.0). Notification procedures of Guardian construction management personnel and regulatory agencies are detailed in this section.

If monitoring indicates an in-stream release is occurring, the Environmental Inspector(s) will immediately notify Guardian's construction management personnel.

Guardian will notify the Federal Energy Regulatory Commission (FERC) as soon as possible by telephone and facsimile of an in-stream release event, detailing the nature of the release and corrective actions being taken. FERC will determine whether additional measures need to be implemented. If it is determined that the release can not be remedied without causing additional environmental impact, Guardian will request FERC to allow the drilling operations to continue.

If a release occurs that may migrate downstream and affect water quality, downstream water users will be contacted by Guardian. The contacts and telephone numbers of downstream users will be assimilated prior to commencement of construction, and maintained on-site.

4.0 CORRECTIVE ACTION AND CLEANUP

By monitoring drilling operations continuously, Guardian intends to correct problems before they occur. However, if a release does occur, the following measures will be implemented to stop or minimize the release and to clean it up:

- The drilling contractor will decide what modifications to make to the drilling technique or composition of drilling fluid (*i.e.*, thickening of fluid by increasing bentonite content) to reduce or stop minor losses of drilling fluid.
- If a minor bore path void is encountered during drilling, making a slight change in the direction of the bore path may avoid loss of circulation.
- If the borehead becomes lodged resulting in loss of drilling pressure, the borehole may be sized by moving the borehead back and forth to dislodge the stuck materials.
- If a release occurs within the waterbody, FERC will be contacted as soon as possible by Guardian. Guardian will inform FERC about any threat to public health and safety and explain whether or not the release can be corrected without incurring additional environmental impact. If necessary, drilling operations will be reduced or suspended to assess the extent of the release and to implement corrective actions.
- If public health and safety are threatened, drilling fluid circulation pumps will be turned off. This measure will be taken as a last resort because of the potential for drill hole collapse resulting from loss of down-hole pressure.
- If monitoring indicates that the intake water quality at downstream user locations is impacted to the extent that it is no longer suitable for treatment, alternative water sources (*i.e.*, trucked or bottled water) will be provided to impacted users.

Land Release:

- If a land release is detected, the drilling crew will take immediate corrective action to contain the release and to prevent migration off-site.
- The contractor will construct pits and berms around the release area to contain inadvertent releases. .
- Any drilling mud released will be pumped by contractor personnel into a mud-processing unit for recycling of drilling fluid and separation of cuttings.

- Additional berms will be constructed around the release areas as directed by the Environmental Inspector(s) to prevent release materials from flowing into the waterbody or wetlands.
- Containment equipment including earth moving equipment, portable pumps, hand tools, sand, hay bales, silt fencing, and lumber will be readily available and stored at the drilling site.
- If the amount of an on-land release does not allow practical collection, the affected area will be diluted with fresh water and allowed to dry. Steps will be taken (such as berm, silt fence and/or hay bale installation) to prevent silt-laden water from flowing into the waterbody.
- If hand tools cannot contain a small on-land release, small collection sumps (less than 5 cubic yards) may be constructed to pump the release material into the mud processing system.

5.0 ABANDONMENT

If corrective actions do not prevent or control releases from occurring into the waterbody, Guardian may opt to re-drill the hole along a different alignment or suspend the project altogether. In either case, the following procedures will be implemented to abandon the drill hole.

- The method for sealing the abandoned drill hole is to pump thickened drilling fluid into the hole as the drill assembly is extracted, and using cement grout to make a cap.
- Closer to the surface (within approximately 10 feet of the surface), a soil cap will be installed by filling with soil extracted during construction of the pit and berms.
- The borehole entry location will be graded and seeded by the contractor to its original grade and condition after the drill hole has been abandoned.